A STUDY OF INTERNET LISTSERVS AS POST-TELECONFERENCE SUPPORT TO FACULTY AT COMMUNITY COLLEGES AND TWO-YEAR INSTITUTIONS

DISSERTATION

Presented to the Graduate Council of the University of North Texas in Partial Fulfillment of the Requirements

For the Degree of

DOCTOR OF PHILOSOPHY

By

Linda H. Alexander, B.A., M.Ed.
Denton, Texas
May, 1995
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This case study examined three listservs as follow-up activities for STARLINK® (State of Texas Academic Resources Link) satellite teleconferences for community college faculty development during the 1993-94 season.

Purposes included determining through self report and other data: (a) appropriateness of listservs as follow-up activities for teleconferences, (b) if combining video satellite teleconferences with a listserv satisfied perceived needs, (c) purposes of accessing a listserv and if listservs facilitated changes in the performance of work, were supportive of teaching, and provided resources beyond teleconferences' content, (d) what aspects of listservs are helpful or not helpful to participants.

The study involved 211 sites throughout the United States and Canada of which 183 were community or technical colleges. Two surveys were administered on site after teleconferences and by electronic mail after experiencing listservs. Respondents represented 71 community colleges. Listserv mailserver data and listserv traffic were collected. Data were analyzed using non-parametric and parametric statistics.

Results indicated between 37% (in Texas) and 47% (nationally) of the community college STARLINK® teleconference participants had access to the
Internet and between 24% (in Texas) and 30% (nationally) knew how to use e-mail.

Eighty-two percent of subjects completing the post-listserv survey said they were best satisfied by the combination of teleconferences and the listserv. Ninety-two percent of these subjects said they would subscribe again to a STARLINK® listserv.

Listservs were reported to be effective for teleconference follow-up activities if certain factors exist: access to Internet, knowledge of Internet e-mail, belief in potential benefits, time to participate, motivation to subscribe, participation by experts on listserv, and a supportive moderator.

The teleconference with the highest participation yielded only 71 listserv subscribers (4.5%). Therefore, a listserv can not be considered as the sole means for follow-up activities. Listservs can be effective for subscribers, have the potential for supporting more participants, and can be helpful for faculty development when combined with teleconferences.
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CHAPTER I

INTRODUCTION

Currently, there are over 1,200 junior and community colleges nationwide that enroll almost 50 percent of all students in higher education in the United States (Bleed, 1993a, p. 21). Community colleges and two-year technical institutions in the United States face increasing challenges to provide education and instruction for an expanding and diversified student body in a rapidly changing world that is driven by the information and technology revolutions. At the same time, these two-year institutions are in many cases functioning in environments of dwindling resources. To meet the needs of students for current instruction, some higher education institutions and state agencies have been developing new technology delivery systems to provide faculty development through distance learning.

STARLINK® (State of Texas Academic Resources Link), a satellite-based teleconference training network, was established in 1989 to help meet the needs for professional development among technical and vocational education faculty at community colleges and two-year technical colleges in Texas. Starting with the 1990-1991 funding period, STARLINK® contracted with The Resource Group, a company that processes and performs statistical analysis of surveys, to produce year-end evaluation reports of the STARLINK® teleconferences. One of the declared purposes of the reports was to provide "...a basis for addressing weaknesses and formulating strategies to create improvements in future telecommunications instructional delivery systems" (The Resource Group, 1992, p. 3).

For the 1991-1992 season, The Resource Group reported, "For all but one teleconference, at least seventy percent of the participants reported that new, useful and/or interesting information was presented, the overall experience was positive, and they will encourage others to attend in the future" (p. iv). However, the helpfulness of post-conference follow-up activities was found
to be a relative weakness in nine of the ten 1991-92 teleconferences. Post-conference activities were conducted only 43.2 percent of the time for the ten teleconferences and of those attending the activities, only 61.7 percent indicated they were helpful.

To improve the level of helpfulness of post conference activities, the Dallas director of STARLINK® suggested the development of an Internet computer-mediated communications system, such as a listserv, to provide follow-up for participants after the teleconferences.

