

## EFFECTIVENESS OF VIDEO ASSISTED DEMONSTRATION VERSUS CONVENTIONAL DEMONSTRATION IN TEACHING HEMATOLOGY PRACTICAL EXERCISES TO PHASE II MBBS STUDENTS

Anitha Das P.H<sup>1</sup>, I. Praseeda<sup>2</sup>

<sup>1</sup>Associate Professor, Department of Pathology, Travancore Medical College, Kollam, Kerala, India

<sup>2</sup>Professor and Head, Department of Pathology, Travancore Medical College, Kollam, Kerala, India

Received : 10/10/2023  
Received in revised form : 08/11/2023  
Accepted : 17/11/2023

**Keywords:**

Video demonstration, Conventional demonstration, Phase 2 MBBS, Hematology practicals.

Corresponding Author:

**Dr. Anitha Das P.H,**  
Email: anithadas49@gmail.com

DOI: 10.47009/jamp.2023.5.6.45

Source of Support: Nil,  
Conflict of Interest: None declared

*Int J Acad Med Pharm*  
2023; 5 (6); 222-225



### Abstract

**Background:** Conventional demonstrations of practical exercises gives a live experience for the students but the crowding often makes it difficult to watch the procedures properly. In this era of e-learning using videos to complement teaching is considered more effective than traditional teaching methods and the advances in technology made video demonstrations easier. This study was done to find the effectiveness of the use of video demonstrations in teaching hematology practical exercises. The primary objective was to compare the effectiveness of video assisted demonstrations over conventional demonstrations in teaching hematology practical exercises to Phase II MBBS students and the secondary objective was to find out the perception of the students regarding the use of video assisted demonstrations in teaching hematology practical exercises. **Materials and Methods:** This was a quasi-experimental study done among Phase II MBBS students of Travancore medical college, Kollam. A total of 70 students were selected and divided into 2 groups of 35 students each. One group was taught Hematology practical exercises using conventional methods and the other group was taught the same using video assisted demonstrations. At the completion of the exercises, Objective structured practical examinations (OSPE) were conducted for both the groups followed by which there was a cross-over for both the groups for ethical reasons. The feedback from the students regarding the two instructional methods were also assessed using Likert scale. **Results:** The data collected comprised of the OSPE scores and feedback scores by Likert scale which were analysed using SPSS software. The mean scores of the OSPE exam showed that the students who were taught by video assisted demonstrations performed the exercises better than the students who were taught by conventional demonstration methods. This improvement was statistically significant with the p value <0.05. On feedback analysis, 97.1% of the students taught using video demonstrations and 82.8% of the students taught using conventional demonstrations agreed that the exercises were made easy to understand with increased reproducibility following video assisted demonstrations. **Conclusion:** Video assisted demonstrations are effective teaching learning method for teaching hematology practical exercises to Phase II MBBS students.

## INTRODUCTION

Learning different practical skills is one of the main targets in higher education especially in medical education.<sup>[1]</sup> Teaching different subjects and skills require different methods and techniques and the instructor's way of teaching is a major factor that affects the learning process of the student.<sup>[2]</sup> In the

MBBS curriculum the Phase II medical students have to acquire knowledge as well as master the skill of demonstrating the hematology exercises. Conventional teaching of hematology exercises include brief theory presentation followed by demonstration of the exercise. Demonstration refers to visual presentation of the activities aiming to facilitate learning since the students directly watch

the procedure being performed and can ask questions during the procedure. It provides live experiences to the students. They can enhance their clinical skills and put that into their practice. However, the live demonstration method has some drawbacks as well, especially as the crowding makes it difficult for all students to fully watch the procedures performed.<sup>[3]</sup> In the event of pandemic situations like COVID, crowding of the students in practical classes are not allowed, so video assisted demonstrations will be more appropriate. In this era of e-learning, using videos to complement teaching is considered more effective than traditional teaching methods.<sup>[4]</sup>

In the new as well as in the old curriculum, hematology exercises are an important part of Phase II MBBS practical examinations. As we know students in the current era are bound to use the modern materials such as the video tutorials for learning purpose.<sup>[5,6]</sup> Using videos in undergraduate medical teaching has been known to promote observational skills and clinical reasoning. Videos not only impart knowledge but also prove to be a tool for self-study also.<sup>[7,8]</sup> So apart from the conventional demonstration methods, teaching learning methods like video assisted demonstrations can be used to teach the practical exercises to the students. With this background we conducted this study to compare the effectiveness of video assisted demonstration over conventional demonstration methods in teaching hematology practical exercises.

