

Distance Education in Health Care: Experiences with Lab Training Personnel

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Imparting skills to health care professionals seems like the preserve of the face-to-face mode of teaching. With a bit of lateral thinking and a touch of innovation, we find that it is not the case necessarily.

Our interest in this article lies in the evidence it presents to prove distance education as a cost effective method to enhance the reach as well as the quality of training programmes. Here is an example of an advantage that the DE system offers, namely, the stretching of limited resources—in terms of organisational structure, staff etc.—to a larger population.

We have carried articles on the successful experimentation with the DE system in medical and health education in our previous issues. Our intention is to dispel the scepticism hovering around the utility of DE for areas such as training, transfer of skills and so on. Experience tells us with increasing conviction that DE as a system is indeed a viable alternative solution to many of the problems resulting from the resource crunch.

Quite naturally, a smile is in order!

1. THE CONTEXT

1.1 CMAI

The Christian Medical Association of India (CMAI) was established in 1905, and is now a charitable non profit Christian educational society. Based on its goal it has education and training of health professionals as one of its functions.

1.2 Programme

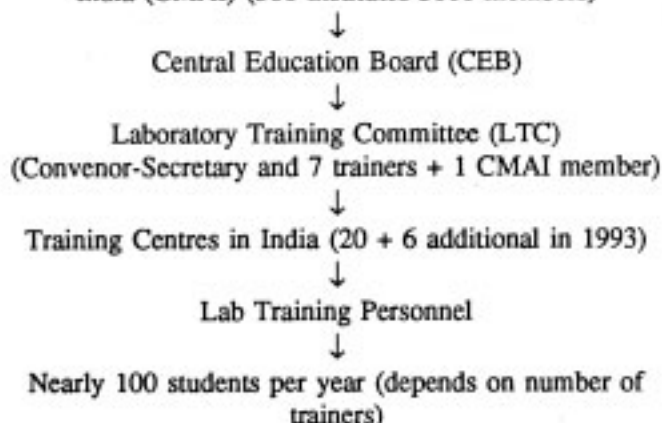
The laboratory training programme of the CMAI is one of its training programmes for allied health professionals and was formalized in 1942. It has so far trained 3715 personnel who have undergone one year training. However based on the demand, need and relevance a two-year diploma course was started in 1990. The one year course was phased out by 1993. The CMAI Lab Training Committee has laid down standards, so that the training offered is "quality training" based on modern educational methods and technical standards. The organisation also trains lab technicians to become tutor technicians, who become the trainers for the course. This is the one year 'tutor trainee' course started in 1964 at CMC. The total number of people trained in this is 68.

A new addition to the already updated one year syllabus was histopathology techniques and cytology. Many of the teachers (tutor technicians) did not feel confident in this

area. Thus at the request of the teachers, a Distance Education programme was organised for the 20 centres situated in different parts of India.

1.3 Organisational Structure of CMAI

(The organisational structure of CMAI is represented in the diagram below: Christian Medical Association of India (CMAI) (300 institutes-3000 members)



1.4 National Profile

Some of the 146 Medical Colleges in India conduct laboratory training programmes. Besides these there are many private and autonomous organisations conducting laboratory training programmes, some of which are government/university recognised courses. Unlike

medicine, nursing, dental and pharmacy there is no laboratory council to set standards or check the quality of training offered by the numerous organisations. However, there is a need and demand for good trained laboratory technicians in the country, and also in some of the developed and developing countries. A similar distance education programme for continuing education of laboratory technical personnel has not been documented.

1.5 Objective

The objective of the programme was to help all the trainers and examiners of the two-year technician training course to update their knowledge in histopathology technique and cytology so that they could train and assess the students more effectively.

1.6 Need and Relevance

This course was based on the demands and needs of the learners. The learners for this course were the tutor technicians/pathologists who were trainers for the two-year lab training course. The needs were identified by the learner group in 1992. The programme was relevant since the two-year course included the topic in the syllabus. Thus it was a need-based relevant programme.

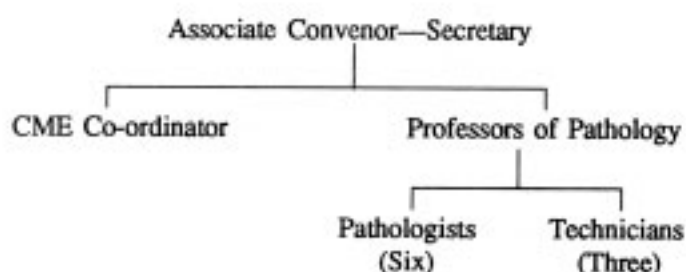
2.0 INPUTS

2.1 Planning

The Lab Training Committee delegated the responsibility of conducting the distance education programme to the Associate Convenor-Secretary who was at CMC, Vellore. The initial planning included the pathologists and technicians from the Christian Medical College, Vellore in January 1993. It was decided to have 3 modules, followed by a contact programme in the form of a workshop.

