

# THE USE OF VIDEO IN A TEACHING UNIT

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## SYNOPSIS

The use of videoequipment in a teaching unit is described. Lectures, films and surgical procedures have been video-recorded. Recordings of simulated lectures have been used for upgrading of lecture techniques. Video recordings of simulated viva sessions help refine the examinees performance.

## INTRODUCTION

The technical advances of the electronic industry have made available, albeit for a substantial price, video equipment for the technically unsophisticated. The development of the use of this equipment in a teaching unit is described.

## PHASE ONE

The video equipment was initially acquired by the Department of Obstetrics and Gynaecology, University of Singapore, for use in a teacher — training programme. The unit began with a basic set up as listed below. (The prices quoted are the purchase price, 1976, in Singapore dollars, rounded off to the nearest S\$50.00).

**Table One: Basic Equipment**

Quantity	Item	Price
One	Colour Video Camera with control unit (Sony DXC 1600 P)	S\$14,000.00
One	Tripod and Dolly	S\$ 200.00
One	Camera brace (Sony VC F4)	S\$ 350.00
One	Video cassette recorder player (Sony VO 1810)	S\$ 4,400.00
One	18 inches colour TV monitor (Sony CMV — 1810 E)	S\$ 2,500.00
One	Flood lamp, 1,000 watts (Flectalux)	S\$ 200.00
Six	Video cassettes, one hour (Sony KCA-60) @ S\$80.00 each	S\$ 500.00

## UTILISATION

The equipment was set up in a conference room and trial recordings were made. It was immediately evident that the

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microphone on the camera was not adequate for distances of greater than two metres, that the three meter video camera cable was too short, that power extension cables were required, and the camera brace was not practical for our purpose.

A ten metre extension cable for the videocamera was found to provide adequate mobility for the camera. The small omni-directional Sony ECM-16 microphone which clips on to the speaker's shirt was found to be suitable for sound recording. A passive sound mixer (Sony MX-8) was used to allow several microphones to be used together.

The basic set up functioned satisfactorily. Teaching sessions were videorecorded and the videotape replayed as many times as required, with the training team making relevant remarks about the teaching techniques during the replay. The unit photographer, who has had no previous training or experience with video equipment, was put in charge of the equipment and he operated it admirably. Any interested doctor, with no special training in electronics, was able to handle the equipment within the hour, camera, recorder and all.

**PHASE TWO**

After six months experience, it was decided to expand the videocentre facilities.

**EQUIPMENT**

A further three videocassette-recorder-players (Sony VO 1810) and three 13 inches video monitors (Sony CVM-1310 E @ S\$1,800.00 each) were acquired.

A 26 inches Setron TV monitor was installed in the conference room for large group viewing.

A cabinet mounted on castors was made to house the original video-monitor, videocassette-recorder-player with the videocamera and camera control unit, tripod, dolly and cables.

The new monitors and videocassette-recorder-players were installed into audio-visual booths which were designed to accomodate 1-2 persons and also fitted with equipment for tape slide programmes. A total of eight Flextalux flood-lamps were installed in the conference room which doubled as a recording studio (see accompanying sketch).

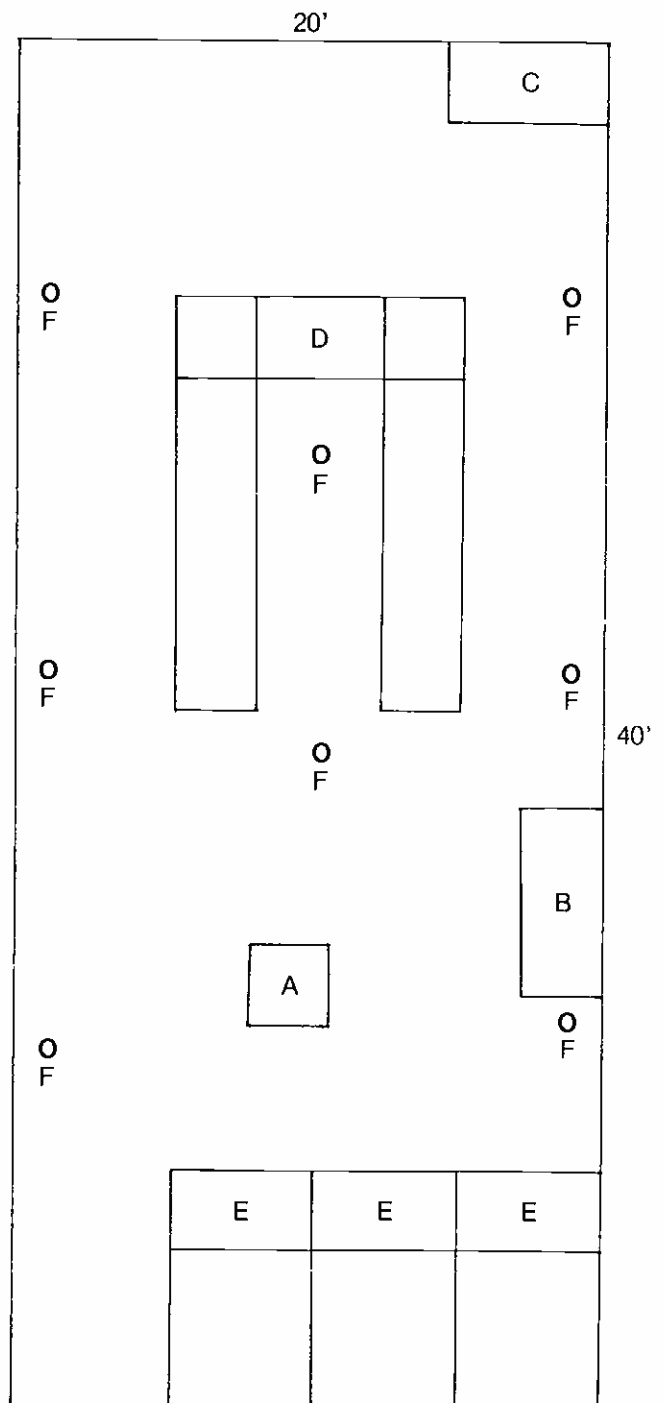
An additional two units of three-horse powers air conditioners were installed in the windows of the conference room (size of room 20 feet x 40 feet), which was already supplied by a central aircondition plant, as the heat from the flood-lamps made the room uncomfortably warm.

