CHAPTER – VII

SUMMARY

7.0   Introduction

For a nation like India with its population nearing 100,000 million distributed over nearly 3.2 million square kilometers of scattered geographical area (Manorama Year Book, 2002), special effort is required to reach all of them with a development package including education. In the 21st century, when we analyze the achievements in educating the masses in the recent past and look at the task ahead, we do realize that the situation is changing very fast and distance education is one of the possible answers to meet the requirement of those staying far away from the centres of education, especially, quality education or standard education.

The approach to education in India has been mainly through the formal system. As a result the system has remained inadequate in order to meet the National needs and has also produced several imbalances .The well known criticism against the existing educational system are that it is "elitist, rigid and expensive". Obviously such a system would not be able to meet the needs of a changing society.

Inadequacies, rigidities and limitations of the formal system have aptly been described by the then Minister of Education Mr. K.C. Pant in his statements of Objects and Reasons for the establishment of the "Indira Gandhi National Open University" (IGNOU) while introducing the bill in the Rajya Sabha.

It was then IGNOU was established as an alternative channel to supplement and supplant formal education system.

7.1 Indira Gandhi National Open University (IGNOU)

IGNOU was established in 1985 to widen educational opportunities by using modern communication technologies, to those who have hitherto been denied access to education.

IGNOU with its 44 regional centers, 626 study centers all over the country presently offers 62 programmes and 673 courses to more than 2,90,000 students (IGNOU Profile 2001), who can participate in the counseling sessions related to their area of studies. To equalize opportunities and to take higher education to the doorsteps of the pupils, IGNOU followed multimedia and satellite communication (telecommunication) to carry its teaching-learning process.

In order to make IGNOU programmes more effective and interactive, there was a need to humanize education; to have direct feedback about the courses and other difficulties relating to the assignments and subjects, which IGNOU learners face (especially remote site and far flung learners) and lastly, a long felt need to interact with the eminent speakers, professors, experts of the field and guest faculty members at the time of teaching-learning process. To fulfill this aim, IGNOU started with interactive mode of satellite communication, that is, two-way audio and one-way video teleconferencing system in 1992, which was made fully functional in 1995.

7.2 Teleconferencing And Its Different Modes

Teleconferencing (TC) has been formally described as two way electronic communication between two or more groups or three or more individuals, who are in separate locations, includes group communication via audio, audio-graphics, video and computer systems (Olgren & Parker, 1983, p.330).

Teleconferencing humanizes education at a distance creating an environment, which focuses on the importance of individuals and thus overcomes distances by establishing rapport among them.

Teleconferencing also aims at spontaneous interaction between the participants i.e., two-way communication is taken care of and immediate feedback is possible. Thus helping the participant learners remove their misunderstanding and doubts.

There are different modes of teleconferencing such as:

a) Two-way audio and two-way video interaction

b) Two-way audio and one-way video interaction

c) Two-way audio only

d) Audio-graphic teleconferencing

e) Computer conferencing

7.3 IGNOU Teleconferencing System

IGNOU has established basically a system, which consists of one-way video and two-way audio teleconferencing network in order to improve and enhance the teaching-learning components.

The Training and Development Communication Channel (TDCC) started by the Indian Space Research Organisation (ISRO) in being jointly operated from the IGNOU campus at Delhi since 1993.

The system configuration consists of a teaching end studio at the Sanchar Kendra or Electronic Media Production Center (EMPC) at Maidan Garhi campus of IGNOU from where the audio and video signals can be up linked to INSAT 2C satellite. The signals are down linked from the satellite to a number of Direct Reception Sets (DRS) located at all the Regional Centers (RC) and a few Study

Centers (SC, also known as "Receiving Ends). The return communication that is learners from various receiving ends communicate to teaching end through (toll free telephone numbers) S.T.D. telephones and Fax lines.

The academic inputs are decided by the concerned faculty and the schedule is given to EMPC or Sanchar Kendra. The time slots are allotted by ISRO. The EMPC in liaison with ISRO finalises the schedule for teleconferencing. The teleconferencing sessions are telecast from the studio at EMPC or Sanchar Kendra.

IGNOU regularly uses teleconferencing for the following purposes:

i. Telecounselling to student groups;

ii. Training of study center counsellors and coordinators;

iii. Administrative interaction with Regional Centre functionaries, and

iv. Extended Contact Programme (ECP) with students.

Teleconferencing (TC) in distance is recognized as a flexible way to overcome communication problems in terms of time, distance and costs and improve the quality of services to its learners. Face to face instruction has the disadvantage that students from remote areas have to spend extra time and money on travel and stay at the places where these facilities are available. On the contrary, TC provides a cost effective way to provide seminars & tutorials to distance learners (Murphy, 1988).

In support to this, Stahmer, Idris and Bolai (1990) state that the main benefit of the distance education system is the substitution of telecommunication for transportation. The individual who would not otherwise be able to leave their work place can now have direct access with remote tutors, experts and faculty. Because two-way telecommunication (teleconferencing) support offers learners

the opportunity of 'talkback' to the teachers, or experts, the teachers can also improve the learning material (lecture) based on the talkback requirement.

According to Subbayamma (1998), TC was highly appreciated as a useful technology for distance education. It brings about human element in teaching and learning at a distance by creating an environment, which focuses on the importance of individuals establishing rapport among them. On the other hand she also reported that female learners show apprehensions about their participation in teleconferencing programmes as the host centers have no accommodation facility for them.

