

Teleconferencing in Distance Education - A Technical Prescription for Interactive Learning

Amirul Islam

School of Education, Bangladesh Open University, Gazipur-1705, Bangladesh.

Abstract

Distance Education system in our country has come of age and so also is the use of multi-media instructional packages in distance education. Nevertheless, the role of electronic media to the production of audio and video taped lessons for use during counseling sessions at the Tutorial Centers (TC) is not yet fully explored. Broadcasting of these taped programmes is going on through Bangladesh Betar and the Bangladesh Television (BTV) as a back-up to the non-broadcast mode of distribution at the Tutorial Centers (TC). While efforts are underway by the Bangladesh Open University (BOU)—to strengthen the media components, the following short comings, however, continue to plague the system on account of which radical remedial measures are called for the electronic media inputs, such as they are, continue to be viewed upon only as supplementary components, with the print being the all-inclusive master medium; the audio/video taped programmes are essentially one-way communication and no element of interactivity can possibly be built into them. The only live interaction possible at present is at the counselling sessions, but the media components themselves cannot be vested with the property of interactivity so long as we confine their use to audio/video tapes.

It is in the context of the second mentioned shortcoming, possible role of new forms of electronic media like teleconferencing for distance education has been outlined in this paper.

1. Introduction

Two-way electronic communications that take place between two or more groups, or three or more people who are all in separate locations are known more commonly as teleconferences. Over the course of the last 20 years, technological advancements have brought about a wave of changes in the business world, specifically having to do with better efficiency. Machines replaced human workers on factory lines because it cut costs and increases productivity. Cellular phones/satellite phones make people available almost anywhere in the world at any time. Teleconferencing accounts for another technological advancement that allows for a multiple person phone call to replace face-to-face meetings, letter exchanges, and/or multiple phone calls. It allows for increased efficiency and productivity in the business forum because it saves time & money, allowing dispersed members of an organization to hold meetings from any number of points around the world at the click of a button. Telecommunications links use both regular phone lines and satellite phone lines to connect users from almost any point on earth (<http://www.sales-masters-world.com/>).

Although the roots of teleconferencing can be traced back to the 1930's, it is only as of late that there has been a surge in the number of people who have discovered the full

range of its application. As the teleconferencing technology continues to evolve and improve so too does the level of participation. Teleconferencing is no longer simply reduced to audio transmissions, as new equipment and the introduction of digital devices allow users to continue with their face-to-face meetings, only they are from one PC to another.

The teleconferencing market is continuously and increasingly receiving new infusions of competition as it has now evolved into a multi-billion dollar business on the cutting edge of communication technologies.

2. Definition of Teleconference

A teleconference is a telephone or video meeting between participants in two or more locations. Teleconferences are similar to telephone calls, but they can expand discussion to more than two people. Using teleconferencing in a planning process, members of a group can all participate in a conference with agency staff people (www.discount-video-conferencing.com).

Teleconferencing uses communications network technology to connect participants' voices. In many cases, speaker telephones are used for conference calls among the participants. A two-way radio system can also be used. In some remote areas, satellite enhancement of connections is desirable.

Video conferencing can transmit pictures as well as voices through video cameras and computer modems. Video conferencing technology is developing rapidly, capitalizing on the increasingly powerful capabilities of computers and telecommunications networks. Video conferencing centers and equipment are available for rent in many locations.

3. Usefulness of Teleconferencing

Teleconferencing reaches large or sparsely-populated areas. It offers opportunities for people in outlying regions to participate. People participate either from home or from a local teleconferencing center. In Alaska, where winter weather and long distances between municipal cities serve as roadblocks to public meetings, the State legislature has developed the Legislative Telecommunication Network (LTN). As an audio teleconference system, LTN can receive legislative testimony from residents or hold meetings with constituents during "electronic office hours." Although its main center is in the capitol building, it has 28 full-time conference centers and 26 voluntary conference centers in homes or offices of people who store and operate equipment for other local people. The system averages three teleconferences per day when the legislature is in session (www.perey.com/hot_links.htm).

Teleconferencing provides broader access to public meetings, as well as widening the reach of public involvement. It gives additional opportunities for participants to relate to agency staff and to each other while discussing issues and concerns from physically separate locations. It enables people in many different locations to receive information first-hand and simultaneously.

