ORIGINAL ARTICLE

IMPACT OF PRIMING WITH THE HELP OF VIDEOS ON THE STUDENTS' LEARNING EXPERIENCES IN UNDERGRADUATE MEDICAL EDUCATION

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Background: Priming is an active learning approach which helps prepare a learner for an educational task. This study aims to introduce priming with the help of videos in undergraduate medical curriculum and to assess the perceptions of students regarding the impact of priming on their learning experiences. **Methods**: It was a questionnaire based cross-sectional study conducted for 3 months in 2020. Videos were introduced to 2nd year medical students in the Special Senses Module conducted online. Videos retrieved from authentic websites were posted, with due permission, and shared before the didactic session on a particular topic. At the end of module, perceptions of students were gathered via an online questionnaire, after consent. **Results:** Majority of students 'agreed' or 'strongly agreed' that priming is an effective way of learning (86%) and they would like to be provided with resources for priming in the future (90.7%). Sum 89.2% of the participants 'agreed' or 'strongly agreed' that they prefer priming with in class discussion over traditional teaching. Majority of the students 'agreed' or 'strongly agreed' that the video resources used for priming were conducive to their learning (92.2%), helped in better comprehension of the respective topics (93.8%), and would make it easier for them to revise for assessments (67.2%). **Conclusion:** This research supports the benefits of priming with the help of videos in undergraduate medical education. Using videos as a tool for priming helps in better comprehension of the topic and makes it easier for the students to revise for assessment.

Key words: Medical education, priming, videos.

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INTRODUCTION

Priming means preparing or readying. In literature pertinent to education, priming refers to any intervention adopted to prepare a learner for an educational experience or task.[1] Priming can be used as an active learning strategy. Active learning is a method of enhancing student learning by involving the student directly in the learning process. Active learning is supposed to stimulate higher order cognitive functions of the students and motivates them to become self-regulated, independent learners.[2]

One of the priming techniques which can be used is by providing students with informational videos and making them view those videos prior to in-class didactic lecture and/ or small group discussion.[3] The use of videos in higher education is fruitful because of the ability to self-pace, engage with content through calculation, select tasks, and reflect and respond to questions.[4] Videos can have a significant effect on orienting learners to a new subject. Studies have shown that videos were considered as an easier media to learn from compared to primarily verbal content.[5,6]

Videos, as a form of e-learning, have been shown to effectively involve students in learning outside the traditional confines of the classroom.[7-9] Videos can be used to encourage active learning and allow reflection on student knowledge and understanding.[10,11] Kelly *et al* reported that the videos were positively received by students, however these videos did not impact overall students' learning outcomes, concluding that they were a valuable adjunct to face to face sessions.[11] Other studies reported that videos have not only been positively received, but positively affect performance.[12,13]

This study was designed to further explore the impact of using video exemplars in an undergraduate medical curriculum. The objective of this study was to introduce priming with the help of videos to second year undergraduate medical students and to assess their perceptions regarding the impact of priming on learning experiences.

METHODOLOGY

This study was conducted at Shifa College of Medicine. Videos were introduced to the students of 2nd year MBBS in the module of Special Senses. It was a 3 week long module conducted in a hybrid manner (a combination of online and on campus activities) in July 2020 due to COVID 19. The Videos were retrieved from some of the authentic websites and were posted with due permission of the author. The videos were uploaded on the Google classroom before the didactic lecture, small group discussion and/ or practical session on a particular topic. The videos shared before a lecture or a small group discussion comprised of short animated lecture not exceeding 10 minutes and the ones shared before the practical sessions comprised of prerecorded demonstrations retrieved from the internet. At the end of

module, perceptions of the students were gathered via an online questionnaire, after taking consent. Likert scale from 0–4 was used for scoring with 0=Strongly disagree, 1=Disagree, 2=Uncertain, 3=Agree, and 4=Strongly agree. Data was analyzed on SPSS-21 and $p<0.05$ was considered significant.