Garrison (1990) in support to the use of teleconferencing in distance education states that of the many new technologies, TC is likely to be used widely in the near future. It can be considered as a significant shift in offering education at a distance since this technology enhances the learning possibilities. At the same time, teleconferencing must be seen as acceptable from the students' perspective and it should be accessible to them at their convenience, if this technology is to be integrated in distance education system.

Further, the effective utilization of TC in education is contingent on several factors according to Olgren & Parker (1983:53). These include: A user oriented technology; implementation planning that considers user benefits and applications, a supporting infrastructure, training, advocacy and ongoing evaluation.

In light of this background and in view of the present review of literature it was thought important to study IGNOU teleconferencing programmes mainly from pedagogical point of view. Further to find out to what extent IGNOU teleconferencing is effective in serving its goals.

7.4 Rationale of the Study

In the purview of present structure of distance education where teleconferencing plays a vital role in IGNOU network of the learning resources, the researcher thought it necessary to explore how the IGNOU teleconferencing programmes would be effective in terms of achievement of the students. Also how persons at different levels of teaching-learning process view this mode. This would include the reactions and views of learners, resource persons, anchorpersons, producers and coordinators. Thus it will help examining the questions for the real pedagogical significance on the grounds of expected influence on the learners as well as teachers.

Views vary on the use of communication technology in education. More specially, they vary on the use of teleconferencing as means of enhancing the quality of education; still technical and non-technical problems in the appropriate use of teleconferencing and in this instance one-way video and two-way audio persist leading to nagging doubts about the usefulness of the whole exercise.

Important among these concerns are questions relating to the changing role of the teachers/experts communicating with unseen participants, pacing the content and varying the format of presentation and even determining what should be the educational content for an interactive session. Concerns about the language used, voice quality fluctuation, working telephone and fax lines, uninterrupted power supplies at receiving ends and any number of logistic details focused towards interaction makes it all the more important to study the persisting system of IGNOU teleconferencing as the very essence of this system lies in "interactivity".

The study also emphasizes the infrastructure and other physical facilities required during the various stages of planning, production and implementation of teleconferencing programme on the part of the different personnel involved and pre-preparation on the part of learners for participating in the teleconferencing programmes. Further, the quality of training and the quantum of coverage need to be studied to appraise the programme. Such appraisal would provide appropriate feedback to the system for its improvement.

The present research attempts to study to what extent male and female learners, those working or not working vary in their reactions regarding the present status of two-way communication system. In addition, their earlier exposure to video and television for education can have an important bearing on the level of acceptance or dissatisfaction by the learners towards teleconferencing. It was therefore important to know their level of exposure to electronic media and teleconferencing for educational purposes.

Various difficulties experienced by learners as well as resource persons and other personnel involved at different stages of the programme required to be investigated in order to have smooth running of the system. This may be useful in modifying the present IGNOU teleconferencing system, which is still at its transient stage. Thus, contributing towards the effectiveness of students' learning at a distance. In the light of this direct, the present investigation has focused on the study of IGNOU teleconferencing for distance learners.

7.5   Statement of the Problem

A study of IGNOU Teleconferencing For Distance Learners.

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7.6 Objectives of the Study

1. To analyse the teleconferencing programmes of IGNOU subjects in terms of contents, methods, media and modes.

2. To study the effectiveness of teaching the distance learners through teleconferencing in terms of mean achievement scores.

3. To study the reactions of distance learners regarding preparation, presentation, duration, talkback, technical and non-technical problems and utility aspects of IGNOU teleconferencing with respect to selected variables (sex, type of programme, employment, medium of instruction, level of exposure to electronic media and teleconferencing).

4. To study the views of IGNOU personnel (producers, anchor persons, resource persons) involved in planning, production, coordination and implementation stages of IGNOU teleconferencing programme.

5. To study the feedback on IGNOU teleconferencing programmes with respect to coordinators views regarding attendance, technical/non-technical problems, motivation, participation, utility and benefits of IGNOU-TC programme.

7.7 Explanation of the Terms

Effectiveness: *In the present study, effectiveness is the difference in the mean scores at the pre-test and post-test levels. In addition to difference in the mean scores, reactions also represent effectiveness.*

Teleconferencing Programmes: *It includes the IGNOU subject and course based programmes transmitted through two-way audio and one-way video configuration.*

Distance Learners: *It includes registered IGNOU students.*

Talkback: The term "talkback" refers to the post telecast question-answer session where learners from respective receiving ends can ask questions, clarify their doubts, using fax or STD phone (toll free numbers) to the area experts present at teaching end.

7.8   Null Hypotheses of the Study

1.   There will be no significant difference in the mean achievement scores of learners on pre-test and post-test regarding the effectiveness of teaching the distance learners through teleconferencing programmes.

2.   The reaction of respondents will not differ significantly with respect to sex regarding the preparation of IGNOU teleconferencing (TC) programmes.

3.   The reaction of respondents will not differ significantly with respect to sex regarding the presentation of IGNOU teleconferencing (TC) programmes.

4.   The reaction of respondents will not differ significantly with respect to sex regarding the duration of IGNOU teleconferencing (TC) programmes.