2.2 Organisational Structure and Staffing (All CMC staff) for the Programme

The staffing structure for the programme is given in the diagram below:



2.3 Resources and Costing

The infrastructure of the Pathology department at CMC was utilized. The other necessary resources including trainers were also available. The funding for the whole course was from the workshop budget of the CMAI. The

total allotment was Rs. 20,000. The costing for this distance education programme was not done in detail. However Table 1 indicates a rough costing outline.

Table 1 : The cost involved

	In Rs.
Travel expenditure of participants	10,000
Food, Lodging etc.	5,000
Photocopying, Lab expenses etc.	5,000
Total	20,000

However this does not include indirect costs, like faculty time, opportunity cost, fixed costs etc. In this instance, all the participants were sponsored by the organisation. However, there was no expenditure incurred by the participants. The per learner cost is approximately Rs. 740/-, which could be a consequence of a cost efficient methodology assuming that a face-to-face session lasting at least two weeks would certainly involve much more resources.

3.0 THE EDUCATIONAL PROCESS

3.1 Course Development

Based on the specific and identified need, the course was developed. Three modules were prepared and sent to each centre in February/March 1993 (Table 2). The tutors and pathologists in the centre were involved in the programme.

Table 2 : Centres involved in the course

State	Number of Centres	Number of Students in each centre 1991-1992
Kerala	14	122
Tamil Nadu	3	23
Karnataka	2	16
U.P.	1	8
Total	20	169

In 1993 six more centres were included. Each module had a total of 15-20 objective questions which constituted a pre test/post test. The evaluation of this is shown in Table 3.

Table 3 : Range of pre test/post test scores of 3 modules

	Pre Test in %	Post Test in %
Module 1	44-88	40-96
Module 2	30-90	30-80
Module 3	8-85	40-85

This testing involved 27 participants. However, due to some unknown factors the post test scores for a few were lower than those in the pretest. Nevertheless, the overall learning did take place in the group. Each module was prepared by a Pathologist according to the principles of distance education and included the learning objectives, test, revision, assignments, self check etc.

3.2 Teaching learning process

Each module was meant to be a self learning module for the highly motivated adult learner.

A two-day contact programme was organised at CMC Vellore in the form of a workshop on 15 & 16 March 1993. The objectives of this workshop were to:

- Strengthen knowledge gained in modules
- Reinforce practical skills
- Sensitise the participants in team building and let them experience its importance through group dynamic exercises and games, thus rendering psychological support to the group
- Achieve the objective of staff development and thus enhance the quality of education.

Besides self learning, the other teaching-learning methods used for the 27 participants were:

- Small group discussion (total 3 groups). Each module was moderated by a pathologist. Learning experiences based on assignments and actual practical problems were shared. Each moderator presented the minutes of the discussion in an open forum with all participants where further discussion occurred. Many questions were raised and thus learning was strengthened.
- Some of the pooled questions were later answered by a pathologist in the form of a lecture, followed by further questions.
- Demonstration of some relevant practical slides, equipment etc.
- Sharpening of practical skills where each participant had to undertake certain exercises based on the syllabus of the two-year course.
- Games/exercises to sensitise the group about the importance of team building and motivation, which culminated in a social gathering.
- Individual need based learning resource material distribution for further self learning, utilising the library facilities of CMC.

3.3 Evaluation

At the beginning of the contact programme a pretest was given, followed by the same test as a post-test at the end of the second day. The course was also evaluated and the feedback information was looked into. This was based on a questionnaire and also discussed briefly in the open forum. The total number of registered participants was 27. Another 8 were non registered participants from CMC,

they were pathologists and technicians.

The different teaching-learning methods used are represented in Table 4.

Table 4 : Teaching learning methods

Methodology	Mode of Transmission
Modules 1, 2 & 3	Postal
Counselling/Discussions/Sharing	Contact
Demonstration	
Practicals	
Games/Exercises	
Experimental learning	
Lecturing	
Further need based LRMs* from library	

* LRMs - Learning Resource Materials

3.4 Learner Characteristics

The learner group of 27 registered participants (total 35 who participated) indicated the following characteristics. They were from 19 institutions from 5 different states (Table 5).

Table 5 : Statewise distribution of registered participants

Andhra Pradesh	1	(3.7%)
Uttar Pradesh	1	(3.7%)
Tamil Nadu	4	(14.8%)
Karnataka	7	(25.9%)
Kerala	14	(51.9%)
Total	27	(100)

The unregistered participants were from CMC, Vellore. This indicates that nearly 93% were from the three Southern States.

Table 6 : Professional qualifications of the participants

Pathologists	7	(20%)
B.S.M.T. (ASCP)	4	11.4%
B.Sc. M.L.T.	2	(5.7%)
Tutor Trainers	16	(45.7%)
Other technical staff	6	(17.2%)
Total	35	(100)

Table 6 indicates that the professional qualifications were diverse with varied levels of knowledge and experiences. Nearly 80% were technicians of varied qualifications. However, they were all trainers for the same target group of learners.

