

DENTAL STUDENTS' PERCEPTION OF ONLINE LECTURE USING VIDEO CONFERENCING

by Anis Irmawati

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DENTAL STUDENTS' PERCEPTION OF ONLINE LECTURE USING VIDEO CONFERENCING

Aqsa Sjuhada Oki, Yuliati, Jenny Sunariani, Anis Imawati, Muhammad Luthfi
1Department of Oral Biology Faculty of Dental Medicine Universitas Airlangga
Jalan Mayjen Prof Dr Moestopo No 47 Surabaya 60132 Indonesia

ABSTRACT

Background: Synchronous course allows building a dental learning atmosphere that is closer to traditional classroom environments and allows dental students to communicate comprehensively with lecturers through video conferencing. **Purpose:** In this study we explored dental students' opinions of online lecture using video conferencing as the facility used in synchronous lecture e-learning. **Methods:** Data was collected using a questionnaire and the results showed that most respondents thought that video conferencing could be useful as the main facility to support distance dental education and flexible learning. **Results:** All respondents suggested that lecturers must prepare online lectures well before video conferencing and assisted by technicians to prepare various technical aspects to make online lectures run smoothly

From filling out the questionnaire, some advantages and disadvantages of using video conferencing as an educational facility have been revealed. The advantage of this facility is the improvement of students' self-confidence, achievement of the independence of lecture space and time, high accessibility to educational contents, and intensive interaction between lecturers and students. The quiz scores showed insignificant difference between the online lecture and classical "face to face" class. **Conclusions:** students perceive that online lectures using video conferencing are very useful in synchronous disseminating knowledge in dental education with several notes for quality improvement.

Key Words: learning, information technology, online pedagogy and digital learning

BACKGROUND

Utilization of information technology and the internet has influenced most human ways of life. Many jobs have changed and are replaced by automatization system. The area of higher education is among the fields that are strongly influenced by this digital technology. Lecturers and students are expected to keep adjusting to the rapid information technology that changes the way learning methods. Many universities in the world have implemented distance learning by utilizing information technology to eliminate the dimensions of distance and time, this facility is known as e-learning¹. Pedagogy of the basic principles of distance learning makes the role of lecturers diminish. They are no longer the only source of learning, but act as guides and advisers in the learning process in the classroom. Student centered learning makes the lecturers function as directors of discussions conducted by students².

As the oldest and leading dentistry faculty in Indonesia, the Faculty of Dentistry, Airlangga University has adopted a blended learning system that combines e-learning facilities combined with face-to-face classical lectures.

The hybrid of e-learning and face-to-face classical lectures is considered to be the best method because the use of information technology in the lecture process does not leave conventional methods. This makes social and emotional interaction between lecturers and students maintained. Online lectures using video conference facilities are the part of Telemedicine, that could be an option for synchronous methods in e-learning. This facility helps to keep the lectures going well when the lecturer must work in a distant place. Because there is no direct face to face, the quality of the implementation

of online lectures must be good. Making students stay focused on listening to online lectures without leaving them is a challenge. Therefore, quality control of online lectures should be done strictly³.

Evaluation and students' perception of the application of video conferencing in online lectures has not been widely studied. In this study we explored the opinions and views of dental students about online lectures using video conferencing that we have conducted at the Faculty of Dental Medicine Universitas Airlangga.

METHODS

This study uses qualitative descriptive design to make comprehensive summarization of students' perception of online synchronous lecture using video conference. The population 307 second semester students of Faculty of Dental Medicine Universitas Airlangga in the year of 2017 and 2018. The class received two sessions of online lectures of Physiology II. Each online lecture was delivered for 20 minutes, followed by 30 minutes online discussion and 30 minutes quiz. Finally, we compared the quiz results between online lecture class and "face to face" lecture class.

The video conferencing system used were Vidyo under the server of Telemedicine Development Center of Asia (TEMDEC) Kyushu University Hospital, Japan. The online discussion forum and quiz were held with e-learning web application of Airlangga University through portal <http://aula.unair.ac.id>. Each student and lecturer have their own personal accounts linked to the courses taken in each semester.

After students completed two online lecture sessions, discussions, and quizzes, they were instructed to fill out an online questionnaire with the link provided.

RESULTS.

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The results (Table 1) shows that among the respondents most students think that the schedule of our online lectures is well organized. They also see that the preparations, punctualities, the topics suitability, and the role of the campus technicians are good. Students rate "good" on the quality of our online lectures using video conferencing in audio-video quality aspects and the role in supporting e-learning in dental education (Table 2).

The respondents were also asked to assess the advantages and disadvantages of online lectures using video conferencing which the results can be seen in Table 3.

| No | Question | Good | Ordinary | Bad |
|----|--|---------|----------|-----|
| 1 | The schedule of online lectures | 99.02 % | 0.98 % | 0 |
| 2 | Lecturer preparation for teaching material | 100% | 0 | 0 |
| 3 | Lecturer started online lectures on time | 97.06 % | 2.94 % | 0 |
| 4 | Lecturer ended online lectures on time | 95.77 % | 4.23 % | 0 |
| 5 | Suitability of the topic of the lecture with the schedule | 100 % | 0 | 0 |
| 6 | The role of campus technicians in the technical preparation of online lectures | 92.5 % | 7.5 % | 0 |

Table 1. Students' perception of preparation of online lecture using video conference

| No | Questions | Good | Ordinary | Bad |
|----|---|--------|----------|--------|
| 1 | Image sharpness | 89.9% | 5.21 % | 4.89 % |
| 2 | Image movement | 88.6 % | 6.84 % | 4.56 % |
| 3 | Sound quality | 97.4 % | 2.6 % | 0 |
| 4 | Rate of the program | 98.7 % | 1.3 % | 0 |
| 5 | Role of video conferencing in support e-learning in dental education. | 100% | 0 | 0 |