5.   The reaction of respondents will not differ significantly with respect to sex regarding the talkback of IGNOU teleconferencing (TC) programmes.

6.   The reaction of respondents will not differ significantly with respect to sex regarding the utility of IGNOU teleconferencing (TC) programmes.

7.   The reaction of respondents will not differ significantly with respect to sex regarding technical and non-technical problems of IGNOU teleconferencing (TC) programmes.

8.   There will be no significant difference in the reaction of respondents with respect to sex regarding overall aspects of IGNOU teleconferencing (TC) programmes.

9.   There will be no significant difference in the reactions of respondents with respect to employment regarding the preparation of IGNOU teleconferencing (TC) programmes.

10.   There will be no significant difference in the reactions of respondents with respect to employment regarding the presentation of IGNOU teleconferencing (TC) programmes.

11.   There will be no significant difference in the reactions of respondents with respect to employment regarding the duration of IGNOU teleconferencing (TC) programmes.

12.   There will be no significant difference in the reactions of respondents with respect to employment regarding the talkback of IGNOU teleconferencing (TC) programmes.

13.   There will be no significant difference in the reactions of respondents with respect to employment regarding the utility of IGNOU teleconferencing (TC) programmes.

14.   There will be no significant difference in the reactions of respondents with respect to employment regarding technical and non-technical problems of IGNOU teleconferencing (TC) programmes.

15.   There will be no significant difference in the reactions of respondents with respect to employment regarding overall aspects of IGNOU teleconferencing (TC) programmes.

16.   The reaction of respondents will not differ significantly with respect to medium of instruction regarding the preparation of IGNOU teleconferencing (TC) programmes.

17. The reaction of respondents will not differ significantly with respect to medium of instruction regarding the presentation of IGNOU teleconferencing (TC) programmes.

18. The reaction of respondents will not differ significantly with respect to medium of instruction regarding the duration of IGNOU teleconferencing (TC) programmes.

19. The reaction of respondents will not differ significantly with respect to medium of instruction regarding the talkback of IGNOU teleconferencing (TC) programmes.

20. The reaction of respondents will not differ significantly with respect to medium of instruction regarding the utility of IGNOU teleconferencing (TC) programmes.

21. The reaction of respondents will not differ significantly with respect to medium of instruction regarding technical and non-technical problems of IGNOU teleconferencing (TC) programmes.

22. The reaction of respondents will not differ significantly with respect to medium of instruction regarding overall aspects of IGNOU teleconferencing (TC) programmes.

23. There will be no significant difference in the reactions of respondents with respect to type of programme regarding the preparation of IGNOU teleconferencing (TC) programmes.

24. There will be no significant difference in the reactions of respondents with respect to type of programme regarding the presentation of IGNOU teleconferencing (TC) programmes.

25. There will be no significant difference in the reactions of respondents with respect to type of programme regarding the duration of IGNOU teleconferencing (TC) programmes.

26. There will be no significant difference in the reactions of respondents with respect to type of programme regarding the talkback of IGNOU teleconferencing (TC) programmes.

27. There will be no significant difference in the reactions of respondents with respect to type of programme regarding the utility of IGNOU teleconferencing (TC) programmes.

28. There will be no significant difference in the reactions of respondents with respect to type of programme regarding technical and non-technical problems of IGNOU teleconferencing (TC) programmes.

29. There will be no significant difference in the reactions of respondents with respect to type of programme regarding overall aspects of IGNOU teleconferencing (TC) programmes.

30. There will be no significant difference in the reactions of respondents with respect to the level of exposure to electronic media regarding the preparation of IGNOU teleconferencing (TC) programmes.

31. There will be no significant difference in the reactions of respondents with respect to the level of exposure to electronic media regarding the presentation of IGNOU teleconferencing (TC) programmes.

32. There will be no significant difference in the reactions of respondents with respect to the level of exposure to electronic media regarding the duration of IGNOU teleconferencing (TC) programmes.

33. There will be no significant difference in the reactions of respondents with respect to the level of exposure to electronic media regarding the talkback of IGNOU teleconferencing (TC) programmes.

34. There will be no significant difference in the reactions of respondents with respect to the level of exposure to electronic media regarding the utility of IGNOU teleconferencing (TC) programmes.

35. There will be no significant difference in the reactions of respondents with respect to the level of exposure to electronic media regarding technical and non-technical problems of IGNOU teleconferencing (TC) programmes.

36. There will be no significant difference in the reactions of respondents with respect to the level of exposure to electronic media regarding overall aspects of IGNOU teleconferencing (TC) programmes.

37. There will be no significant difference in the reactions of respondents with respect to the level of exposure to teleconferencing regarding the preparation of IGNOU teleconferencing (TC) programmes.

38. There will be no significant difference in the reactions of respondents with respect to the level of exposure to teleconferencing regarding the presentation of IGNOU teleconferencing (TC) programmes.

39. There will be no significant difference in the reactions of respondents with respect to the level of exposure to teleconferencing regarding the duration of IGNOU teleconferencing (TC) programmes.

40. There will be no significant difference in the reactions of respondents with respect to the level of exposure to teleconferencing regarding the talkback of IGNOU teleconferencing (TC) programmes.

41. There will be no significant difference in the reactions of respondents with respect to the level of exposure to teleconferencing regarding the utility of IGNOU teleconferencing (TC) programmes.