RESULTS

Table-1 shows the results of survey questions which were meant to evaluate the acceptance of priming as a learning tool. 86% of the students agreed or strongly agreed that priming is an effective way of learning. 89.2% of the participants agreed or strongly agreed that they prefer priming with in class discussion over traditional teaching. 90.7% of the students agreed or strongly agreed that they would like to be provided with resources for priming in the future.

Table-2 shows the results of the survey questions that were meant to assess the effectiveness of videos as a priming tool. 92.2% of the students agreed or strongly agreed that the video resources used for priming were conducive to their learning. 93.8% of the participants agreed or strongly agreed that the videos helped in better comprehension of the respective topics. As far as the impact on preparation for examination is concerned 67.2% of the students agreed or strongly agreed that provided videos would make it easier for them to revise for assessments / exams and 40.6% were neutral about it.

Table-1: Results of students' survey questions to evaluate the acceptance of priming as a learning tool

Questions	Strongly disagree N (%)	Disagree N (%)	Neutral N (%)	Agree N (%)	Strongly agree N (%)	Mean±SD
I made sure to watch all the videos provided for priming	1(1.6)	8(12.5)	16(25)	21(32.8)	16(25)	3.69±1.049
I made sure to watch the videos 'before' sessions	1(1.6)	10(15.6)	23(35.9)	21(32.8)	9(14.1)	3.42±0.973
Priming should be implemented for other modules	2(3.1)	0(0)	4(6.3)	25(39.1)	32(50)	4.35±0.864
Priming is an effective way of learning	0(0)	0(0)	7(10.9)	30(46.9)	25(39.1)	4.24±0.777
I would like to be provided with resources for priming in the future	1(1.6)	1(1.6)	4(6.3)	28(43.8)	30(46.9)	4.33±0.798
I prefer priming with in class discussion over traditional teaching	2(3.1)	0(0)	4(6.2)	27(41.5)	31(47.7)	4.33±0.858

Table-2: Results of students' survey questions to assess the effectiveness of videos as a priming tool

Questions	Strongly disagree N (%)	Disagree N (%)	Neutral N (%)	Agree N (%)	Strongly agree N (%)	Mean±SD
The video resources used for priming were conducive to my learning	0 (0)	1 (1.6)	4 (6.3)	30 (46.9)	29 (45.3)	4.36±0.675
The videos gave a broad overview of the topics	0 (0)	0 0)	4 (6.3)	40 (62.5)	19(29.7)	4.24±0.560
The videos promoted my desire to learn	1 (1.60)	1 (1.6)	18 (28.1)	28 (43.8)	16 (25)	3.89±0.857
The videos were relevant to the topics that they were provided for	0 (0)	0 (0)	1 (1.6)	33 (51.6)	30 (46.9)	4.45±0.532
The videos used for priming piqued my interest in topic	1 (1.6)	0 (0)	12 (18.8)	35 (54.7)	1 5(23.4)	4±0.762
The videos were fun / interesting to watch	0 (0)	2 (3.1)	10 (15.6)	29 (45.3)	23 (35.9)	4.14±0.794
The videos helped in better comprehension of the respective topics	0 (0)	1 (1.6)	3 (4.7)	35 (54.7)	25 (39.1)	4.31±0.639
The provided videos will make it easier for me to revise for assessments / exams	2 (3.1)	2 (3.1)	17 (26.6)	26 (40.6)	17 (26.6)	3.84±0.963
I felt the videos wasted my time which i could have spent reading the textbooks	12 (18.8)	39 (60.9)	6 (9.4)	3 (4.7)	2 (3.1)	2.10±0.882