Table 7 : Age group of participants

20-39	7	(20%)
31-40	16	(45.7%)
41-50	6	(17.1%)
Above 50	2	(5.7%)
Not known	4	(11.5%)
Total	35	(100)

Table 7 indicates that nearly 66% of the group belonged to the 20-40 age group and Table 8 indicates that nearly 66% were women.

Table 8 : Sex distribution of participants

Male	12	(34.3%)
Female	23	(65.7%)
Total	35	(100)

Table 9 indicates that nearly 77% of the group were highly motivated to participate. Of the registered participants, 3 indicated a satisfactory rating and 1 did not respond. This shows that nearly 85% were motivated. This high motivational level could be due to the relevance and need of the programme as already indicated by this adult group.

Table 9 : Motivational level of participants

Very high	5	(14.3%)
High	22	(62.9%)
Satisfactory	6	(17.1%)
No response	2	(5.7%)
Total	35	(100)

Table 10 indicates the reaction to distance education as a training methodology for continuing education and for staff development. It did occur in 88% of the participants with nearly 57% indicating a higher rating.

Table 10 : Response of participants to distance education as a training methodology

Certainly Yes	20	(57.2%)
Yes	11	(31.4%)
No response	4	(11.4%)
Total	35	(100)

This was a pilot programme. Table 11 indicates the response to assignments in the 3 modules. Only 20% of the learners completed the assignments.

Table 11 : Response to assignments in modules

Fully done	7	(20%)
Partially done	15	(42.9%)
Not done	8	(22.9%)
No response	5	(14.2%)
Total	35	(100)

Many factors like problems of postal delay, time constraints of the employed participants and lack of awareness of distance education might have contributed to this poor response indicated in Table 11.

3.5 Institutional Characteristics

Table 12 indicates the varied information from the 19 training institutions from where the 27 registered participants had come to CMC, Vellore.

Table 12 : Some institutional characteristics

Number of beds	150 to 850
Biopsy number per year	'0' to above 2000
Cytology number per year	'0' to above 750
FNAC number per year	'0' to above 750

4.0 EDUCATIONAL OUTCOME

The following educational outcome is apparent from the pilot study —

- Many laboratory trainers were sensitized to the concept of distance education as trainers and learners. This is indicated under section 3.3.
- An unmet need of a group of trainers was met through distance education.
- The overall programme evaluation indicated many problems. The overall response was very rewarding. Many positive suggestions emerged which could be applied for such future programmes.
- The sensitisation was very good in that a complete consensus emerged for such future programmes for continuing education. The practical suggestion for a distance education bridge course for the previous one-year diploma holders emerged. This is being taken up by the administrators.
- An improvement in quality of training is likely to occur.

Some of the evaluation comments are indicated in Tables 13-14. The feedback data about the 3 modules is presented in Table 13. The overall usefulness ranged from 97-100%. The adequacy of the content ranged from 82.8% to 88.6%. The presentation of the modules was rated as 85.7% to 91.4%. Table 14 indicates the response to achievement of the 5 listed objectives which ranged from 94.3% to 100% (Calculation is based on the 35 persons who participated)

Table 13 : Rating of modules

Module	FOR YOUR WORK			CONTENT			PRESENTATION		
	Very useful	Useful	Not useful	Too much	Adequate	Too little	Good	Average	Poor
I	22 (62.9)	11 (31.4)		2 (5.7)	31 (88.6)		32 (91.4)		
II	22 (62.9)	10 (28.6)	1 (2.8)	1 (2.8)	29 (82.8)	1 (2.8)	30 (85.7)		
III	23 (65.7)	11 (31.4)		1 (2.8)	31 (88.6)		32 (91.4)		

Table 14 : Achievement of objectives

Objectives	Fully achieved	Partially achieved	Not achieved
5.1 Knowledge gained in the modules	11 (31.4)	23 (65.7)	
5.2 Evaluate the modules	8 (22.9)	23 (65.7)	2 (5.7)
5.3 Reinforce skills	10 (28.5)	22 (62.9)	2 (5.7)
5.4 Aware of artefacts + demonstration	18 (51.4)	17 (48.5)	
5.5 Team Building	19 (54.2)	14 (40.0)	1 (2.8)

The evaluation comments were pooled and shared with the faculty and the CMAI administrators.

5.0 FUTURE TRENDS

This is only a pilot experience in distance education with a group of health care professionals. With further sensitisation

of a larger number of trainers in the health care field, its application in the future is considerable.

The CMAI intends to apply distance education methodology to update the one-year Diplomas so that they could update their initial training and obtain a more credible two-year diploma.

Some of the trainers involved in training other allied health professionals under the auspices of CMAI have also been sensitised to distance education in 1993 at Bangalore.

6.0 CONCLUSION AND SUMMARY

Distance education for continuing education is a method for enhancing quality in training. In this article the initial pilot experience of a distance education programme for 35 participants (Technicians and Pathologists) is shared. The conclusion is that this could be a flexible model for similar cost effective training programmes in the health care field which could supplement the conventional training programme in the country for enhancing quality training and to initiate continuing education for allied health professionals and doctors.