42. There will be no significant difference in the reactions of respondents with respect to the level of exposure to teleconferencing regarding technical and non-technical problems of IGNOU teleconferencing (TC) programmes.

43. There will be no significant difference in the reactions of respondents with respect to the level of exposure to teleconferencing regarding overall aspects of IGNOU teleconferencing (TC) programmes.

7.9   Delimitation of the Study

The present study is delimited to learners attending teleconferencing programmes in Baroda study Centre (M.S. University Campus) from 1999 to 2001 for their reactions and achievement.

7.10   Methodology

Keeping in mind the objectives of the study a combination of qualitative and quantitative research approach was followed. It involved data collection through self administered questionnaire, reaction scale, detailed observations of teleconferencing programmes, pre and post achievement test of learners. Also, the interviews of producers, resources persons and anchors persons involved in various stages of teleconferencing like planning, production, implementation and evaluation were conducted. Feedback proforma to study the views of Co-ordinator was constructed and administered.

7.10.1 Sample

The sample varied in their nature with respect to each objective.

For objective one, the sample included nine-selected IGNOU teleconferencing programmes telecasted from Jan.'1999 to Feb.'2000.

For objective two, the sample consisted of selected learners who attended regular teleconferencing (TC) programmes at Baroda study center under Extended Contact Programme of Post Graduation Diploma in Higher Education (PGDHE) subject. The total duration of TC was of 8 hours. Only those learners were selected who attended minimum of 6 to 7 hours of teleconferencing out of the total time duration of TC programmes.

For objective three, sample consisted of selected IGNOU students who were exposed to IGNOU TC programmes. The sample was selected from those students who were attending programmes at Baroda study center of IGNOU (General Education Building, The M.S. University of Baroda, Vadodara).

For objective four selected personnel involved in various stages of planning production, coordination and implementation stages of IGNOU TC programmes, that is resource persons, producers and anchorpersons constituted the sample.

For objective five the sample consisted of selected regional and study centres where two way audio and one way video facility was available (receiving centres/nodal centers.

7.10.2 TOOLS AND TECHNIQUES

The tools and techniques used with respect to each objective is as follows:
For objective One, Observation Schedule was used. This schedule was prepared aiming at finding out the pedagogical, technical and non-technical aspects of TC

programmes in terms of contents, methods, modes, and media and miscellaneous.

For objective two, pre and post achievement test were developed. These were developed by the investigator with the help of area experts and resource persons. The pre test was taken by all the learners before the telecast of first TC session, where as the post test was taken soon after the last TC session. The test consisted of objective type and short answers type of questions based on the content of the selected subjects of the TC programmes. It was aimed at measuring the learners' previous knowledge of the selected subject.

For objective three, Profile Schedule was developed to collect the information related to the background of the learners. It has biographical as well as other details pertaining to their level of exposure to television, video, telephone as an educational aid, the types of IGNOU programmes they were enrolled into and so on. In addition to this, the reaction scale was also developed by the investigator to study the reactions of learners with respect to preparation, presentation, talkback, duration and time, technical as well as non-technical problems and utility of TC.

For objective four, questionnaires were developed by the investigators to know the views of different personnel with respect to planning, production, coordination, and implementation stages of IGNOU TC. Separate questionnaires were made with respect to each stage. The tools were prepared with the help of area experts as they were focused on the field/area specific questions. Based on the comprehensiveness of the questionnaires, unstructured interviews were conducted in an informal conversational manner by the investigator for the personnel involved in various stages of TC.

To realize objective five, the feedback proforma was sent through mail to all the Regional as well as Study centre co-ordinators wherever TC facility was available (receiving center/Nodal centre) from 1998 to 2000. The questions were pertaining to the number of learners and centre functionaries attending these programmes, audio-video quality of the programmes and the number of questions asked through fax and phone in each TC programme. In addition, if centre co-ordinator or learners of respective centres had any other comments or suggestions regarding ongoing TC programme, those could also be mentioned.

7.11 Data Analysis

The data were analysed both qualitatively as well as quantitatively. The data on questionnaire and scales were scored through quantification and the data through observation, interviews were analysed qualitatively. The details of statistical measures with respect to each objective is present in table no.1.

Table 7.1: Objective wise Sample, Tool and Data Analysis

Sr. No.	Objective	Sample	Tool	Statistical Analysis
1.	To analyse the TC programs of IGNOU subjects in terms of Contents, Methods, Media, Modes.	Selected IGNOU TC programs from Jan.1999 to Feb.2000	Observation Schedule	Content Analysis, Percentage, frequency
2.	To study the effectiveness of teaching the distance learners through TC in terms of mean achievement scores.	Selected learners of PGDHE programmes of IGNOU.	Achievement test (Pre-test and Post-test on single group.	Correlated t-test

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Sr. No.	Objective	Sample	Tool	Statistical Analysis
3.	To study the reactions of distance learners regarding preparation, presentation, duration, talkback, technical and non technical problems and utility aspects of IGNOU TC with respect to selected variables (Variables: sex, type of programme, employment, medium of instruction, level of exposure to electronic media and teleconferencing).	Selected learners attending TC programmes at Baroda study centre.	Profile Schedule, Reaction Scale	Qualitative Analysis Chi-Square,Perc entage and frequency
4.	To study the views of IGNOU personnel (producers, anchor persons, resource persons involved in planning, production, coordination and implementation stages of IGNOU TC programme.	Selected personnel involved at various stages of IGNOU TC (producers,resourc e persons and anchor persons).	Questionnaire Unstructured Interviews	Qualitative Analysis, Percentage, Frequency
5.	To study the feedback on IGNOU TC programmes with respect to co-ordinatros views regarding attendence, technical and non technical programmes, motivation, participation, utility and benefits of IGNOU TC Programmes	Coordinators of regional and study centres from 1998 to 2000.	Feedback proforma	Qualitative Analysis, Percentage, Frequency

7.12   Major Findings of the Study

The findings of the present study are presented and discussed are as follows.