## MATERIALS AND METHODS

**Study Design:** Quasi-Experimental study.

**Study Setting:** Department of Pathology, Travancore Medical college. Kollam

**Study Period:** 1 month

**Study Population:** Phase II MBBS students

**Sample Size:** 70 students (In two groups of 35 students each)

**Sampling Technique:** Convenience sampling.

### Inclusion Criteria

Phase II MBBS students who were willing to participate after getting an informed consent.

### Exclusion Criteria

Those who were absent for the study.

**Study Method:** The study was started after obtaining Institutional review board and Ethics committee approval (IEC number- 110/22) Before beginning the study, the Phase II MBBS students were oriented to the study method. 70 voluntary participants were selected and were divided into 2 groups, Group A and B. An informed consent was obtained from the students. The confidentiality of the study participants were maintained. 4 hematology exercises including blood grouping, Hemoglobin estimation, Peripheral smear staining and Peripheral smear preparation were demonstrated in 4 separate practical sessions.

All these 4 hematology exercises were taught to Group A using the conventional direct demonstration and the B group were taught using a video assisted demonstration of the exercise where the teacher shows a video demonstration on how to do the particular exercise with a brief description of the steps of the exercise.

Week	Exercises	Group A	Group B	Assessment
1	Blood grouping	Conventional demonstration	Video assisted demonstration	OSPE
2	Hemoglobin estimation	Conventional demonstration	Video assisted demonstration	OSPE
3	Peripheral smear preparation	Conventional demonstration	Video assisted demonstration	OSPE
4	Peripheral smear staining	Conventional demonstration	Video assisted demonstration	OSPE

So there were four interventions and eight exposures in this study. Immediately after the teaching sessions the students in both groups were given a Objective structured practical examination (OSPE) using a pre validated OSPE checklist for skill assessment.

A feedback form using Likert scale were given to the students after the sessions to assess the level of perception of these teaching methods. Test scores was documented in the OSPE checklist and feedback scores were documented in the feedback questionnaire. The data collected was entered into an excel sheet and analyzed using the SPSS software. The statistical significance of the difference in mean scores were compared using unpaired t-test, p value of less than 0.05 is taken as significant. Feedback scores were expressed with descriptive statistics. After evaluation cross over was done for ethical reasons.

## RESULTS

Out of the 70 students, 29 (41.4%) were males and 41 (58.6%) students were females [Table 1]. The mean scores of the OSPE showed that the students taught by video assisted demonstrations performed better than the students who were taught by conventional demonstration methods. This improvement was statistically significant as p value was <0.05 (as shown in Table 2).

On analyzing the feedback form of students, it was found that most students preferred video assisted demonstrations as teaching method for learning hematology practical exercises. 97.1% of the students taught using video assisted demonstrations as well as 82.8% of students who were taught using the conventional methods agree that the exercises were made easy to understand with increased reproducibility using the video assisted demonstration methods. Majority of the students (80%) taught with video assisted demonstrations as well as 71.4% of students taught with conventional methods strongly agree that they prefer video assisted demonstration over conventional demonstration in learning hematology practical exercises (as shown in figure 1 and 2)].

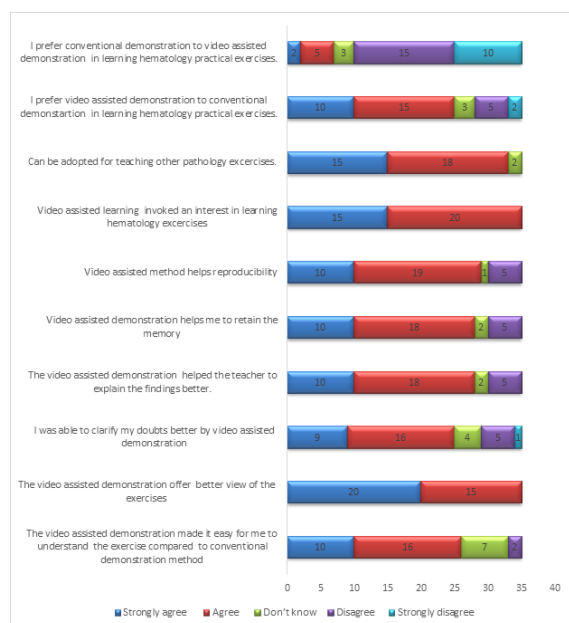
**Table 1: Gender distribution**

Gender	Group		Total
	Conventional Demonstration group	Video assisted demonstration group	
Male	15 (42.9%)	14 (40.0%)	29 (41.4%)
Female	20 (57.1%)	21 (60.0%)	41 (58.6%)
Total	35 (100%)	35(100%)	70 (100%)

