Factors Causing Less Student-Teacher Interaction in Virtual Classrooms and Video Conferencing in Distance Learning: A Review

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Abstract — As the Covid-19 epidemic forced people to stay in their homes, the field of education faced a major problem of conducting classes according to the same educational style. Although distance learning provided the first solution, it could not replace physical education methods. Synchronous distance learning is the most used and effective method, with video conferencing and virtual classes taking precedence. A survey was conducted to identify issues of effective interaction between students and lecturers with the participation of 243 individuals, including lecturers and students. Feedback reveals how lecturers and students experience systems and how satisfied they are. Both parties have a positive feedback average on the use of such systems. The research is concluded by proposing to develop additional features in current online learning platforms.

Keywords: Synchronous distance learning, distance learning systems, student-lecturer interaction, video conferencing, virtual classrooms.

I. INTRODUCTION

With the advent of the Covid-19 epidemic, people had to restrict behavior in their homes. In every part of the world where the epidemic is rampant, unfortunately, the number of human activities per day has dropped. Education took a large part of it as teachers and students could not meet face to face in the classroom for effective education. In this situation, distance learning comes to the point of meeting the need for education. Distance learning is a way of educating students online. Lectures, learning materials, assignments, and activities are posted online. Students are more likely to receive education from home than to attend physical classrooms. Distance learning methods can be divided into two main categories, synchronous distance learning, and asynchronous distance learning.

Synchronous distance learning - The meaning of the phrase "at the same time" is very well explained in the term synchronous distance learning. This means providing education while it is going on. This is necessary for the live communication of the Internet and technology. Examples of this method are video conferences, live chats, live discussions, and virtual classrooms. In synchronous distance learning, students must meet with their instructors, lecturers, and teachers at the same time as scheduled. Considering several aspects such as technical issues and students who love asynchronous classrooms, this approach takes the disadvantage of limiting some students to their own ability to learn fast. Synchronous distance learning depends on the quality of the lecturer and how the lecturer interacts with students. Some students may feel that they are not getting enough attention during lectures. Also, students may not have access to the content when they like or need it. If they missed the schedule, they would have to decide that they missed it. Lecturers can receive immediate feedback.

Asynchronous distance learning - The opposite side of synchronous distance learning. Students do not need to attend classrooms "at the same time". They receive a cluster of works daily, weekly, or monthly for a specified period, including due dates. They can learn at their own place and take advantage of self-learning mechanisms. Students have access to the syllabus content beyond the designated sync classroom. Online conversations, quizzes, games, pre-recorded videos or webinars, tutorials, and blogs are asynchronous distance learning methods. Since the asynchronous distance learning method is a more learner-

centered approach, students can complete their course content in their own time and regardless of location. But as disadvantages, the contact course content in their own time and regardless of location. But as disadvantages, the contact between lecturer and students may be limited. This causes the students to leave if they feel isolated during learning periods. That means in asynchronous distance learning students need to be self-disciplined and motivated to complete their contents.

Considering both distance learning methods, both methods have advantages and disadvantages. Between them, synchronous distance learning is the most used distance learning method in the Covid-19 epidemic situation. In AACSB quick-take survey on COVID-19 which took a survey by covering major regions which are Oceania, Middle East, USA, Africa, and Canada for discussing how far those regions converted their education mechanism and by which methods. This survey showed that 79% of respondents had converted face-to-face courses to online or virtual formats that mean synchronous distance learning methods and the rest of them which is 21% of respondents had converted their face-to-face courses to online courses that mean asynchronous distance learning. Although distance learning helps to solve the major problem which is the inability of maintaining face-to-face physical classrooms, it could not complete the authentic experience and efficiency of a physical classroom. This is due to the lack of important features such as enhanced student-lecturer interaction, task monitoring mechanism, real-time student activity monitoring mechanism, methods of improving attendance, and generating reports for further analysis to understand student active participation.

As a lecturer, he/she always faces the problem of keeping students' attention and active participation in lecturing in synchronous distance learning systems. This happens when using virtual classrooms and video conferencing. Sometimes, students attend but they do not sit in front of the computer. Students turn off their mics and cameras and go to sleep or do something else that is not related to the subject. This problem causes many lecturers to be frustrated that they are not able to conduct their studies like physical lectures. Given the current situation, we will have to live with the Covid-19 epidemic for many years. But education should not fall, it should be conducted physically and effectively. Therefore, it is important to address the problems that exist in synchronous distance learning systems when considering those needs and the future of students.