(I)   IGNOU TC Programmes: Content, method, media and mode:

The findings of the observation of IGNOU-TC programmes was done for the period of fourteen months, that is, from January 1999 to February 2000.

Total nine IGNOU subjects were taken for the observation of TC programmes. These subjects were taken from each category, that is, Degree (both at graduation and post graduation level), Diploma (both at graduation and post graduation level) and certificate.

The subjects were Masters in Library and Information Science; Post Graduate diploma in Journalism and Mass Communication; Post graduate diploma in Higher Education; B.Sc. Nursing; Diploma in Early Childhood Care and Education; Diploma in Creative Writing in English; Certificate in Disaster Management; Bachelor's of Computer Applications and Certificate in Computing. The total observation duration of TC programmes for nine subjects was of eighty five hours.   The telecast sequence for each TC programmes was as follows:

• Signature tune of Doordarshan

• Signature tune of IGNOU-TDCC teleconferencing

• Welcome to viewers (learners) and introduction of subject expert(s) for TC programme-1 by anchor person.

It was observed that in each subject four to twelve topics were covered through TC mode. The duration of individual programme segment was normally of sixty minutes. This duration was divided based on the programme formats that is tele-lecture session or information - in (lecture, discussion, demonstration, etc.)

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and talkback session or information - out (question-answer, discussion, brain-storming, etc.). The duration per tele-lecture session was of forty to forty five minutes followed by talkback session of fifteen to twenty minutes.

There was only one anchor person per programme and the number of resource persons (subject experts) varied from one to four depending on TC programmes. All the programmes were in English with occasional use of Hindi during talkback (question-answer) session.

Pre-Session

Normally very few participants (at times only one or two learners) used to come for TC programmes/sessions. Amongst those who attended, a few participants arrived on time. Most of them walked in barely a few seconds before the session while quite a few walked in late. This was observed in most of the TC sessions and programmes. Participants arriving late disturbed the session as chairs were pulled and placed by them, which made quite a bit of noise. Amongst the participants, greetings and an update about work were exchanged. Participants were also observed walking in late after the question-answer session.

During Session

There were two main observations, one, that the participants were seen watching and listening to the programmes attentively, and two, that some of the participants were seen taking notes. It has been mentioned that participants wanting to ask questions seemed more interested in the sessions. In fact, at times, question-answer session used to activate the participants, especially when the question asked by one of the participants from their receiving end was accepted and subsequently answered by the resource persons. Discussions

normally used to begin if the answers were not satisfactory. At times, participants discussed animatedly amongst themselves when the question posed by other receiving end was felt to be irrelevant.

Further, it was noticed that as the session progressed, some began chatting among themselves, while some dozed off. Dozing off was at its peak in those sessions of the programmes where the timings of the TC programmes were at noon (especially after lunch hours). Some participants were also observed dozing and chatting during sessions when the presentation was made just through a lecture. Doodling was rare but it was observed especially amongst those sitting near the door or the window and when the sessions or programmes were too monotonous.

It was found that the participants were highly disappointed when they were unable to ask and participate in question-answer (talkback) session due to the unavailability of STD or fax machine in the viewing room. Another thing which had put off the participants was numerous phone calls for the staff members and it was a major nuisance as it disturbed the session (as the viewing room and office were common).

It was observed that, presentation or TC programmes that utilized demonstration or discussion as an additional method to lecture generated much more response.

The attentiveness of the participants was entirely dependent on the presentation of the resource persons. Whenever resource persons utilized the demonstrative technique in their presentations and used live models or photographs or black boards, the level of attentiveness increased. But if the resource persons only lectured, then the level dipped low.

Further, the presentations where teaching methods like lecture or discussions were supported by more of audio-visual aids gathered more attention of learners and learners found them more lively and interesting.

On the other hand, presentations where audio-visual aids were not incorporated, they were more of talking head approach and hence appeared like solo talks. Such presentations were monotonous and highly ineffective (e.g. TC programmes on Diploma in Creative writing in English).

Post-Session

A general observation has been that participants made for the exit as soon as the session ended. Very few discussions took place. Their discussions normally revolved around complaining about less time allocated for question-answer session and unavailability of fax or phone at the centre. They were also found discussing about their assignments among themselves.

Other Observations

Some of the TC programmes were syllabus based. Most of the TC programmes were enrichment type. These programmes were generally presented on the scheduled days and time (based on the TC schedule). However, in some of the cases, the TC programmes were not presented on scheduled time due to administrative, technical or non-technical problems (like unavailability of personnel to open the study centre or viewing room, power-failure or even satellite failure).