A wider group of participants means a broader range of ideas and points of view. Audio interaction makes dialogue more lively, personal, and interesting. Teleconferencing provides an immediate response to concerns or issues. It enables people with disabilities, parents with childcare conflicts, the elderly, and others to participate without having to travel. In response to requests from residents in remote rural areas, the Oregon Department of Transportation (DOT) held two-way video teleconferences for its statewide Transportation Improvement Plan update. Two special meetings were broadcast by a private non-profit organization that operates ED-NET, a two-way teleconferencing system. ED-NET provided a teleconference among staff members in one of the DOT's five regional offices and participants at central transmission facilities in a hospital and a community college in eastern Oregon.

Teleconferencing saves an agency time and travel costs. Without leaving their home office, staff members can have effective meetings that reach several people who might not otherwise be able to come together. Teleconferencing reduces the need for holding several meetings in different geographic areas, thereby decreasing public involvement costs, particularly staff time and travel. Teleconferencing often enables senior officials to interact with local residents when such an opportunity would not exist otherwise, due to distance and schedule concerns.

Teleconferencing saves people money. It saves travel time, transportation cost, babysitter fees, and lost work time. New York City's Minerva Apartment Towers set up a closed-circuit teleconference transmission between two apartment buildings for residents to discuss issues within their site. Residents wishing to speak went to a room in their own building to make comments over a link-up between the apartment buildings.

Teleconferencing saves time by reaching more people with fewer meetings. A teleconference may reach more people in one session than in several sessions held in the field over several weeks. Usually, it is difficult to schedule more than two or three public meetings in the field within one week, due to staff commitments and other considerations. However, teleconference connections to several remote locations save several days or weeks of agency time and facilitate a fast-track schedule.

4. Special Uses of Teleconferencing

Teleconferencing is useful when an issue is wide spread. The World Bank uses moderated electronic conferences to identify best public involvement practices from front-line staff. The discussion focuses around fleshing out and sharing ideas so that practitioners in different locations can learn from the experiences of others around the world (www.uwex.edu/disted/h323.html).

Teleconferencing helps increase the number of participants. People may be reluctant to travel to a meeting because of weather conditions, poor highway or transit access, neighborhood safety concerns, or other problems. Teleconferencing offers equal opportunity for people to participate, thus allowing more points of view to emerge, revealing areas of disagreement, and enabling people to exchange views and ask questions freely.

Teleconferencing is used for training. It opens up training hours and availability of courses for people unable to take specialized classes because of time constraints and travel costs. The National Transit Institute held a nationally broadcast session answering questions about requirements for Federal major investment studies (MIS). Over 1,700 people met at 89 teleconferencing sites to participate in the meeting. Feedback from participants was overwhelmingly in favor of the usefulness and practicality of the session.

Teleconferencing is used for networking among transportation professionals on public involvement and other topics. North Carolina State University sponsored a national teleconference on technologies for transportation describing applications of three- and four-dimensional computer graphics technologies. They have been found helpful in facilitating public involvement and environmental analysis.

5. Participants and the Process

Anyone can participate. Teleconferencing broadens participation with its wide geographical coverage. People living in remote areas can join in conversations. Participation becomes available even for the mobility-restricted, those without easy access to transportation, the disadvantaged, and the elderly. Poor or uneducated people, however, may be reluctant to participate for cultural reasons or because of lack of access (www.savie.com/disted.html).

Participants gather at two or more locations and communicate via phone or video. The event requires planning, so that participants are present at the appointed time at their divergent locations.

Participants should know what to expect during the session. A well-publicized agenda is required. It is helpful to brief participants so they understand the basic process and maximize the use of time for their participation. For example, basic concerns like speaking clearly or waiting to speak in turn are both elements of a successful teleconference-based meeting.

6. Use of Teleconferencing by Agencies

Teleconferencing elicits comments and opinions from the public. These comments and opinions become part of a record of public involvement. Agencies should plan to respond to comments and community input and to address specific concerns. (www.ed.psu.edu/acsde/readings/read.html).

Teleconferencing offers immediate feedback from agency staff to the community. This feedback is a special benefit for participants in both time savings and satisfaction with agency actions. To assure immediacy, agencies must have staff available to respond to questions at the teleconference.

An agency can tailor its efforts to respond to a range of needs or circumstances, with broad input from diverse geographical and often undeserved populations. The Montana DOT will use a teleconferencing network in the state as it updates its statewide plan.