II. LITERATURE REVIEW

Since online distance learning comes as a trending technology for solving learning problems which were occurred during the Covid-19 epidemic, teachers and students tended to use a bunch of e-learning applications which are Microsoft teams, Zoom meetings, Cisco WebEx, Google Meet, GoToMeeting, and join.me. Each of them has unique features that are helping for distance learning.

Using Moodle, Microsoft Teams, and Zoom Platform has a huge positive impact on student self-study. For some academic achievements, it was very effectively linked. Moodle, Microsoft Teams, and Zoom platforms greatly influence student activities such as creating visual presentations, presenting papers, and viewing topics for their assignments. The researcher researched by activating Moodle, Microsoft Teams, and Zoom platforms at Jordan University. In activism, students express their motivation for self-employment. Moodle, Microsoft Teams, or Zoom platforms can be used as full-time, part-time, or traditional learning methods, so they are ready to receive additional educational material through those platforms. It also has a huge impact on students' friendships and attitudes about positive self-esteem. Those platforms motivate students to focus and learn independently. (Jehad, Raja, Elham, Haifa and Hussam, 2020)

When analyzing the effectiveness productivity of Google Classroom, by considering the message recipients, it is consistent with the expected recipients. The lecturer publishes information directly on the accounts of students who are involved in the learning process. Considering the effectiveness and effectiveness of the content, the lecturers need more information and clarification about the information published in

Google Classroom. Not every student was able to understand at first reading, they just wanted to comment and ask for a better understanding. Considering the effectiveness and effectiveness of the communication medium, not every student can take advantage of the Google classroom, as students with technical problems such as internet connection may not have adequate hardware requirements for smartphones or laptops and computer literacy. (Nur, Wa, Fahmi and Mohd, 2019)

WebEx allows students to send face-to-face, PowerPoint environments, and text messages. Shared whiteboards, screen sharing, and desktop screen sharing enhance the learning experience at a key level. Voting, testing, and group work features are very effective when considering student active involvement in online lectures. The WebEx platform gives students the ability to see the time and effort that instructors use for content. Active student participation is very important when doing online learning. It should be explored to identify how to improve student activism using WebEx teaching group sessions. (Levette, Chadwick and Kyla, 2016)

E-learning is a trending teaching style that uses electronic media such as CD-ROM, Internet, Internal, External, or satellite. Distance learning is important when discussing e-learning. This is because, in distance learning, the main method of transferring learning materials over networks is electronic learning. Cisco WebEx is a distance learning platform that provides a full conference experience for students and mentors. When the WebEx conference is applied to DLIT (Distance Learning Information Technology), it has the ability to share data files within groups, share presentations, share desktop, share files, whiteboard features, and discuss with private chat groups. Users are satisfied with the features that WebEx offers to them. (Jirayu and Khanista, 2017)

Distance learning methods also be analyzed for quality assurance. It is very important for delivering high-quality learning methods to students in academics. Among them students have chosen Zoom as the most effective e-learning platform. That is because more interaction of the learning process of Zoom video

conferencing. It was able to create more positive satisfaction for the students for having a better experience in their learning journey. And it can enhance the positive outcomes of students and encouraging them to access remotely the learning materials while reducing the workload for lecturers and teachers. (Abu, Benjamin, Mitchell and Umme, 2017)

In higher education, online education is a milestone in changing all components of teaching and learning. But comparing physical education in real classrooms, it has several problems that affect the quality of education. Students may have inappropriate expectations in lectures, such as expecting instant feedback on their assignments and online comments. And when considering the readiness of attending online courses of students, not all students can be able to participate in the lectures. Most students must be self-motivated and self-directed to participate in lectures. Some students may feel isolated and disconnected in online lectures. Therefore, the participation of some students in online lectures comes to a major problem. And transitioning from physical face-to-face lectures to online lectures is impacted on disconnecting the face-to-face interaction between lecturer and student, and it causes communication barriers, conducting classes focusing on faculty classes, lack of interest in lectures, and requiring much time to adopting to necessary teaching style. (Mansureh, Angie and Lilia, 2017)