The following research was conducted to determine if computer-mediated communications via listservs would satisfy the participants' needs for additional information and learning after teleconferences.

The Problem

Can the combination of a teleconference and a listserv service satisfy the perceived needs of participants for information and learning more than just a video/audio teleconference alone and also improve the participants' helpfulness ratings of follow-up activities after teleconferences?

Purposes of the Study

1. To determine if combining two-way audio and one-way video satellite teleconferences with a follow-up listserv, delivered via Internet, satisfies the perceived needs of participants for additional information and learning more than just video/audio teleconferences alone.

2. To estimate the appropriateness of having listservs provide follow-up activities for teleconferences as determined by self report including participants': (a) computer experience, (b) knowledge of Internet e-mail, (c) training needs, and (d) preferred modes of training.

3. To determine the purposes of participants' accessing a listserv and if the listserv facilitates: (a) changes in the way they perform their work, (b) is supportive of their teaching, and (c) provides learning resources beyond the content of the teleconferences.
4. To identify helping and hindering forces at work on the college campuses that may effect the use of telecomputing and the accessing of listservs by participants.

5. What aspects of a listserv are most helpful or not helpful to participants.

Research Questions

For faculty and administrators at community colleges and two-year technical institutions in the United States:

1. What is the association between the following: (a) the number of years of experience with computers, (b) knowing how to use Internet e-mail, (c) having access to the Internet and each of the following factors: (a) believing that a listserv will be helpful for follow-up to teleconferences, (b) choosing to subscribe to a listserv?

2. What is the association between: (a) believing that a listserv will be helpful for follow-up to teleconferences, and (b) choosing to subscribe to a listserv?

3. What changes occur in participants' helpfulness ratings of follow-up activities, if the follow-up activity is a listserv?

4. To what extent does the combination of two-way audio, one way video teleconferences and a listserv satisfy participants' perceived needs for information and learning than video teleconferences only?

5. To what extent is a listserv supportive of the work of college faculty as indicated by self-reporting?

6. For what purposes do participants use a listserv and what aspects of a listserv are most helpful to them?

7. Does the content of a listserv provide information and learning resources that extend beyond the content of the original teleconference it is designed to support and do participants consider a listserv to provide open learning?

8. What are participants' training preferences for learning to use the Internet and what modes have they found to be most helpful?
9. What are the helping and hindering forces that facilitate or do not facilitate participants’ using listservs after teleconferences?

10. Are participants’ after teleconference goals for continued learning met by using listservs or is some other support needed?

11. What are participants’ preferences for the configuration of a listserv in regards to experts on the list and methods of access?

12. Once participants experience a listserv, what percent are interested in signing up for another listserv that supports a teleconference?

13. If a listserv is provided for a series of teleconferences, how many of the teleconferences are seen by the listserv participants?

14. How are participants of listservs connected to the Internet?

15. Is there a significant difference between the responses of male and females to questions regards to listservs?

Background of the Study

STARLINK® was founded in July 1989 and funded by the Texas Higher Education Coordinating Board through a Carl Perkins federal grant. Carl Perkins grants are given to the states for use in developing technical-vocational education, as opposed to academic programming (Neal, 1992, pp. 99-100 and H. Hartman, personal communication, August 12, 1994).

The STARLINK® teleconferencing service for faculty development is primarily designed to support Texas community colleges and two-year institutions. The Texas Higher Education Commission (1993a) report, Institutions of Higher Education in Texas, 1992-93 listed forty-nine public community colleges, as well as two independent junior colleges and four public colleges in Texas (p. 15). The network currently consists of 73 Texas community and technical college campuses using one-way video and two-way audio to bring together national experts and college educators to discuss critical educational issues. All of the Texas community and technical college institutions may participate in the STARLINK® teleconferences if they have a satellite downlink, the personnel to support its use, and pay the yearly membership fee. The full amount of the membership fees ($2500/campus in 1994) is available to all the colleges by applying to the Higher Education
Coordinating Board. In 1994 only one community/technical/junior college in Texas did not have a satellite dish for satellite downlinks, Ranger Junior College (H. Hartman, personal communication, August 12, 1994).