Agencies use teleconferencing with individuals or with multiple groups. The range of participants varies from simple meetings between two or three people to meetings involving several people at many locations. Simple meetings can be somewhat informal, with participants free to discuss points and ask questions within a limited time.

7. Leading Role in Teleconference

A trained facilitator, moderator, or group leader runs the meeting. A moderator needs to orchestrate the orderly flow of conversation by identifying the sequence of speakers. A staff person can be trained to open and lead the teleconference. (www.col.org/resources/startupguides/intro_learning.htm).

Community people can lead the conversation. The moderator need not be an agency staff person. If the teleconference is taking place at the request of community people, it is appropriate that a community resident lead the session. Agency staff members should feel free to ask questions of community people to obtain a complete understanding of their point of view.

Each individual meeting site must have a person in charge to prevent the conversation from becoming chaotic. A teleconferencing facility coordinator can train agency staff or community people to lead the process. Appointment of an individual to guide conversation from a specific site should be informally carried out. Community groups may want to have a role in this appointment.

8. The Costs Incurred

Teleconferencing costs vary, depending on the application. The costs of installing a two-way telephone network are modest. For complex installations, including television, radio, or satellite connections, costs are significantly higher. Hiring outside help to coordinate equipment purchases or design an event adds to the expense. www.fldlc.org/resourcesnav/international.htm

For modest teleconferencing efforts, equipment and facilities are the principal costs. Higher costs are associated with higher performance levels of equipment, more transmission facilities, or more locations. Agencies may be able to rent a facility or set one up in-house. The San Diego Association of Governments is building its own central teleconferencing facility to provide increased opportunities for the agency to use this technique.

It is possible to share teleconferencing costs among organizations. Many States have teleconferencing capabilities in State colleges. States may have non-profit organizations with teleconferencing capabilities. Outside resources include cable television stations or donated use of private company facilities. Agency staff time devoted to the event may be a significant expense.

9. Organisation of Teleconferencing

One person should be in charge of setting up a teleconference. That individual makes preparatory calls to each participant, establishes a specific time for the teleconference,

and makes the calls to assemble the group. The same person should be in charge of setting an agenda based on issues brought up by individual participants.

www.keralaprimarieducation.org/DEP.htm

Equipment for a telephone conference is minimal. Speaker phones allow several people to use one phone to listen to and speak with others, but they are not required. Individuals can be contacted on their extensions and participate fully in the conversations. While the basic equipment does not require an audiovisual specialist to operate, a technician may be required to set up equipment and establish telecommunications or satellite connections, particularly in more sophisticated applications.

Video conferencing needs are more complex. Basic equipment can involve:

- personal computers;
- a main computer control system;
- one or more dedicated telephone lines or a satellite hook-up;
- a television or computer monitor for each participant or group of participants; and
- a video camera for each participant or group of participants.

More sophisticated facilities and equipment are required if a number of locations are interconnected.

An individual or group rents a private or public video conference room in many cities. Private companies often have in-house video conference rooms and systems. The Arizona DOT is considering establishing a mobile teleconferencing facility that can travel throughout the State. Many public facilities, particularly State institutions such as community colleges, have set up teleconference facilities.

Teleconferencing can kick off a project or planning effort and continue throughout the process. Teleconferences are targeted to a particular topic or address many areas, depending on the need for public input and participation.

Adequate preparation is critical to success and optimum effectiveness of a teleconference. The funding source for the teleconference must be identified and a moderator designated. The time and length of the teleconference must be established and an agenda prepared to organize the meeting's content and times for speakers to present their views. Participants should be invited and attendance confirmed. This is a critical step, since there is little flexibility in canceling or postponing the event -- there just are no second chances. Also, less than full participation means that important voices are not heard.

It is important to provide materials in advance. These include plans of alternatives, reports, evaluation matrices, cross-sections, or other visuals. For video conferences, these materials may be on-screen but are usually difficult to read unless a participant has a printed document for reference. A moderator must be prepared to address all concerns covered by the written materials. Preparation smoothes the way for all to participate in the teleconference. Without adequate preparation, teleconferences may need to be repeated, especially if all questions are not addressed thoroughly.

The technical set-up is crucial. Teleconferencing equipment and its several locations are key to the event's success. Equipment must be chosen for maximum effect and efficiency in conducting a meeting between a central location and outlying stations.

Equipment must be distributed well. Because equipment is needed at each site, housing facilities for equipment must be identified. Seating needs to be arranged to maximize participation. A test-run of the equipment and the set-up for participants is important. The moderator may want to arrive early and practice using the equipment.