Distance learning can be described as a great ability to set a high standard for valuable learning experiences. The research team surveyed with 1250 students between the ages of 20 and 22 from 12 departments at Kazan Federal University. Among them, 90% of students responded positively to the impact of distance learning. This experiment may reveal that students participate significantly in online lectures, but there are some issues with distance learning about the interaction between the lecturer and the students. It should consider the problem of distance learning when assessing modern distance learning technologies, marketing advantages, inappropriate administrative control, and access control problems. (Irina, 2018)

Online distance learning must be reviewed by examining the effectiveness of each country's cultural and educational characteristics. And then it must be explored by considering the potential of online classrooms which are linked to face-to-face physical education. Distance learning methods must be established in a theoretical framework in the future. The online classrooms are also conducted by teachers who conducted physical classrooms before. Therefore, future studies must be examined the efficiency and affordances of different online distance learning platforms, and especially the novel tools must be developed for the systems to increase the efficiency through it. (Hyun and Wi, 2020)

There are many challenges in distance learning which are faced by learners. When speaking about efficiency concerns learners must balance it as well as balancing proximal goals with distal ones. And they need to balance intrinsic and extrinsic requirements. If any student is asked to take personal responsibility for their education, it becomes a huge internal conflict for them. The tools must be implemented to keep their attraction to studies well. It should help students to understand their responsibilities and they must inspire by the learning methods. For encouraging active collaboration among students, they should manage their accounts individually and their attitudes must be improved with interdependence. (Philip, Robert, Eva, and Eugene, 2011)

Video conferencing can be discussed as an approach of giving more responsibility to students for their learning, group workings, doing tasks that help conventional teaching. Video conferencing does not cause to replace print or other methods, which means it does not affect the conceptual processes of learning. This provides the facility to get both students and tutors to a central location virtually. This method helps to make demonstrations easier to digest and supplementing discussions with guest speakers. Teachers have the opportunity of sending lectures in a flexible way as they can do it without boundaries of distance. (Rop and Nelson, 2012).

III. METHODOLOGY

The purpose of this research is to provide a solution to the problems of online distance learning methods, especially video conferencing and virtual classroom interaction between students and teachers. A survey was created to get adequate feedback from teachers, lecturers, and students. The survey included a specific questionnaire to gather separate responses from the students' learning side and the teachers' and lecturers' side of the education provider.

In the beginning, it was done by studying the objective, citing several resources. Then end the flow of the distance learning methodology. Identifying the base area is the most important part of the study period. The next step is to create a questionnaire to survey with the participation of students and teachers/lecturers. The questionnaire was prepared for the two main sections for students and lecturers. The next step is to review research papers on distance learning methods, especially covering video conferencing and virtual classes. The following is an analysis of the responses collected regarding the reviewed research papers. As a final step in concluding a conclusion based on the survey and review.

When the student-instructor ratio reached 1:23, responses to the survey had to be stopped. The student-instructor ratio in higher education can be between 1: 15-30(Nizamettin and Bekir, 2014). The researcher had to use online methods because of the difficulty of getting feedback without meeting the lecturers.
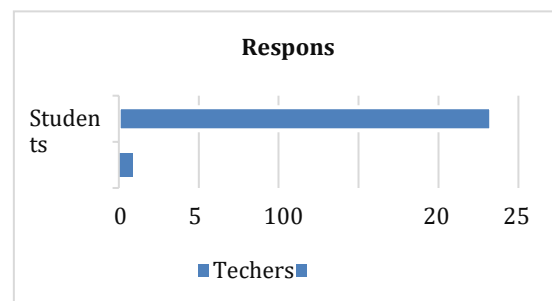

Respons

Figure 1. A bar chart of the number of responses distribution

Areas of focus, Approach to visual and auditory impairment, active participation in video conferencing and virtual classes, attendance, participation in extra activities, objectives of participation, support for each other, effectiveness productivity Multimedia use. The conclusion is concluded by proposing methods of meeting continuousrequirements for a better distance learning experience.

