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Original research article

A study of video animation online vs. specimen-based learning to understand cardiac pathology

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Abstract

Significant transformations are occurring in the realm of Medical Education. The era has passed when lectures were the sole focus and the entire group of students would attend together. However, when the Covid pandemic emerged, we were compelled to introspect. We were compelled to employ every available means to instruct with great efficiency. The kids were dismissed and it became exceedingly challenging to instruct them remotely. However, video-based animations were employed for instructional purposes. However, did it prove to be efficacious? What was the student's interpretation or understanding? An extensive endeavour has been undertaken to ascertain the answer to this inquiry.

Keywords: Video animation, specimen based, learning, cardiac, pathology

Introduction

Significant transformations are occurring in the realm of Medical Education. The era of exclusive lectures, where the entire student cohort would attend the same session, has come to an end. However, when the Covid-19 pandemic emerged, we were compelled to introspect. We had to employ any available techniques to ensure effective instruction. The kids were dismissed from classes and it became exceedingly challenging to instruct them remotely. However, video-based animations were employed for educational purposes. An extensive effort has been made to ascertain the solution to this question. Video recordings of lectures provide numerous advantages to the user. It has the ability to reiterate the lecture afterwards, regardless of the time or location [1]. Students can save time since they no longer need to travel to the lecture hall [2]. The learner has the ability to select the pace at which the lecture progresses [3]. The same applies to self-paced learning [4]. Video lectures can be replayed indefinitely, which is very advantageous for achieving a thorough comprehension or for exam preparation [5]. Did the instructional strategy yield positive results? What was the student's interpretation or understanding? When the students returned to normal classes, we really had an opportunity to understand the difference between the two methods.

Aims and Objectives

- To study the perception score between the two groups.
- To study the OSPE score between the two groups.

Materials and Methods

The study was conducted at the Department of Pathology, A J Institute of Medical Sciences, Mangalore. The study was done from June 1st, 2021, till the end of August 2021. Every student from the second year of the MBBS programme was chosen. Consequently, the overall sample size was 150. The study was designed as an interventional and cross-over study. The students were segregated into two distinct groups.

Questionnaire, and Objective Structured Practical Examination (OSPE) have been verified and confirmed as accurate and reliable. Exclusion Criteria: Students who did not provide consent.

Data Collection: Analysis of Likert Scale.

A total of 150 students were chosen using a stratified sampling method. Only students who scored within two standard deviations (±2SD) of the mean on the last examination were chosen for this study. The students received instruction in cardiac pathology practical through online video animations. Upon returning to college for in-person instruction, the students were provided with a pre-validated Likert scale questionnaire to assess their perception. Furthermore, an Objective Structured Practical Examination (OSPE) session was conducted. The exam was structured to include both visual representations, in the

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form of photographs, and tangible examples of the specimen. Subsequently, the identical students were required to participate in a practical training session focused on live specimens in the field of pathology. At the conclusion of this session, the participants were once again provided with a verified Likert's scale questionnaire to assess their perception. The OSPE session was conducted once more.

Statistics:
The perception score was evaluated using a student's t-test. A t-test will be conducted to compare the difference between the two teaching approaches in terms of the scores of OSPE.

Results

Table 1: Perception scores

Perception Scores											
Online Video Animation					Specimen based teaching						
Mean	SD	Max	Min	Median	Mean	SD	Max	Min	Median	Z	p-value
38.14	7.1	50	20	35.5	48.34	2.43	50	39	49.5	7.51	<0.001

Table 2: The OSPE Scores

Method	N	Mean OSPE Scores	Std Deviation	t	df	P value
Online video animation	75	38.12	8.10	-9.6	60.3	<0.001
Specimen teaching	75	48.32	3.47			

Discussion
From a subjective standpoint, the students believed that they had acquired a greater amount of knowledge from the live lectures. Paegle *et al*. [6] conducted a comparison between live lectures and video lectures to assess their impact on pathology. No statistically significant variations were seen in the test questions among the participants. The study included 594th-year medical students who answered 129 multiple-choice questions. The average score and standard deviation for the live and video groups were 87.56 (+4.80) and 87.99 (+6.46), respectively. Schreiber *et al*. [7] reached a comparable finding: During a test, medical students were shown videos and live demonstrations on the topics of 'vasculitis' and 'arthritis' in 15-minute sequences. The results showed that both the video and live groups performed equally well. The test had 66 medical students and consisted of 34 multiple-choice questions. The scores for the live group were 90.2%, while the scores for the video group were 87.8%. The statistical analysis showed that the difference in scores between the two groups was not significant, with a p-value of 0.15. However, although 88% of the students gave the live performance a very good rating, just 62% evaluated the video presentation equally well. Ramlogan *et al*. [8] reached a contrasting finding. They provided three nearly 15-minute segments, both in real-time and recorded on video. The students who attended the live session achieved significantly higher scores on the test compared to the students who watched the video lesson. The study included 85 dental students, and the average score and standard deviation for the live lesson group were 74.9 (+14.9), whereas for the video lesson group they were 68.6 (+16.3). Subjectively, 97% of the participants reported an enhancement of their clinical skills as a result of the movies. Just 78.8% of participants reported an enhancement in their clinical skills as a result of the live lessons.

Conclusion
While the online video-based animation teaching method was well-received, the traditional live specimen-based teaching method is more effective in educating students.

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