The moderator sets ground rules for orderly presentation of ideas. The moderator introduces participants in each location and reviews the objectives and time allotted for the meeting. Participants are urged to follow the moderator's guidance for etiquette in speaking. They should follow basic rules: speak clearly, avoid jargon, and make no extraneous sounds, such as coughing, drumming fingers, or side conversations.

The meeting must follow the agenda. It is the moderator's responsibility to keep the teleconference focused. In doing so, she or he must be organized, fair, objective, and open. The conference must be inclusive, providing an opportunity for all to register their views. The moderator must keep track of time to assure that the agenda is covered and time constraints are observed. It may be appropriate to have a staff person on hand to record action items, priorities, and the results of the teleconference.

10. It's Used with Other Techniques

Teleconferencing is part of a comprehensive public involvement strategy. It can complement public information materials, smaller group meetings, open houses, and drop-in centers. The Minneapolis-St. Paul Metropolitan Council initiated a partnership with Twin City Computer Network to allow people to participate in electronic forums, obtain publications, reports, news, research findings, and local maps, and participate in surveys (www.headstartinfo.org/infocenter/guides/dl_assoc.htm).

Teleconferencing participants can serve as a community advisory committee or task force meeting. It can cover simple items quickly, avoiding the need for a face-to-face meeting. For major issues, it is a way to prepare participants for an upcoming face-to-face discussion by outlining agendas, listing potential attendees, or describing preparatory work that is needed.

Teleconferencing is a method for taking surveys of neighborhood organizations. It helps demonstrate the array of views within an organization and helps local organizations meet and determine positions prior to a survey of their views.

Teleconferencing is used in both planning and project development. It is useful during visioning processes, workshops, public information meetings, and roundtables.

11. The Possible Drawbacks

Teleconferences are somewhat formal events that need prior planning for maximum usefulness. Although they require pre-planning and careful timing, teleconferences are conducted informally to encourage participation and the exchange of ideas.

(www.col.org/Knowledge/ks_multimedia.htm)

A large number of people are difficult to manage in a single teleconference, with individuals attempting to interact and present their points of view. One-on-one dialogue with a few people is usually preferable. Widely divergent topics are also difficult to handle with a large number of people participating in a teleconference.

Costs can be high. Costs are incurred in equipment, varying sites for connections, transmission, and moderator training. Substantial agency staff time to coordinate and lead is likely.

Teleconferences take time to organize. Establishing technical links, identifying sites and constituencies, and coordinating meetings can be time-consuming. Materials need to be prepared and disseminated. However, teleconferencing saves time by being more efficient than in-person meetings, and the savings may offset staff efforts and other costs.

Staffing needs can be significant. Personnel such as technicians and agency staff to set up and coordinate meetings are required. Training to conduct a conference is necessary. However, staff time and resources may be significantly less than if personnel have to travel to several meetings at distant locations.

Community people are alienated if a meeting is poorly implemented or if anticipated goals are not met. People need to be assured that the project and planning staff is mindful of their concerns. Technical and management difficulties, such as poor coordination between speakers or people being misunderstood or not heard, result in bad feelings.

Teleconferencing reduces opportunities for face-to-face contact between participants and proponents of plans or projects. It cannot replace a desirable contact at individual meetings between stakeholders and agency staff in local sites. Effective public involvement includes meetings in the community to obtain a feel for the local population and issues. A teleconference supplements rather than replaces direct contact with local residents and neighborhoods. Video conferencing, by contrast, enhances opportunities for face-to-face exchange.

The goals of a teleconference must be clear and manageable to avoid a potential perception of wasted time or frivolous expenditures.

12. Flexible Nature of Teleconferencing

Teleconferencing lacks flexibility of location and timing. A teleconference among several people must have a well-established location, time, and schedule, publicized prior to the event. An agenda must be set well in advance of the meeting, with specific times set aside to cover all topics, so that people at different sites can follow the format of the meeting. The New York State DOT held a teleconference/public hearing for the draft State Transportation Plan. The well-defined agenda scheduled registration and a start time that coincided with a one-hour live telecast from the State capital, which included a roundtable discussion with the DOT Commissioner (www.irrod.org/content/v2.1/ramanujam.html).

Videoconferencing can be flexible if it is a talk arranged between two locations. With few people, it may be as simple to arrange as a telephone call. With additional participants, it becomes less flexible.