IV. RESULTS & DISCUSSION

Many research papers do not discuss ideas for video conferencing and problem-solving in virtual classes regarding the effectiveness and effectiveness of interaction between lecturers and students. The Covid-19 epidemic is forcing everyone to take online classes, and since then they have begun to face several issues that directly affect the patterns and quality of education mechanisms. Reviewing research articles shows that platforms such as Microsoft Teams, Zoom Video Conferences, Cisco WebEx, Google Classroom, Google Meet do a better job of synchronizing distance learning mechanisms. There are many prizes for video conferencing and virtual classrooms in an epidemic like Covid-19. But there are some problems with those systems. It is good to analyze what they are and to what extent they can be solved.

From the survey, the researcher was able to obtain 243 responses from students and lecturers. 233 of them were students and the rest were lecturers. The balance of feedback meets the requirements of the average student- mentor ratio.
Learning should be done by students without coercion and they should be motivated to learn effectively. Looking at student responses, 86.7% of students participate for learning purposes and 30.9% for attendance, with 9.9% due to lecturer coercion. Others responded for a different reason.
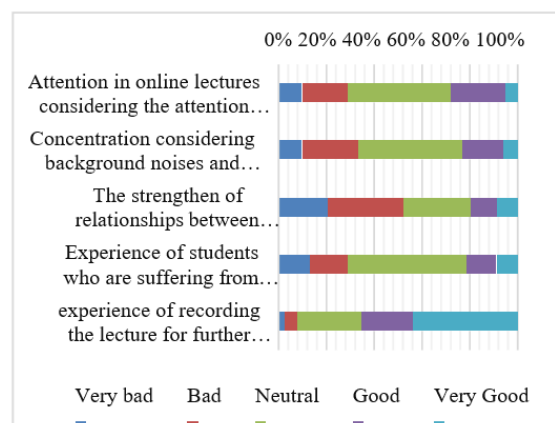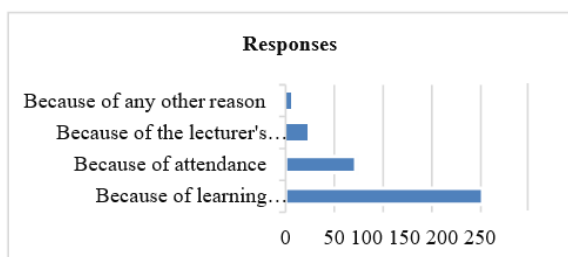

Figure 2. A bar chart of student responses with respect to the reason of attending lectures.

(Figure 2) The distribution of responses indicates that a significant number of students are not involved with online lectures for learning. The table below covers some aspects of response.

(Figure 3) Most students are in a neutral position when considering attention rather than physical lectures, and the distribution of general responses is very similar. Many students may have similar experiences in online lectures as in physical lectures. But distribution puts more weight on bad experiences than good experiences. Strengthening relationships between students does not seem to be as good as physical lectures. 52.4% of students say it is not as good as expected. It shows that student interaction is not good during a video conference or a virtual class. Of the 159 visually or hearing-impaired students, 79% responded moderately. This means that they may have similar experiences to physical lectures. Considering the rest, distribution adds more weight to a bad experience. A major advantage of video conferencing and virtual classrooms is the recording facility. 65.4% of students say it is good and 27% have a neutral opinion. Overall responses to the experience show that the average percentage of visually or hearing-impaired students' attention, environmental disturbances, and experience retention were taken into account. The recording facility is a great feature. It also minimizes the benefits of relationships between students during online lectures.
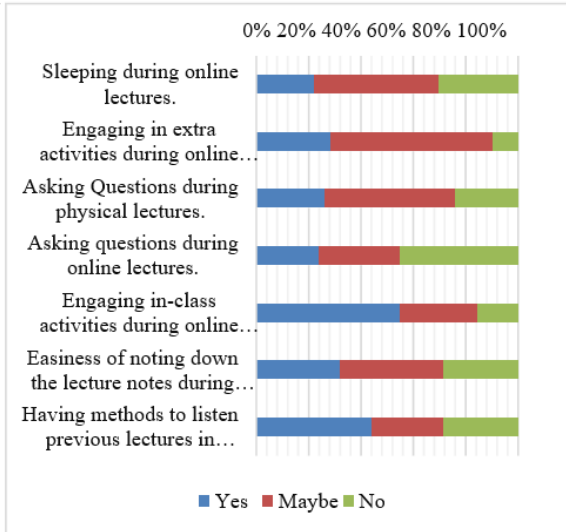
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Figure 2. A bar chart of student responses with respect to the reason of attending lectures.