Ideas for STARLINK® teleconferences are solicited from technical and vocational faculty to find topics that will meet the college faculties' needs. These grass roots inputs are achieved by having Regional STARLINK® Committees provide input to the region's representative on the STARLINK® Statewide Advisory Committee (STARLINK®, 1992, p. iii).

Austin Community College and the Dallas County Community College District co-manage STARLINK®. During the grant period from 1989-1992 STARLINK® produced and/or distributed twenty-five live teleconferences for faculty development attended by 9,164 participants (STARLINK®, 1992, p. vii). In addition to the live teleconferences, many institutions tape record the STARLINK® teleconferences and establish campus distribution systems, for example through the Learning Resources Centers. STARLINK® also distributes video tape copies of each teleconference to members who request this service. Some of the teleconferences have also been carried over local cable systems (STARLINK®, 1992, p. iv). For a fee, STARLINK® provides teleconferencing services to other Texas higher education institutions and to colleges and institutions outside the state of Texas (STARLINK®, 1992, p. vii). In some cases, institutions outside of Texas pay annual membership fees that entitle them to full STARLINK® services rather than a per teleconference subscription (H. Hartman, personal communication, August 12, 1994).

At the end of STARLINK® teleconferences, participants complete evaluation sheets. The purpose of conducting the evaluations of STARLINK® teleconferences was, "...to examine its success... and to gather information that would be useful in understanding potential constraints on success--and in formulating strategies for achieving increased success in the future" (The Resource Group, 1992, p. iv). The Resource Group from Austin, Texas compiled the evaluations for the first three years of STARLINK's operations (H. Hartman, personal communication, August 12, 1994). They used a "process-outcome model" as a guide for the evaluation design and statistical analyses (The Resource Group, 1992).
The Resource Group reported: “Questionnaire survey methods were used to obtain evaluative information from participants and on-site moderators attending ten teleconferences at sites throughout the eight higher education regions in Texas” (The Resource Group, 1992, p. i).

The findings were summarized by The Resource Group as follows:

All ten teleconferences were successful as indicated by a majority of participants, thus providing evidence that the high levels of success achieved during the first and second years can be replicated. For all but one teleconference, at least seventy percent of the participants reported that new, useful and/or interesting information was presented, the overall experience was positive, and they will encourage others to attend in the future.

There were small variations in program impact when responses were broken down by teleconferences, regions, sites or demographic groups of participants.

The average impact score achieved during 1991-1992 was greater than the average impact score achieved during the 1990-1991 funding period.

Comparisons of correlation coefficients (Pearson product-moment correlation coefficients) representing the degree of association between process variables and outcomes obtained during the second and third years revealed that five factors will be key in designing and implementing future teleconferences:

1. sequence of material;
2. effective presentation methods;
3. Question and Answer session;
4. amount of time;
5. the pace (The Resource Group, 1992, p. iv)

The report does not describe how the “impact scores” were derived or calculated. It is assumed from the report that the questionnaire was a Likert-type scale. However, these results were compressed in the report to dichotomous responses by grouping participants into two groups: percent
that agree strongly or slightly and those who do not agree or respond no to questions. There is no indication that there was a random sampling of participants, but rather they seem to have been self-selected with all participants' results included in the report.

Weaknesses of the teleconferences were also identified by the report. The report gave the percent of sites that conducted post-conference activities (The Resource Group, 1992). When these percentages from all ten teleconferences in the 1991-1992 year are averaged, less than 43.2 percent of the time were post-conference activities conducted. Additionally, of those people who did participate in post-conference activities, only 61.7 percent agreed strongly or slightly that the post-conference activities were helpful to them.