It was found that the time allotted for the talkback (question-answer) session somehow was not enough as many who had asked the questions could not get the reply. Also, some wanted to ask a question, but could not as the telephones were constantly engaged.

Further, it was observed that the quality of the signals was not good in some programmes and that there was no technically qualified person deputed at the study centre to ensure the reception quality during the TC programmes. It was found that the participants were highly disappointed when they were unable to view the sessions properly due to poor video and audio quality.

Maximum resource persons utilized the lecture method during their presentations and only some utilized demonstration method while few weaved in discussions also. Though resource persons did make efforts to use other teaching materials along with their lectures. Overhead projector (OHP) and slides were amongst the most used teaching material followed by video films and computers.

The content was relevant and logically organised. It was explained clearly and was comprehensive and informative. However, contents further need to be transacted through strategic approach to facilitate and enhance interaction between resource persons and learners.

The language being English for teleconferencing programmes, the programmes were largely comprehensible. But some learners having vernacular background showed apprehensions about the comprehensibility of the language. They felt inhibited in discussing and asking questions.

Some of the resource persons were carrying concinnity and were precise in replying during question-answer sessions and held greater attention span of learners and quality interaction. However, some were lacking in the specific communication skills required for this type of two-way communication technology (eye-contact, synchronised body movements, conciseness, ease of posture). Such programmes ended up with nearly "no interaction".

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(II)   *Effectiveness of IGNOU TC programmes for distance learners:*

The data indicates that there is a gain in the mean achievement scores from pre-test to post test or in other words after the exposure of learners to the TC programmes. A similar finding was also revealed by Singh (1991), that the post-test achievement mean score was significantly higher than the pre-test mean achievement score when the sample was exposed to interactive countrywide classroom programmes.

However, it may be necessary to know whether or not the apparent differences in scores were due to exposure to TC programmes alone or due to any other extraneous factor. To yield to the discernable result, informal discussions were done with the learners. Some of the typical comments of the learners are quoted here under:

- *"It is exciting and wonderful to see and listen to an eminent speaker. It boosts me to study the subject".*

- *"TC is an excellent mode. I learnt a lot about my course by attending TC programmes".*

- *"Frankly, I didn't know the objectives of ECP and TC before, I came to know about them only after attending TC programmes".*

- *"TC programmes are ok but the viewing room is too congested, its disturbing as everyone (officials) keeps coming and going in between the programmes".*

- *"We would have learnt more if a proper orientation was given to us before".*

- *"I cannot hear to the resource persons properly, as the sound of vehicles is too much".*

- *"I cannot concentrate in ECP or TC programmes as my mind is stuck with my 3 year old daughter whom I left at my relative's house. I could have called my mother-in-law from hometown but the ECP schedule reached very late".*

Some of the learners in their comments mentioned that TC helped them to have a direct interaction with the resource persons as well as sharing of ideas with their peers. They even stated that TC helped them clear their doubts and difficulties related to course assignments and other issues like feedback on their work etc. which otherwise was not possible.

They reported that the objective of their programme (subject) was aimed at building the professional competencies and skills of practising of prospective college or university teachers. To fulfill this aim, along with theoretical inputs, a face-to-face or direct interaction with area experts was very important. This could be achieved by extended contact programmes. (ECP)

However, learners reported that to attend the ECP they had to be away from their work and homes (especially outstation learners) for almost 10 days which was very difficult. This problem was more felt by female learners as well as those who were married and having a family. Learners also complained about their accommodation facility. Similar was the findings by *Subayyamma* (1998) where she stated that female learners showed apprehension in attending TC programmes especially ECP which is of ten days due to improper accommodation facility at the host site.

Further, many learners complained that they had not yet received their study material related to the ECP. Some had received it a few days or some time back only. But since most of them were working, so they did not get enough time to read the material before joining the ECP.

Some of the learners stated that they did not get time to discuss about the next day's programmes with their peers. In fact as soon as the day's programme was over, they were so much exhausted that they preferred to rush back home or to the guest house.

From the above mentioned comments of learners, it could be stated that though learners do not get time to discuss about the TC programmes or to refer to the reading material on TC programmes' content during ECP, from the comments of some of the respondents, it becomes clear that effectiveness of TC also depends on the way it is utilized by the learners. The utilization may also depend on the favourable conditions like proper viewing and adequate seating arrangements, proper conduction of pre and post telecast activities by the Receiving Centre Coordinator and the level of talkback or interaction of learners with the panel experts.

(III)   Reactions of learners towards IGNOU TC:

The data analysis indicates that most of the learners (61.2%) were males and 41.2% of the learners were in the age group of 26 to 30 years. 70% of them were working and 48.7% of the learners had graduation degree as their last qualifying examination, before enrolling themselves in the present IGNOU subjects. It was found that 47.5% of the respondents had English as medium of instruction in their last qualifying examination. Further, data showed that most of the learners had medium level of exposure to electronic media (58.7%) and teleconferencing (56.2%). Most of the learners (57.5%) were enrolled in Diploma type of the IGNOU programmes. More than fifty per cent (53.5%) of the respondents had agreed to great extent regarding the effectiveness of IGNOU

teleconferencing programmes for distance learners. The following are the findings with regard to acceptance and rejection of hypotheses:

- The Chi-Square (χ^2) value was found to be significant at .05 level, df=2 (χ^2_{Cal}=6.2; χ^2_{tab} = 5.9). Thus, the null hypothesis stating that the reaction of respondents will not differ significantly with respect to sex regarding technical and non-technical problems of IGNOU TC is rejected.

