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Comparison of Pre-recorded videos versus Live streamed videos as an online teaching method in physiotherapy teachers – A pilot study

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Conflicts of Interest: Nil

Abstract

Aim: To compare pre-recorded videos versus Live - streamed videos as an online teaching method in physiotherapy teachers.

Objectives

- To understand efficacy of online pre-recorded practical demonstrations as an online teaching method in physiotherapy teachers.
- To understand the efficacy of live streamed practical demonstrations as an online teaching method in physiotherapy teachers.
- To compare live streamed practical demonstrations versus online pre-recorded practical demonstrations as better online teaching method in physiotherapy teachers.

Study Design: Cross Sectional Survey

Study size: 15 Physiotherapy teachers of TMV's Lokmanya Medical college of Physiotherapy, Kharghar

Methodology: 15 Physiotherapy teachers of TMV's Lokmanya Medical college of Physiotherapy, Kharghar were enrolled for this study. Teachers conducted lectures as per regular curriculum using pre-recorded videos versus Live streamed videos. During the first phase of lockdown, students attended the theory part on zoom platform and subsequent practical demonstration was conducted by posting pre-recorded videos on Google classroom platform. The students were asked to view the videos by the teachers and practise the technique at home. In the second phase, students were allowed to visit the campus in batches of 5. During this time the practical topics were covered via live streaming. Voluntary consent was taken from each

teacher. They were asked to fill the online questionnaire.

Statistical Analysis: Qualitative Data analysis done using Excel 2013

Results: Pre-recorded video is equally as effective as a live demonstration. However, teachers preferred live demonstration technique over pre-recorded videos as better mode of teaching. Each method has its own advantages and thus selection of method depends on specific goal of teacher. Both methods can be combined in teaching undergraduate physiotherapy courses in order to improve learning experiences and to match different learning preferences of students.

Keywords: pre-recorded video's, live streamed practical demonstrations, Physiotherapy teachers, COVID 19

Introduction

At the beginning of the New Year in 2020, the coronavirus disease (COVID-19) outbreak became a global public health incident and has constituted a public health emergency. This pandemic forced global physical closure of businesses, sport activities, schools and colleges by pushing all institutions to migrate to online platforms.[1] In the wake of Covid-19, engagement has become a critical component of online teaching and facilitation as all levels of education are still adapting to working remotely. Teaching methods across the world have become more organized to contribute improved and modernized results. [2]

Universities worldwide have rapidly transitioned to a full e-learning approach during the COVID 19 pandemic due to social distancing protocols. Hrastinski (2008) stated that the two types of online learning, namely asynchronous and synchronous online learning, are majorly compared but for online learning to be effective and efficient, instructors, organizations and institutions must have comprehensive understanding of the benefits and limitations.[3] A full or complete e-learning approach is defined as “learning with no face-to-face component, that relies entirely on the use of e-learning technology and techniques for the delivery of learning. Through recorded classes the student is able to see and hear the teacher, facilitating the dynamics and connection that occurs in a classroom. The epidemic increased not only the importance and urgency of online education, but also provided an opportunity for an in-depth discussion of online education. [1]

During the rapid move to online teaching in March 2020 many considered offering live video content to students. Ideally every instructor in higher education continually rethinks the best way to deliver educational content to their students, and so the introduction of new educational technologies has felt like an urgent poke in the ribs to many institutions in the country. Traditional lectures can be tedious and one-dimensional, but most of us have also had that instructor who kept us in the palm of her hand in a live lecture that left us transformed and inspired. Recorded lectures, on the other hand, can be passive and isolating, but it can provide flexibility in terms of timing and the opportunity to repeatedly review presented material. [4]

Some studies showed that live video classes can be great when production values are high. But many teachers reported that broadcasting a live lecture does not work well because, for many working from home, there is no separate quiet space to broadcast from and broadband is patchy. Another issue with live video is the chance of uninvited guests. Recent reports in the media detailed how, across a number of schools, some

students had shared their codes for live classes on social media platforms allowing strangers to enter the live sessions. [5]

Regardless of the program delivery modality, physical therapist professional education programs require a combination of effective communication skills, theoretical and conceptual knowledge, and clinical skills including manual and instrumental skills. [3]