This aspect has particularly been a concern because most of the teleconferences produced by STARLINK® have been "stand alone" presentations, so that follow-up is not even necessarily achieved by providing succeeding teleconferences on the same topic. In addition, topics of the programs often vary widely in content from month to month. For example, in the 1991-1992 season, the teleconference: Effective Strategies for Nursing Faculty, was followed the next month by Tech-Prep Update: Program Implementation Issues (The Resource Group, 1992, p. 2). In the 1993-94 season, a change in this approach was planned and implemented by providing a series of three separate teleconferences over a three week period.

Handouts are given to teleconference participants for each STARLINK® program for support before, during and after the teleconferences. These handouts are quite extensive in length and detail with articles and/or bibliographies prepared by the experts from the programs. On average 77.5 percent of participants, in the 1991-1992 season, agreed that the printed materials were useful. However, there was a wide range of satisfaction with the materials among the teleconferences. The highest rate for usefulness of materials was 95 percent, the lowest 62 percent (The Resource Group, 1992, pp. 4-22).

A six question exploratory survey, developed by the researcher and approved by the Dallas Director of STARLINK® (see Appendix 1 —Survey 1) was administered after the April 13, 1993 STARLINK® Teleconference:
Emerging Technologies (University of Texas at Brownsville and Texas Southmost College, 1993) with these results:

Table 1
Mean Ratings of Effectiveness of Media for Supporting Professional Needs from Question One of Survey 1 Reported in Rank Order

<table>
<thead>
<tr>
<th>Rank</th>
<th>Media</th>
<th>N</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Conferences</td>
<td>66</td>
<td>3.6515</td>
</tr>
<tr>
<td>2</td>
<td>Colleagues on &amp; off campus</td>
<td>67</td>
<td>3.5373</td>
</tr>
<tr>
<td>3</td>
<td>Classes for credit</td>
<td>55</td>
<td>3.3090</td>
</tr>
<tr>
<td>4</td>
<td>Teleconferences</td>
<td>68</td>
<td>3.2794</td>
</tr>
<tr>
<td>5</td>
<td>Non-credit workshops</td>
<td>65</td>
<td>3.2307</td>
</tr>
<tr>
<td>6</td>
<td>Computer aided instruction</td>
<td>60</td>
<td>3.1833</td>
</tr>
<tr>
<td>7</td>
<td>Video tapes</td>
<td>61</td>
<td>3.0819</td>
</tr>
<tr>
<td>8</td>
<td>Computer conf/BBS</td>
<td>54</td>
<td>3.0555</td>
</tr>
<tr>
<td>9</td>
<td>Books</td>
<td>64</td>
<td>3.0313</td>
</tr>
<tr>
<td>10</td>
<td>Periodicals/Newspapers</td>
<td>66</td>
<td>2.9696</td>
</tr>
<tr>
<td>11</td>
<td>Interest groups</td>
<td>64</td>
<td>2.9375</td>
</tr>
<tr>
<td>12</td>
<td>Newsletters</td>
<td>66</td>
<td>2.8181</td>
</tr>
<tr>
<td>13</td>
<td>Audio tapes</td>
<td>57</td>
<td>2.1052</td>
</tr>
<tr>
<td>14</td>
<td>Others</td>
<td>2</td>
<td>2.0000</td>
</tr>
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The data in Table 1 display the means of the value ratings given to various media and resources for supporting professional needs as indicated by the participants in Question One. They rated teleconferences relatively high, putting them into fourth position. Computer network conferences/bulletin boards were ranked eighth out of fourteen. It should be noted that answers to Question Three indicated that 41 out of 74 participants lacked access to the Internet. It was thought that lack of access could have affected their rankings of the helpfulness of computer conferences/bulletin boards. Therefore, it was determined to investigate this association more fully.
Question Two asked the participants to rate the effectiveness of a computer network that would allow them to interact with other participants and experts after teleconferences. Out of seventy-two responses, the mean was 3.84722, the median was 4 and the mode was 5. Note the mode was 5 — computer networks are extremely effective. These results indicated that there was an interest in using the Internet to interact with other participants after the teleconferences. This gave support to the proposal that a pilot study using listservs should be conducted.