- The Chi-Square (χ^2) value was found to be significant at .01 level, df=2 (χ^2_{Cal}=9.4; χ^2_{tab} = 9.2). Thus, the null hypothesis stating that the reaction of respondents will not differ significantly with respect to employment regarding presentation aspect of IGNOU TC is rejected.

- The Chi-Square (χ^2) value was found to be significant at .05 level, df=2 (χ^2_{Cal}=5.9; χ^2_{tab} = 5.9). Thus, the null hypothesis stating that the reaction of respondents will not differ significantly with respect to employment regarding utility aspect of IGNOU TC is rejected.

- The Chi-Square (χ^2) value was found to be significant at .01 level, df=4 (χ^2_{Cal}=18.8; χ^2_{tab} = 13.2). Thus, the null hypothesis stating that the reaction of respondents will not differ significantly with respect to type of programme regarding presentation aspect of IGNOU TC is rejected.

- The Chi-Square (χ^2) value was found to be significant at .01 level, df=4 (χ^2_{Cal}=13.8; χ^2_{tab} = 13.2). Thus, the null hypothesis stating that the reaction of respondents will not differ significantly with respect to type of programmes regarding utility aspect of IGNOU TC is rejected.

- The Chi-Square (χ^2) value was found to be significant at .01 level, df=4 (χ^2_{Cal}=18.4; χ^2_{tab} = 13.2). Thus, the null hypothesis stating that the reaction of

respondents will not differ significantly with respect to type of programme regarding overall aspects of IGNOU TC is rejected.

- The Chi-Square (χ^2) value was found to be significant at .01 level, df=4 $(\chi^2{}_{Cal}=14.5; \chi^2{}_{tab} = 13.2)$. Thus, the null hypothesis stating that the reaction of respondents will not differ significantly with respect to level of exposure to electronic media regarding utility aspect of IGNOU TC is rejected.

- The Chi-Square (χ^2) value was found to be significant at .05 level, df=4 $(\chi^2{}_{Cal}=12; \chi^2{}_{tab} = 9.4)$. Thus, the null hypothesis stating that the reaction of respondents will not differ significantly with respect to level of exposure to electronic media regarding overall aspects of IGNOU TC is rejected.

- The Chi-Square (χ^2) value was found to be significant at .05 level, df=4 $(\chi^2{}_{Cal}=9.4; \chi^2{}_{tab} = 9.4)$. Thus, the null hypothesis stating that the reaction of respondents will not differ significantly with respect to level of exposure to teleconferencing regarding utility aspect of IGNOU TC is rejected.

The values of Chi-Square (χ^2) with respect to testing of hypotheses number 2, 3, 4, 5, 6, 8, 9, 11, 12, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 28, 30, 31, 32, 33, 35, 37, 38, 39, 40, 42 and 43 have not been found to be significant at 0.05 level. So, all these null hypotheses have not been rejected.

(IV) Views of Producers, Resource persons and Anchor persons towards IGNOU TC:

The analyzed data indicates that a majority of the producers had 4 to 7 years of experience in the area of TC programme production. A majority of the producers (19 producers out of 20) were getting remuneration weekends, that is, on Saturday and Sunday. Many (13 producers out of 20) of them were not satisfied with the amount of remuneration they were presently getting. Most of

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them felt that the facilities available for production were adequate. A little more than fifty percent of the producers (11 out of 20) had undergone some kind of training in production but they all strongly felt that they required a formal training in TC programme production. Most of them viewed that for proper coordination, timely meetings and interaction among different functionaries like academicians, anchors and co-producers was very important for the smooth running of the TC programmes. Most of the producers viewed that the role of resource persons, anchors, co-producers and other team members of production unit was good to satisfactory but they all required specific TC oriented formal training.

The experience of resource persons varied from six years to twenty four years in terms of their association time wise in their area of specialization. Most of them (32 out of 50) had presented TC programmes in the range of 25 to 50.

All the resource persons were getting remuneration weekends, and the majority of them (33 out of 50) were satisfied with the amount of remuneration. All the resource persons viewed that they get the topic of TC for presentation as per their interest. Most of them (39 out of 50) felt the experience of TC as quite interesting but at the same time they all felt the necessity of formal training in TC presentation as none of them had undergone any training.

Most of the resource persons viewed the role of producers, anchor persons, resource persons, camera persons as good to satisfactory whereas the role of coordinators as good only in some centres, but they also felt the requirement of training in their respective roles of TC.

The resource persons suggested that for the potential utilization of TC programmes, the topics of TC be need based, learners should be made aware

and oriented regarding TC by respective centre coordinators and basic facilities of phone and fax be provided to the learners at their respective receiving centres.

A majority of the anchor persons (8 out of 10) had experience of 5 to 6 years in anchoring. Most of them (7 out of 10) had anchored TC programmes in the range of seventy five to hundred programmes. All the anchor persons were getting remuneration and only one out of ten was not satisfied with the amount being paid as remuneration. None of the anchor persons had gone through any training and nine out of ten felt the necessity of training in anchoring TC programmes. Most of the anchor persons (7 out of 10) viewed existing presentation of TC programmes as satisfactory but a majority of them (9 out of 10) showed dissatisfaction towards the present mechanism of feedback and evaluation of TC programmes. Further, the anchor persons suggested that coordinators of respective receiving centres be more encouraging and motivating learners to participate in TC and also give feedback on TC from their respective centres. Lastly, a majority of the anchor persons felt that for enhancing the quality and utilization of existing TC, proper planning and coordination among different functionaries is important. Further, for realizing this, training is necessary at all the levels.