While analyzing the responses to these questions, the questions are simply yes-no-sometimes questions. These questions were posed to analyze the activities performed by the students during the lectures. The first chart shows how students fall asleep during lectures. 69.1% of students are accustomed to collecting yes responses and sometimes sleeping during responsive online lectures. This is because students are free to distort their mics and keep them on their cameras. They take advantage of this feature to skip lectures and only 30.5% of students interact effectively with lectures. According to the second chart, 90.1% of students engage in extracurricular activities during online lectures. This is not good because they do not focus on lectures. Considering the next two charts, there is a big gap between asking questions in physics lectures and online lectures. Probably 49.8% of the students in the 'Ask Questions During Physical Lectures' response responded. However, only 30.9% of the students responded to the 'Ask Questions During Online Lectures' statement. Sometimes students who ask questions in physical lectures show a decrease in the probability of asking online lectures. The response to the yes response has been similar. Engaging in- class activities received 54.9% of yes responses. And 29.6% of Maybe responses. It shows that engaging in-class activities during online lectures are in good condition. Online lectures are quite good when considering taking notes during lectures. It received 72.3 and positive

responses. In physical lectures, students can discuss groups, further learning methods, so 71.2% of respondents received a positive response to having methods to listen to previous lectures in physical lectures. But recording lectures are not provided everywhere in physical lectures. But in online lectures, it is easier to do because this feature is provided in the software used for video conferencing and virtual classrooms. It has been discussed earlier.
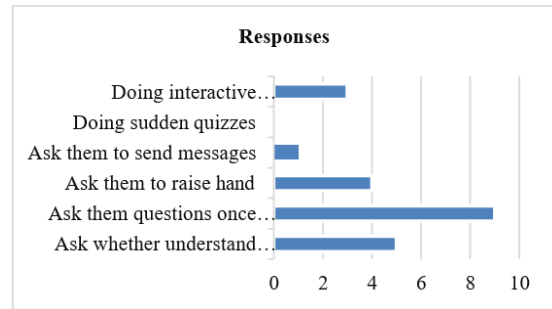

Figure 4. A bar chart of responses of lecturers on how they keep attention on lectures

Only 10 lecturers and teachers were involved in responding to the survey. All lecturers and teachers need to do things like asking students if they understand often, asking them to raise their hands almost, asking them to send messages in chat boxes, emergency quizzes, and interactive educational games to keep them focused. They should all be done by advising or asking students. It prevents the lecturer from continuing the lecture.
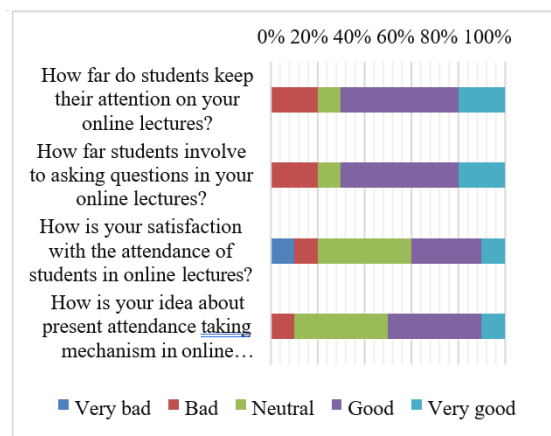

Figure 3. A stack 100% bar chart of responses os lecturers on satisfaction.