Question Three investigated the ease of access to an Internet connected computer. Out of 74 responses, thirty-three participants said they had access, thirty-eight said they had no access, one said they had a modem but no access to the Internet and two participants said they did not know. It should be noted that of the twenty colleges represented by participants in this survey, only four colleges were said to have no access to the Internet (as indicated by five of the surveys). It is also known that six additional campuses have access to Internet directly through THENET (the Texas Higher Education Network). This may have indicated a lack of knowledge by some participants concerning resources on their campuses. As of September 1993, eleven community and technical colleges in Texas were listed as being directly on THENET (The Texas Higher Education Coordinating Board, 1993b). These included three community college districts which each have several campuses.

Survey 2 and Survey 3 of the research study were designed to determine whether participants with Internet access have that access by modem or by their institution's computer network. Modem access could be from another source, for example, from home via a commercial network, rather than being supplied by an institution.

Question Four of Survey 1 asked the extent of training needed by participants on how to connect to and use Internet. There were 62 responses. Of these, 8 (12.9 percent) needed limited training, 7 (11.29 percent) needed a little more training, 14 (22.6 percent) needed a mid range of training, 10 (16.13 percent) needed somewhat extensive training and 23 (37.10 percent) needed extensive training. Therefore, 75.83 percent needed average to extensive training on how to connect to and use the Internet.
Of the 29 answering "yes" in Question Number Three (that is, have access to computer and modem for using Internet) and who also answered Question Number 4, the distribution for training needs was: 5 (17.24 percent) needed limited training, 6 (20.69 percent) needed a little more training, 8 (27.59 percent) needed a mid range of training, 5 (17.24 percent) needed somewhat extensive training and 5 (17.24 percent) needed extensive training. Only 62.07 percent needed average to extensive training on how to connect to and use the Internet.

Of the 29 answering "no" to question Number Three (that is, do not have access to computer and modem for using Internet) and also answered Question Number 4, the distribution for training needs was: 3 (10.34 percent) needed limited training, 1 (3.45 percent) needed a little more training, 4 (13.79 percent) needed a mid range of training, 5 (17.24 percent) needed somewhat extensive training and 16 (55.17 percent) needed extensive training. 86.2 percent needed average to extensive training on how to connect to and use the Internet.

Therefore, those who said they had access to the Internet did not perceive that they needed as much training as those believing they did not have access at all. The STARLINK® teleconference held the following Fall on November 3, 1993, provided some training on using the Internet. This was also the first teleconference in the pilot which offered a listserv as a follow-up activity.

Question Five asked participants for their preferences of training modes for learning to use a computer network. They were asked to "rate" from 1-6, with 1 being their first choice. This question was poorly worded, participants should have been asked to "rank" not "rate." See Table 2 for the results.

Some modes of learning were chosen but not ranked by participants. On-campus workshops and computer-assisted instruction seem to be the most popular ways of learning how to use a computer network. Given the interest in computer-assisted instruction, it may be that listservs that provide information to participants on how to get more training about the Internet via computer tutorials might be well received. Nine participants preferred a DOS platform. None indicated a preference for the Macintosh platform.
Table 2
Mean, Median, and Mode Preferences Rankings for Training from Question Five of Survey 1 Reported in Mode Rank Order

<table>
<thead>
<tr>
<th>Method</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-campus workshop</td>
<td>1.767857</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Computer assisted training</td>
<td>2.458333</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Teleconference</td>
<td>3.70833</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Video tape</td>
<td>3.538461</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Workbook</td>
<td>3.600000</td>
<td>3.5</td>
<td>5</td>
</tr>
<tr>
<td>Audio tape</td>
<td>5.622222</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

Table 2 shows that videotapes, workbooks and teleconferences were all given average rankings when the means are compared. However, the calculated modes indicate that the preference order for these three would be: teleconferences, videotapes and workbooks. Audio tapes were the least preferred.