Teleconferencing offers opportunities for participants who can't travel to become involved. Enabling people to stay home or drive to a regional site offers flexibility in child care, transportation, and other factors that affect meeting attendance.

13. Most Effective Use of Teleconference

Teleconferencing is effective when participants have difficulty attending a meeting. This occurs when people are widely dispersed geographically and cannot readily meet with agency staff. Teleconferencing also serves people with disabilities, the elderly, and others who may have difficulties with mobility (www.ajde.com/publications.htm).

Teleconferencing is effective when it focuses on specific action items that deserve comment. Teleconferences aid in prioritizing issues and discussing immediate action items. Detailed, wide-ranging discussions may be more properly handled with written materials and in-person interaction.

Teleconferencing helps give all participants an equal footing in planning and project development. Teleconferences overcome geographic dispersal and weather problems to aid contact with agency staff.

14. Problems and Prospects in Bangladesh

As teleconferencing system is new to the country, it could be decided to subject the system to experimental use to begin with, so that logistical problems involved in operating the system and its potential applications are fully grasped before commissioning it for regular use (Rao, V. R., 1994). The following points, though based on limited experience of the past few months, are worth deliberating in this connection:

- The system, as configured now, is critically dependent on the state of the public telephone system. The quality and reliability of STD lines in our country being what they are, the teleconferencing system becomes highly vulnerable to inconsistent voice quality among the participating locations and frequent disconnection's of one or the other party during the conference period. As a typical conference ranges from half-an-hour to one hour at a time, the probability of such failures and disturbances is quite high especially when the number of participating locations is large.
- To circumvent the above problem, hooking the system on to dedicated lines in the full-duplex mode seems imperative. However, dedicated lines-whether they be land-based or satellite links-are leased on an annual tariff basis and not on the basis of actual usage. Therefore, while economical for wholesale use, they are prohibitively costly if the need is only for a few hours in a month.
- In the interest of economy as well as better interactivity and effective communication, it is advisable to limit the number of participating locations to about five at a time, unless otherwise essential.
- Formatting of the conference sessions should be so designed as to permit frequent aural responses from the participating locations so as to ensure their active presence and participation in the conference.

- Should there be a lecture format followed by question /answer session, it is best to restrict the lecture part to about five minutes or so and go into the discussion mode as quickly as possible. Prolonged lecture without permitting active response from the other participants would not be a suitable strategy for the teleconferencing situation.
- Absences of visual clues, body language, etc. are to be taken into account for proper communication flow in an audio teleconferencing. For these and other reasons, tight preplanning, clear-cut agenda and active aural responses from all participants would go a long way in ensuring a successful teleconference session.
- Recently BOU has signed a new contract with BTV for delivering educational programmes of BOU by which BTV and BTV World (satellite channel) will provide one hour time slot in a day except Friday. In that case BOU will be able to arrange teleconferencing easily with the learners in various purposes. Thereby the learners under the umbrella of the seven Schools of BOU scattered all over the country will be benefited enormously. As a result the learners will be able to contact each other through teleconferencing in the field of distance education.

15. Conclusion

Teleconferencing offers a cost-effective means of introducing interactivity into the instructional methodology of distance education institutions. To the extent that interactivity element in today's distance education requires the physical presence of the teacher and the taught at the counseling sessions, it can be said that, to this extent, distant education system is yet to break away from the shackles of the traditional system. Interactivity at a distance, which is what the new media like teleconferencing can offer, merit serious consideration in this regard so that a purer and more refined form of distance education may evolve in future.

References

Text

Rao, V. R. (1994) : "Audio Teleconferencing—A Technological Prescription for Interactive Learning." *Kakatiya Journal of Distance Education* 3(2): 45-53.

Web Sites

<http://www.sales-masters-world.com/>
www.discount-video-conferencing.com
www.perey.com/hot_links.htm
www.uwex.edu/disted/h323.html
www.savie.com/disted.html
www.ed.psu.edu/acsde/readings/read.html
www.col.org/resources/startupguides/intro_learning.htm
www.fldlc.org/resourcesnav/international.htm
www.keralaprimarieducation.org/DEP.htm
www.headstartinfo.org/infocenter/guides/dl_assoc.htm
www.col.org/Knowledge/ks_multimedia.htm
www.irrodl.org/content/v2.1/ramanujam.html
www.ajde.com/publications.htm