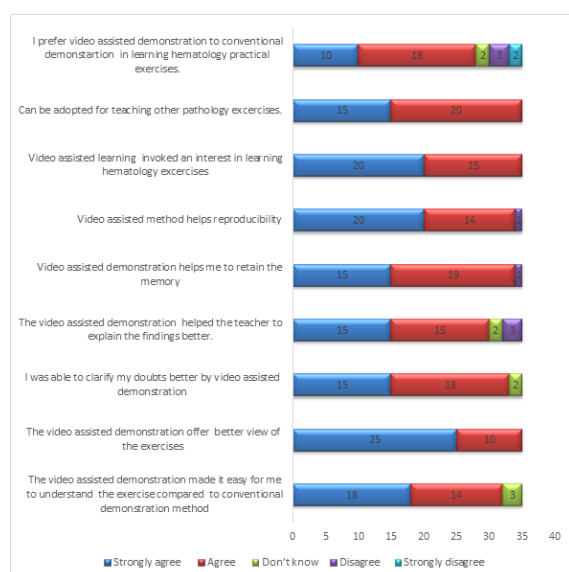
**Table 2: Mean scores of Objective structured practical examinations (OSPE)**

	Group	N	Mean	SD	Independent sample t test	p value
Exercise-1 Haemoglobin estimation	Conventional Demonstration group	35	9.34	0.725	4.045	0.001
	Video assisted demonstration group	35	9.89	0.323		
Exercise-2 Blood grouping	Conventional Demonstration group	35	9.51	0.562	2.438	0.017
	Video assisted demonstration group	35	9.80	0.406		
Exercise-3 Peripheral smear preparation	Conventional Demonstration group	35	9.54	0.561	2.802	0.007
	Video assisted demonstration group	35	9.86	0.355		
Exercise-4 Peripheral smear staining	Conventional Demonstration group	35	9.51	0.562	2.735	0.008
	Video assisted demonstration group	35	9.82	0.382		

p value was calculated by independent sample t test, p<0.05 considered as statistically significant



**Figure 1: Likert scale- Conventional group**



**Figure 2: Likert scale- Video demonstration group**

## DISCUSSION

In addition to the theory knowledge, practical exercises are also equally important in MBBS curriculum, so the National medical commission has clearly defined the objectives of laboratory work in pathology and this has been endorsed by the respective state universities across India. Introducing practical work will help the students to improve skills so that at the end of the course, the student can conduct experiments, interpret data, and distinguish between normal and abnormal data derived from tests that he/she has performed and observed in the laboratory.<sup>[9]</sup> As we all know this is the era of e learning and the advancement in technology made changes in medical education fields also. The use of social media platforms, learning applications, video demonstrations and online discussions are now becoming an inevitable part of education. These advance teaching methods make teaching more interesting, interactive and accessible.

70 students of pathology practical batches participated in our study in 2 groups of 35 students each. One group was taught 4 hematology practical exercises using conventional demonstrations and other group using video assisted demonstrations. Assessments were done using OSPE. Our study has demonstrated that students taught with video assisted demonstrations have shown a statistically significant improvement in the objective structured practical examinations compared to the students who were taught using conventional demonstration. This result is in conformity with the study conducted by Nishi et al,<sup>[1]</sup> where the knowledge, attitude and practice of the students improved by video assisted teaching. Video demonstrations are considered very effective method in teaching basic clinical skills as well as practical exercises as proved by Devi et al,<sup>[2]</sup> and Padmavati et al,<sup>[10]</sup> in their study where they concluded that both video assisted and conventional demonstration methods are equally effective teaching methods in undergraduate teaching.