In our institute we adopted technology in different forms to excel in teaching learning during this pandemic. Evolution of teaching, learning and assessment methods and study of teachers and students perspective on it helped us in evidence based practice. [6-9] As all of us know we faced unique situation without any known standard operating procedures.[10-12] We incubated studies which will help to generate standard operating procedures.[13,14] This study is an extension of our other research projects. Pre-recorded videos can provide a valued teaching tool that allows better visualisation of technique, offer media-rich audio and visual stimulation covering a wider spectrum of the learning styles or preferences. It also allows students to review technical procedures before, during, or after the practical sessions, and overcomes shortage of faculty. [15]

On the other hand, Background Live demonstration to a group of students may be a useful teaching tool in undergraduate physiotherapy courses. Several studies have investigated the efficacy of pre-recorded video and live demonstration for teaching clinical skills. Rosa et al. found that visual pre-recorded methodologies is appropriate to develop and support students learning experiences.[15,25] Tracey et al. conducted a study on students' perception on online instructional videos, which showed adapting the videos into interactive tutorials provide opportunity for feedback and helps in development of student's self-evaluation.[16,24] Mirkarimi et al. found that videotaped and live demonstrations were equally effective and can be used in combination or as an alternative for each other.[17] Packer et al. tested the effectiveness of videotaped demonstrations as opposed to live demonstrations for the teaching of removable partial denture procedures. They concluded that both teaching methods developed a similar level of understanding of the principles behind the exercise, although students preferred the live demonstrations.[18] Further, live demonstration enhances communication skills and increases student confidence.[19] However, teacher dependency of students, inadequate field of view, and non-repeatability of sessions are the main problems with this type of demonstration.[1] This study aims to compare Pre-recorded videos versus Live - streamed videos as an online teaching method in physiotherapy teachers.

Objective

- To understand efficacy of online pre-recorded practical demonstrations as an online teaching method in physiotherapy teachers
- To understand the efficacy of live streamed practical demonstrations as an online teaching method in physiotherapy teachers
- To compare live streamed practical demonstrations versus online pre-recorded practical demonstrations as better online teaching method in physiotherapy teachers.

Methodology

The current study was conducted at the TMV's Lokmanya Medical college of Physiotherapy, Kharghar, Navi Mumbai. All 15 physiotherapy teachers

of the institute, who conducted the lectures in both the online teaching modes voluntarily, participated in the research study. The practical sessions were scheduled as per MUHS curriculum. The consent forms regarding the survey were mailed to the teachers on their individual mail ids.

During the first phase of lockdown, students attended the theory part on zoom platform and subsequent practical demonstration was conducted by posting pre-recorded videos on Google classroom platform. The students were asked to view the videos by the teachers and practise the technique at home.

In the partial lockdown phase, the government allowed opening of colleges with 50% of occupancy. Hence, students were allowed to visit the campus for practising the practical topics in batches of 5. During this period, practical sessions were conducted with the help of live streaming demonstration technique. Queries from the students were addressed at the end of the session.

A 10- item questionnaire was developed for the purpose of this study in order to measure the teacher's perception towards the two teaching methods by using a Likert scale with five response options (very High, High, Medium, Low, very Low). Some questions were polar having 'Yes' and 'No' options.

Voluntary consent was taken from each teacher. They were asked to fill the online questionnaire. The questionnaire aimed to understand the class experience of the teachers and the learning effect for the student in both the methods. The teachers completed the survey and the results were collected anonymously on Google forms. The data was extracted and analysed in Excel 2013.