Views of different functionaries on the basis of unstructured interviews are presented categorywise as follows:

Views of producers

- Academics should understand this technology because this is not simple classroom teaching.

- Technology like this... cannot breath longer where bureaucracy empowers the system.
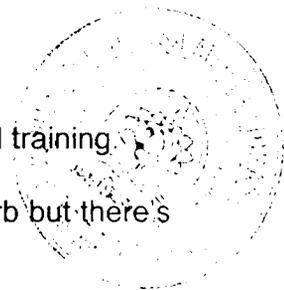
- In fact, not only academicians, even we need some kind of formal training.

- Engineers keep on talking while the TC is 'on'. Such things disturb but there's nobody to take action.

- There should not be any ego-hassles amongst academicians and producers.

- ...Nothing will shapeup in a system where top-most official is not interested in certain activities of TC.

- The time slot for TC programmes is decided by ISRO and thus it creates problems.

Views of Resource persons

- TC is a strong mode, but somehow we are not able to motivate the target audience.

- It will take time in a country like ours to accept and absorb this technology.

- Coordinators or incharge of respective receiving centres (Regional/Study Centre) should encourage learners to attend TC... otherwise how can we contact learners directly.

- More publicity of TC should be done at local level, where role of centre coordinator is important.

- Remuneration may work as incentive for some personnel to be more attentive.

Views of Anchors

- Instead of TC schedule reaching learners through via source, learners should be informed through radio or newsletters about TC programme schedule. For example, the schedule of TC goes from EMPC to schools of IGNOU to

level of learners. In addition to this, more number of telephone lines at teaching end which may reduce the problem of "constant-engaged" lines of telephone at teaching end can help in increasing the participation level of learners. The reasons for under utilization of TC given by the coordinators were mainly lack of planning and preparation (95.2%) and lack of orientation, motivation as well as due to less use of teaching aids and different teaching methods (90.4%).

Lastly, coordinators viewed TC as a potential mode of teaching-learning provided receiving ends get schedule of TC on time, orientation about the use of TC as well as if at all, attendence in TC can be made mandatory for IGNOU learners.

Comments of different receiving centres' coordinators' on the basis of open ended question are presented as follows:

- Transparencies (TPs) used long complex sentences.

- Presenters used rhetorical traditional and rigid presentation style.

- TC schedule doesnot reach us at time so how can we inform learners about the programme.

- To what extend things can work excellently on honourarium basis... we need to have a full time personnel deputed for TC.

- Why should learners waste time when it is neither mandatory nor holding extra credits for them to attend TC programmes.

7.13 Implications of the Present Investigation

- Proper coordination is required among all the personnel involved in IGNOU Teleconferencing and for that once in a month meeting of all the personnel is a must.

- Learners should be informed about TC programme well in advance.

- Learners should be made aware of and oriented well about the technology and its benefits.

- TC mode should be made compulsory for all the learners, so that the benefits of this technology can be availed optimally.

- There should be more use of audio-visual aids. Teaching aids should be properly made, especially the size of letters in transparencies and number of words in one transparency should be kept in mind.

- Training for personnel for all the levels is a must.

- In each centre, one person should be deputed who shall be responsible for arranging the TC programmes and also for smooth running of the programmes.

- Feedback is a must. There should be proper mechanism to receive monthly feedback from coordinators or receiving centres.

- Proper infrastructure and equipments including telephone and fax should be made available to realize optimum interaction in TC.

- Learners be given assignment through TC more, so as to strengthen the utilization of TC.

7.14 Suggestions and Conclusion

Teleconferencing (TC) represents a paradigm shift in facilitating and supporting learning at a distance. It not only provides spontaneous interaction and immediate feedback, but also bring widely dispersed learners in a group for discussion, creating a common classroom for learners from all over the country.

The effectiveness of TC can be attributed to the interactive nature of this technology. 'Interaction' to facilitate and support the educational process , being the central feature of educational transaction in distance education, should be for

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longer time duration .The findings of this study may help in future planning of TC programmes in the field of distance education. It may be stated that certain areas such as audio-visual quality, learners' awareness about TC programmes, time duration for interaction, teaching techniques and last but not the least orientation or training of the personnel involved at teaching and receiving ends regarding specific skills required for the potential functioning of the two way audio and one way video system need to be considered.

English was the medium of TC programmes. Some learners could not participate fully in question answer sessions due to barrier of language. It seems that provision for at least Hindi or multilingual talkback configuration (atleast for question answer session) will be required for more meaningful interaction and effective use of a system.

Talkback has immense potential to help reduce physical distances and bring together students, coordinators, experts to share information and knowledge. It is much more meaningful than just watching television as learners, coordinator and cousellor in all parts of the country feel equally involved, even if they are not able to ask questions and can only have access to answers. It is felt that such sharing may help further stimulate the thinking process. Thus, it may help to have more meaningful and learner specific technology and pedagogy.