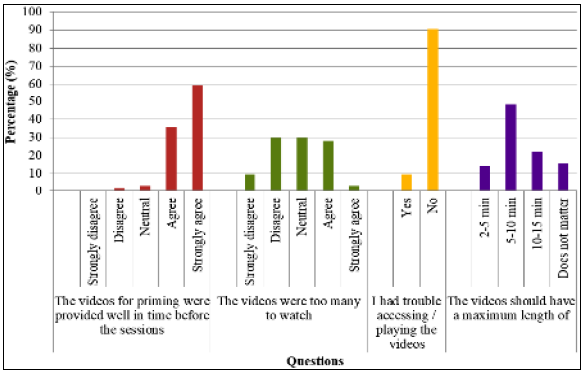

Figure-1: Results of students' survey questions to assess timing and accessibility of the provided videos

Figure-1 shows the results of students' survey questions to assess the timing and accessibility of the provided videos. 90.6% of the participants were of the view that they did not face any trouble playing the videos. 95.3% of the students agreed or strongly agreed that the videos for priming were provided well in time before sessions.

DISCUSSION

The main goal of health professions education has gradually shifted over the years to attaining competencies by the students through self-directed learning and this is encouraged by the active learning strategy. 'Priming' of the students is one such active learning approach.[2] Priming is a component of the flipped classroom which is a novel educational approach. In this teaching model, students have to do 'homework' before the class in order to utilize the class time for a more interactive and engaging session.[14] 'Priming' means prior exposure to a topic for better understanding and learning. In this study, we primed the students through videos on a particular topic on which the didactic lecture was not yet conducted.[2]

In our study majority of the students agreed or strongly agreed that they found priming to be an effective way of learning and they would like to be provided with resources for priming in the future. This is in concordance with a study conducted by Bhandari *et al*, where the students' evaluated the 'self-priming 'process as an effective way of learning, which helped in better orientation and better comprehension during didactic class-room lecture on the topic.[2] Similarly, in another study by Rose *et al*, sixty-two percent of students surveyed preferred the priming with in-class discussion model to a traditional lecture format.[14]

Priming can be done in a number of ways. The priming model which we introduced in our study was with the help of online videos which were provided before the didactic lecture on a particular topic so as to utilize the class time for discussion. In our study majority of the students agreed or strongly agreed that the video resources used were conducive to their learning and piqued their interest in the particular topic. A study conducted by Botelho *et al* revealed similar findings where students perceived videos to be an important learning tool and most of the students were of the opinion that video learning materials allowed students to clarify concepts and enhance cognitive thinking.[15]

In our study 89.2% agreed or strongly agreed that they prefer the teaching format with priming before the class and utilization of the class time for active discussion over the traditional teaching format. This finding is similar to the findings of a meta-analysis conducted by Hew KF in 2018, where 70% of the total respondents reported that they preferred flipped classroom over traditional classroom. The studies included in the meta-analysis used pre-class flipped classroom activities including at least the use of instructor-recorded classroom lectures, Power Points with instructor talking head, Power Points with instructor's voice over, YouTube videos, Khan Academy videos, TED (technology, entertainment, design) video talks or screencast.[17] In another study conducted by Kugler AJ *et al* in in 2019, most of the students indicated that their overall experience with the flipped classroom format using pre-recorded videos was either positive or neutral, and a lower percentage of students considered the experience to be negative. However, when asked about whether the flipped classroom technique was more beneficial than the traditional teaching methodology, survey respondents were split almost evenly (agree or strongly agree=48.9%, disagree or strongly disagree= 51.1%).[16]

In our study majority of the students agreed or strongly agreed that the provided videos helped in better comprehension of the respective topics and would make it easier for them to revise for assessments / examinations. This was in accordance with another study carried out by Fong KK *et al* in 2020, which revealed that overwhelming majority (92.1%) reported that the videos increased their sense of preparedness for the examination.[18] We suggest that priming should be implemented in undergraduate medical education to encourage active learning among students.

CONCLUSION

This research supports the benefits of priming with the help of videos in undergraduate medical education. Using videos as a tool for priming helps in better comprehension of the topic and makes it easier for the students to revise for assessment.

LIMITATIONS

This qualitative study was carried out in a single institute; therefore, the results cannot be extended to other populations.

FUTURE SUGGESTIONS

Further studies are needed to determine the effects of priming with the help of videos on academic performance of the students.

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