Results

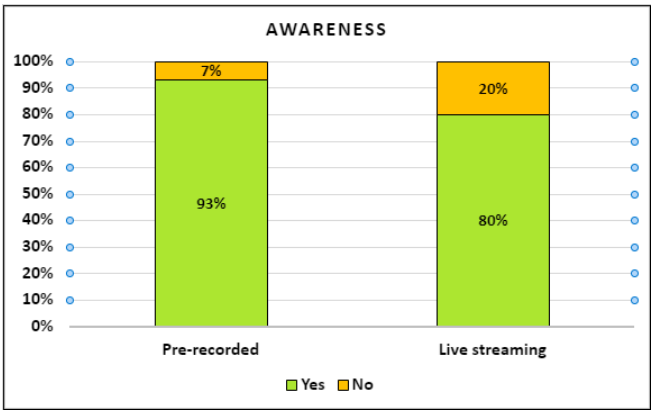
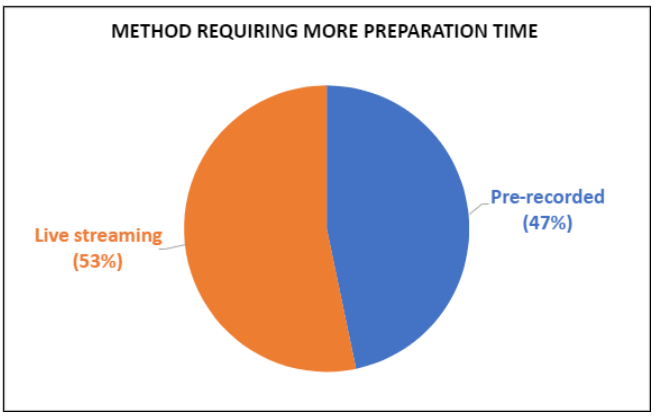


Figure 1



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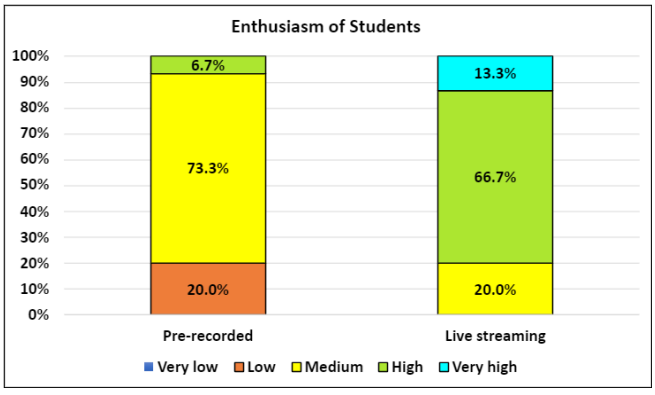

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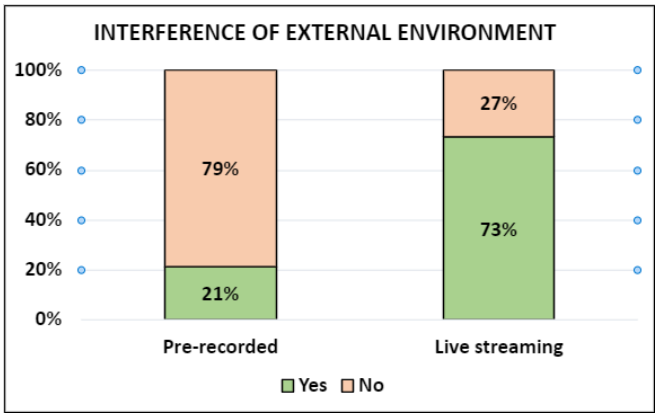