Additional power points were installed, where necessary.

**SKETCH OF STUDIO LAYOUT**

Legend

- A) Videocamera
- B) Cabinet with 18" Monitor, camera control unit sound mixer videocassette recorder-player.
- C) 26" screen
- D) Desks for participants
- E) AV booths with 13" screen recorder-player tape slide equipment
- F) 1000 watt flood lamp



## PROGRESS

The departments collection of 8 mm and 16 mm films were each transcribed onto videotape by the simple process of projecting the film onto a silver screen six inches by eight and focusing the videocamera onto the small screen.

Commentaries of the silent surgical procedure films were dubbed onto the videotape by one of the staff members.

The video equipment was brought to the gynaecological theatre. It was used for closed circuit demonstration and for video recording of surgical procedures.

The videocamera was also attached to a laparoscope using an adaptor. The hand held camera was very unwieldy, but satisfactory videorecording of laparoscopic examination was possible. The light source used was the Wolf photoflood lamp (Reference Number RIWO LS 5104).

Simple edition of the videotapes was done by transcribing videotapes from one videocassette-recorder-player to another. In this way the major steps of a 90 minute surgical procedure could be demonstrated on a videotape of 10 minutes. The purchase of a video editing equipment has been deferred on account of the cost (S\$32,000.00).

To date the video collection include a series of 108 lectures, 38 films and five surgical procedures.

A further use of the video equipment has been developed: post graduate students are given viva voce sessions which are videotaped. The sessions are replayed and the examiner provides critical feedback to the examinee.

## DISCUSSION

A critical factor affecting the decision regarding choice of video equipment is reliability and backup service. The present equipment was found to be satisfactory and the single only major repair in the last two years was rapidly attended to by the agents.

Another important factor is the availability of equipment and programmes. There are no available pre-recorded programmes locally available, but there are a few institutions who have similar make of video-equipment. The School of Nursing possess a Sony colour video camera and the Faculty of Medicine is purchasing similar video-recorder-players.

There are a number of commercial organizations that use Sony equipment for their training and some of the training centres have collaborated with our department for some teaching programmes.

There had previously been a neglect of teacher training in medical education, and the teacher

training for doctors contributes towards a relevant need. The video playback certainly makes an impact on the development and refinement of teaching and the video sessions were well appreciated by all those who participated in the teacher training programme.

The use of video for presentation of 16 mm films has made the film programmes available to individual viewers at their own timing, without need to call upon the projectionist. This mobility of programmes has been well appreciated by the medical students. The 16 mm films are protected from wear and tear under this system, for the film need only be screened once, and the video programme viewed as often as desired.

The video tape version of the film has a lower degree of fidelity. Colour reproduction is not true because the colour temperature of the cine-projector is not identical with the colour temperature of the video camera. The videoscreen is small (13 ins. to 18 ins.) and small details that could be seen on the cinescreen may be obscured on the video monitor.

After the initial purchase of equipment the cost factor is an advantage. A cinefilm that costs S\$400.00 — S\$600.00 to replace is protected from damage by the use of a S\$80.00 video-tape.

The use of video equipment for closed circuit demonstration of surgical procedure has given several participants excellent views of the surgical procedure at close range. With the zoom lens, the observer may even see greater details of the anatomy than the surgeon! Video-laparoscopic observation is seriously impeded because of the relative immobility of the video camera: a suspension boom will have to be developed before video-laparoscopy is clinically practical. Comparing video-recording to filming of surgical procedure the video tapes major disadvantages are:

1. Relative greater cost for initial equipment. Videorecording equipment S\$20,000.00 and cine camera S\$450.00.
2. Unable to view on a large screen
3. Video editing facilities are limited

The advantages of video over film include:

1. Relative lower cost of videotape compared to film (videotape 1 hour S\$80.00, 8 mm cine film 1 hour S\$300.00).
2. Instant playback: no time wasted for film to be developed, instant checking that focus and lighting are correct.
3. Ease of replay
4. Audio dubbing is simple
5. Ease of viewing of video cassette as compared to film

## CONCLUSIONS

The use of the videoequipment has enhanced the teaching facilities of the department: undergraduates, postgraduate students and the academic staff have all appreciated the use of the various video programmes and close circuit demonstrations that the video-equipment has made available. It is true that great expenses have been incurred in the development of the video-centre, but the authors are sure that they have not purchased a white elephant. The equipment acquired has been dependable and with the enthusiasm displayed by the academic staff and postgraduate trainees who operate the equipment,

the growth of the video centre is inevitable.

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