The chart shows the lecturers' satisfaction with some aspects of online lectures. Satisfactory data were collected with simple yes-no-perhaps

questions. The first chart shows the lecturer's satisfaction with the students' attention. The distribution of the first graph gives 80% more weight to the positive side. The second is also distributed as the first. It shows the involvement of students in asking questions during online lectures. Looking at the results, the lecturers are also satisfied with that. Considering student attendance satisfaction, 80% of the third graph responds positively. This means that the average attendance of students for online lectures is good. Feedback is balanced by looking at the final chart and giving 50% of the feedback as positive and negative. That is, some lecturers do not accept the attendance mechanisms currently in use.
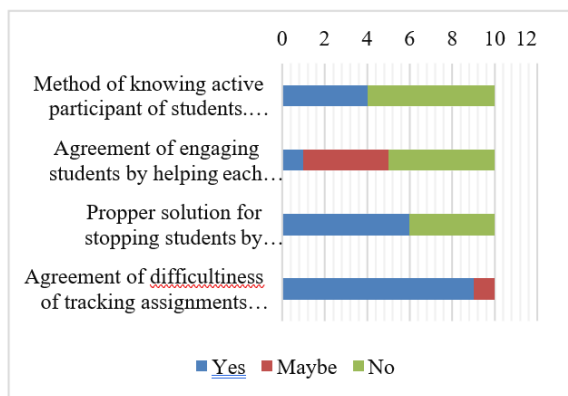

Figure 5. A stack 100% bar chart of lecturers on experiences

The first graph shows that there is a method for knowing the active participation of students in online lectures. 60% of respondents say no. This means that lecturers have a problem with whether students listen to lectures. It is because of their freedom to avoid mics and cameras. When looking at the analysis of student-based questionnaires, both the results give the same answer. Considering the relationship between students, the second chart shows that the relationship between students does not take place during online lectures to help each other and they may not know it. More than 60% of lecturers have solutions to stop students from engaging in extracurricular activities. They mentioned some of the solutions they use in online lectures, such as asking frequently asked questions, giving some activities, and assigning students tasks to complete during lecture time based on what the lecturer covered. All those solutions are done by the lecturer and if they are not able to do such things the students may lose

their focus. The final chart shows that 90% of lecturers have difficulty monitoring assignments and class activities during lectures using computer software. As a discussion of the students' questionnaire-based analysis, many students agreed to sleep and do extra activity during lecture hours. Activities include playing computer games, watching movies, and other activities not related to the current lecture. Both problems must have the same solution.

It should develop with many advanced features when considering student-lecturer interaction in distance learning, especially video conferencing and virtual classrooms. Both students and lecturers have the same type of problems that greatly affect teaching and learning patterns. To maintain the effectiveness of distance learning methods, the active participation of all students in special video conferencing and virtual classroom lectures, and the effective interaction between lectures and students are very important.

V. CONCLUSION

The student-lecturer interaction in lectures is very important. In online distance learning methods considering video conferencing and virtual classrooms, it is very difficult to conduct. The attention, efficiency of learning, and teaching patterns depend on giving an effective education for students. The research shows that in synchronous distance learning concerning video conferencing and virtual classrooms, most distance learning methods have so many advantages. Its most important advantages are the ability to record, zero interruptions such as a physical classroom, self-learning, access to multimedia resources, and the ability to focus on lectures individually. But the freedom of synchronous distance learning to video conferencing and virtual classrooms has led students to miss lectures while sleeping, doing extra activities that are not related to continuous lectures, attending only on arrival, and much more. . Lecturers have a positive outlook on these methods, making it easier to teach in an important way. They both deal with their confidence as they choose to embark on their play activities. The proposed solution is developing the systems to monitor and inform

students' activities (sleeping, not sitting in front of a computer), computer activity monitoring, and generate statistical data of student activity participants concluded by the researcher. The existing systems provide many features to conduct meetings for the purpose of conducting online classrooms. But the main requirement "keeping the positive learning outcome of students" is not covered considering some sensitive areas like student-teacher/lecturer interaction. The researcher recommends, when developing and improving other distance learning systems, to use education-oriented requirements such as the identified requirements in discussion field. For having a good learning outcome in online distance learning systems, it is recommended to add student-lecturer/teacher interactive features within the systems. The developers can use real-time behavior tracking features and task monitoring features for decreasing the cheating possibility in online classrooms. And throughout the time period of the meeting, it can be used to take an accurate attendance by analyzing the actual participation (students who actually participated to the lectures without doing nonrelated activities to lectures) of students. Because the motive must be to have a positive learning outcome by using online learning systems.

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