Table 2. Students' perception of performance of online lecture using video conference

| No | How video conferencing bring advantage in dental education? | Answers |
|----|---|---------|
| 1 | Innovation for the institution | 1.96 % |
| 2 | New experience in study | 2.28 % |
| 3 | High accessibility to educational content | 24.1 % |

| | | |
|----|--|---------|
| 4 | Intensive interaction between lecturers and students | 17.92 % |
| 5 | Reduced time and costs of lecture | 0 |
| 6 | Independence of lecture space and time | 25.73 % |
| 7 | The symbol of modernization in education | 0 |
| 8 | Improve self-confidence for the students | 28.01 % |
| No | How video conferencing bring disadvantage in dental education? | Answers |
| 1 | Teaching material cannot be conveyed properly | 0 |
| 2 | Reduce interaction between lecturers and students | 0 |
| 3 | Lack of technical support | 68 % |
| 4 | Limited network quality | 24.1% |
| 5 | Inadequate equipment | 3.9 % |
| 6 | Insufficient computer knowledge | 0 |
| 7 | Difficult installation | 2% |
| 8 | High cost facility | 2% |

Table 3. Students' perception of advantages and disadvantages of online lecture using video conference

The quiz scores in both classes (Table 4) demonstrated that the paired t-test results did not show significant difference between group I (online class) and group II (classical "face to face" class) at $p = 0,3404$ ($p > 0,05$).

| Group | Mean | SD | N |
|-------|------|------|-----|
| I | 76 | 3.38 | 307 |
| II | 74.8 | 3.61 | 307 |

Table 4. Mean and SD of Group 1 for Group I and Group II.

DISCUSSION

The subjects of the study are the second semester students of Faculty of Dental Medicine Universitas Airlangga in the year of 2017-2018. They are digital native who were born and rise in the digital era which internet was widely used. It makes them friendly and easy to operate both e-learning and video conference applications⁴.

Lectures in e-learning can be delivered synchronously or asynchronously. Exchange of ideas and information with one or more participants at the same time is called a synchronous lecture. Not only online lectures, online discussions also included examples of synchronous courses. When delivered synchronously, the common facility used is video conferencing. Online lectures are very helpful for lecturers to still be able to deliver lectures even though they are not in place, with adequate delivery quality. Replacing face-to-face classical lectures with online lectures using video conferencing should be accompanied by online discussion forums and online quizzes⁵. The quality of online lecture delivery must be closely monitored because it affects the quality of students' understanding of the related course. Students' perceptions of online lectures using video conferencing must be traced, then

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the advantages and disadvantages of this process can be evaluated, and the quality of learning process can be guaranteed⁶.

Online lecture preparation generally gained good grades from students. The parameters assessed are suitability of schedule, punctuality, and the role of technicians on campus. Because this online lecture has been scheduled and prepared for the previous few months, various preparations have been carried out well. This is in accordance with the principle of implementing a good video conference that must be scheduled carefully in sufficient time⁷.

In terms of performance, our online lectures using video conference also gained good grades from the majority of respondents. Image sharpness, image movement, and sound quality are mainly determined by the quality of the network. Our commercial network at this facility is dedicated for video conferencing with a capacity of 25 Mbps provided by the university. The use of the Vidyo system under the Kyushu University Hospital Telemedicine Development Center of Asia (TEMDEC) server enables easy installation with high transmission speeds and produces good images and sound. The role of local network engineer in technical preparation is also critical to develop quality video conferencing⁸.

Video conferencing bring advantage in dental education in four aspects: improve self-confidence for the students; independence of lecture space and time; high accessibility to educational contents; and intensive interaction between lecturers and students. There is no doubt that e-learning can increase student confidence. In this case students are very confident to attend online lectures followed by online discussion forums and online quizzes. Great motivation in attending e-learning lectures cannot be separated from curiosity to receive information technology-based learning. Because the dental students are digital natives who grow up in the digital era and use digital equipment in everyday life, e-learning is very interesting for them. This new experience in learning encourages high motivation and confidence^{9, 10}.

The use of information technology in the learning process also provides broad access to learning source materials so that students feel a more comprehensive learning experience. Although without face to face, e-learning allows increased intensity of communication between lecturers and students, because interaction and discussion forums can be performed outside of lecture hours. E-learning also allows the flexibility of learning that is not bound by space and time. The depth of discussion can be increased because of wider access to learning resources¹¹.

The questionnaire has resulted the considered disadvantage of online lecture using video conference in dental education, that are: lack of technical support and limited network quality. Even though the online lecture using video conference has been well performed, sustained technical support and network stabilization are required to achieve quality insurance. Students see that this is an issue that should be considered to improve the quality of video conferencing in online lectures¹².

The insignificant difference of quiz score in online lecture and "face to face" classes demonstrated that with the good administration, online lecture serves equal quality with the classical methods. This gives a new hope for the lecturers to be able to provide guaranteed

quality courses even though they are not in the lecture room⁹.

In general, students perceive that online lectures using video conferencing are very useful in synchronized disseminating knowledge in e-learning with several notes for quality improvement.

4 CONFLICTS OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this paper.

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1 DATA AVAILABILITY

The nominal data used to support the findings of this study were supplied by the first author under license and so cannot be made freely available. Requests for access to these data should be made to Dr Aqsa Sjuhada Oki, Faculty of Dental Medicine, Universitas Airlangga.

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