Figure 4

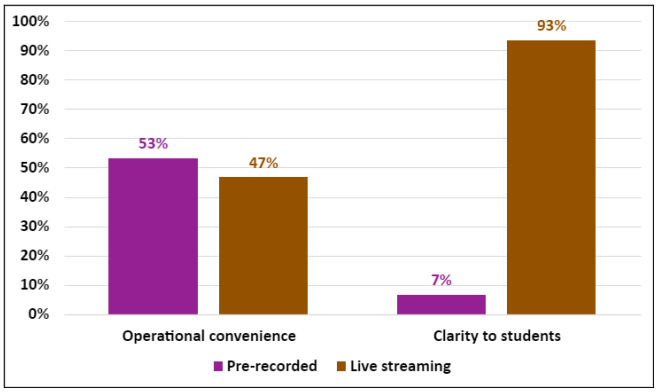

Figure 5

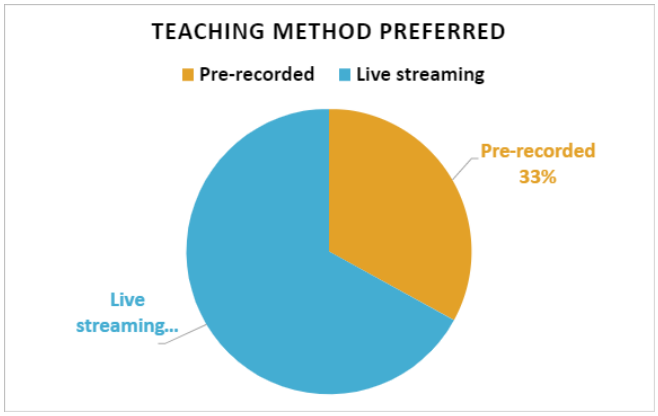

Figure 6

Discussion

New technology has broadened the teaching methods available for learners. Several studies have tested the pre-recorded video approach to educate physiotherapy students and has been shown to be as effective as live demonstration. [15,20] Therefore, the current survey was undertaken to compare Pre-recorded videos versus Live - streamed videos as an online teaching method in physiotherapy teachers.

With the development of online education today, a variety of online learning models have been formed, such as massive online open course (MOOC) and other massive course sharing or trading platforms, which have also attracted the attention of medical educators.[1] Pei and other scholars conducted a meta-analysis of the literature in 2000–2017, systematically reviewed 3700 articles, selected 16 articles that met the research standards, and discussed the degree of knowledge and skills mastered by online and offline learning in medical undergraduates.[22] Compared with offline learning, online learning has advantages in promoting knowledge and skills of medical undergraduates and is a feasible method. Some studies reported, the temporary introduction of a full e-learning approach in this physical therapist education program appeared to heighten the level of negative emotions in response to the COVID-19 pandemic.[1] In addition to experiencing rapid changes in learning activities and uncertainty within the program, many students had experienced changes in other aspects of their life including loss of employment or their social support network (e.g., social gatherings, amateur sports).[1] Changes in other aspects of their lives is likely to have impacted the psychosocial wellbeing of students.[1]

Despite having some prior experience to create educational recordings, the entire process from preparing the script to producing the final, accessible product proved time-consuming. [23] The survey showed the staff had more awareness regarding pre-recorded videos as compared to live demonstrations. Also, when compared with the preparation time required by both the methods, results showed that live streaming

required more preparation time than pre-recorded videos. The benefit of pre-recorded lectures, as opposed to the live ones, is that the former allows the students to learn at their own pace at any time without the presence of the teacher, so the understanding of the topic can be better for the students. [23] When enthusiasm of the students was rated by the teacher for both the methods on a scale of 1-5, where 1 was very low and 5 was very high, majority of the teacher's rated medium enthusiasm in both the methods. However, unlike pre-recorded very high enthusiasm was seen in Live streaming method only. Nowadays, the best online method, teachers use a combination of both synchronous and asynchronous activities, creating a blend of traditional online learning styles with newer, more collaborative audio and visual tools. [1]

Also, teacher's experienced live streaming lectures have more interference of external environment as compared to pre-recorded classes. Maidul Islam et al., also reported that students face different technical difficulties while attending live lectures. Also, in some cases it happened that they had to cancel the live video lessons. There was also privacy issues associated with students having their cameras turned on during a live class. [23] Our results showed that, pre-recorded videos had better operational convenience for the teachers, but live demonstration lectures gave better clarity of the topic to the student. Similar result was seen where live lecture has a more effective learning efficiency than the video lecture in the learning of the major. Live lectures are more interactive in nature, which allows students to interact with the learning material; this interaction may provide long-term memories to the learner [24, 25]. Thus, live demonstration lectures were better mode of teaching for the teachers than pre-recorded lectures

Conclusion

Pre-recorded video is equally as effective as a live demonstration. However, teachers preferred live demonstration technique over pre-recorded videos as better mode of teaching. Each method has its own advantages and limitations, therefore both methods can be combined in teaching undergraduate physiotherapy courses in order to improve learning experiences and to match different learning preferences of students.

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