A combination of teaching learning methods can be adapted where we can combine the conventional teaching learning methods with new and interesting modes of teaching and learning, which will help to evoke an interest in students and helps to develop their skills and knowledge. Kaur et al,<sup>[3]</sup> in their study also recommended a combination of the live and video assisted teaching and found that both techniques were equally effective in enhancing skill development in students. Alqahtani et al,<sup>[11]</sup> in his study concluded that procedural video is as effective as live demonstration and both methods should be considered as teaching methods in order to improve learning experience and to match different learning preference of students. Xeroulis G.J et al also commented in his study that video instructions were as effective as expert intervened methods in teaching skills.<sup>[12]</sup> Analysis of the feedback of our study showed that most of the students participated in our study preferred the use of video assisted demonstrations over conventional demonstrations.

## CONCLUSION

Our study findings showed that video assisted demonstrations are effective instructional methods in teaching hematology practical exercises. The traditional way of conventional demonstrations combined with video demonstrations will be more beneficial to the students and can be incorporated for better teaching and learning outcomes.

The major limitation of this study is that it is based on a small sample population and hence the results may not be generalizable to all the medical students.

### Acknowledgement

The authors acknowledge Phase II MBBS students of 2019 Batch of Travancore Medical College, Kollam for their enthusiasm and participation in the study. We were also grateful to the teaching and non teaching staff of the Department of Pathology, Travancore Medical College as well as our statistician Mr. Sony Simon who facilitated this study. We are thankful to the faculty members of NMC nodal center for faculty development, Kottayam and the fellow participants of ACME12 batch and ACME10 batch who helped us by peer

reviewing this project proposal and provided the valuable insights.

## REFERENCES

1. Dr Nishi Roshini K, Dr Andrews MA. Effectiveness of video-assisted teaching program and traditional demonstration of mechanism of labor on undergraduate medical students. *Int.J.Med.Sci.Educ.* Oct-December. 2019;6(4):72-76.
2. Devi B, Khandelwal B, Das M. Comparison of the effectiveness of video-assisted teaching program and traditional demonstration on nursing students learning skills of performing obstetrical palpation. *Iran J Nurs Midwifery Res.* 2019 May 9;24(2):118.
3. Kanwalpreet Kaur, Neena Vir Singh, Sandhya Ghai, Meenakshi Agnihotri. A Comparative Study To Assess The Effectiveness Of Live Demonstration and Video Assisted Teaching on Nasogastric Tube on the skill development of Nursing students. *Nursing and Midwifery research journal* Jan 2015.
4. Shaffer K, Small JE. Blended learning in medical education: Use of an integrated approach with web-based small group modules and didactic instruction for teaching radiologic anatomy. *Acad Radiol.* 2004;11:1059-70.
5. Paavizhi K, Palamuthu Palaniswami, Dr .AR .Saravanakumar. Effectiveness of video assisted learning module. *International Journal of control and Automation.* Dec 2019,12(6):268-275
6. Ocak M, Topal A. Blended learning in anatomy education: A study investigating medical students perceptions. *Eurasia J Math Sci Technol Educ.* 2015;11:647-83.
7. Kelly M, Lyng C, McGrath M, Cannon G. A multi-method study to determine the effectiveness of, and student attitudes to, online instructional videos for teaching clinical nursing skills. *Nurse Educ Today.* 2009;29:292-300.
8. Benitto A. Effectiveness of video assisted teaching module on effects of substance abuse. *J Psychiatr Nurs.* 2013;2:1-36.
9. SavithaD, Tanya A. Students perceptions of doing hematology physiology practicals. *Advances in Physiology education.* 2020 Mar 1;44(1):65-7.
10. Padmavathi R, Omprakash A, Kumar A.P. Video demonstration as a teaching learning method for a core clinical skill among undergraduate medical students: An interventional study. *Natl J Physiol Pharm Pharmacol.* 2019;9(6):547-550.
11. Alqahtani, N.D, Al-Jewair, T, AL-Moammar, K. et al. Live demonstration versus procedural video: a comparison of two methods for teaching an orthodontic laboratory procedure. *BMC Med Educ* 15, 199 (20).
12. Xeroulis GJ, Park J, Moulton CA, Reznick RK, LeBlanc V, Dubrowski A. Teaching suturing and knot-tying skills to medical students: A randomized controlled study comparing computer-based video instruction and expert feedback. *Surgery.* 2007 Apr 1;141(4):442-9