Question Six asked for ways to improve the follow-up to teleconferences "...to more nearly fit your needs." This was an open-ended question. Some of the responses that relate to this study in regard to providing after teleconference support by interactive listservs were:

- Have resource discussion following.
- Don't tell us what we need. We know that. Help us with specific solutions.
- More interaction with caller, i.e. let the caller give input to the answers given to their questions when they call in.
• Send more information on the emerging technologies.
• More specifics about how we begin new programs

All of these requests could be supported through a listserv service. That is, it is possible for listservs to provide an environment that facilitates discussions of resource allocations, specific solutions to individuals needs for information and solutions to implementing new programs. The desire for more interaction could also be fulfilled by the use of a listserv.

Twenty colleges were identified as represented in the survey. In the Texas Higher Education Coordinating Board's report: *Institutions of Higher Education in Texas, 1992-93*, there are forty-nine public community college districts identified, two independent colleges, and four public technical colleges. The total count of individual campuses on the list is seventy-nine. Therefore, 25 percent of the community colleges and two-year institutions in Texas were represented in Survey 1. It should be pointed out that this was not a random sample of participants. Therefore results can not be fully generalized to the entire population of community colleges in Texas, but the survey provided some guidance for implementing a pilot study.

John Lovelady, the Assistant Director for Information Services Operations at the Texas Higher Education Coordinating Board, was contacted for information about the use of computer-mediated communications by community colleges in Texas. He indicated that the Coordinating Board, in addition to supporting STARLINK® teleconferences for faculty development, has been encouraging higher education institutions in Texas to acquire connectivity to computer networks. The Texas Higher Education Coordinating Board wants to facilitate administrations', faculties', and students' accessing information that will support instruction, administration and continuous learning.

Dr. Larry Key of the Community and Technical Colleges Division of The Texas Higher Education Coordinating Board said that the Coordinating Board made available Perkins funds of $3000 per community college or two-year institution campus for, "...THENET hook-up, but not all of the colleges took advantage of our offer" (L. Key, personal communication, August 10, 1994). As of September 21, 1993 there were eight community colleges and three
community college districts listed as sites linked to the Internet via a direct connection on the regional network, The Texas Higher Education Network—THENET (The Texas Higher Education Coordinating Board, 1993b). The colleges were: Delmar College, Corpus Christi; El Paso Community College; Galveston College; McLennan Community College, Waco; North Harris Montgomery Community College; Odessa Community College; Temple Junior College; and Texas State Technological College. The community college districts were: Alamo Community College District (three campuses); Collin County Community College District (two campuses plus a professional and economic development center and building a third campus); and Dallas County Community College District (seven campuses) (The Texas Higher Education Coordinating Board, 1993b). One year later on August 12, 1994, Helen Giraitis, on the staff of Dr. Larry Key in the Community and Technical Colleges Division at the Higher Education Coordinating Board reported that twenty-three Texas community/technical colleges and six Texas community college districts or college systems had access to THENET (H. Giraitis, personal communication, August 12, 1994) (See Appendix 2). In August 1994, the Coordinating Board was applying for a United States Department of Education grant to bring the other Texas colleges onto THENET (L. Key, personal communication, August 10, 1994).

THENET is the transport system connecting computers within the state of Texas (Stout, 1992). It is a multiprotocol network connecting most major academic and research institutions in the State of Texas, as well as several institutions in Mexico (The Texas Higher Education Coordinating Board, 1991). THENET is a distributed network which is an NSF (National Science Foundation) regional network and is connected to other networks worldwide through the Internet. THENET includes online library catalogs, educational computer archives, public databases, and instructional hypermedia libraries, and provides a link for public education with higher education (Stout, 1992). The universities in Texas have greater direct connectivity than the community colleges. Forty-five universities were listed as being on THENET in July of 1993 (The Texas Higher Education Coordinating Board, 1993b).

Wallace C. Knapp, Director for Computer Services at Catonsville Community College in Baltimore, Maryland maintains a list of community
colleges in the United States that have Bitnet or Internet nodes. As of July 14, 1993, Knapp listed Austin Community College on the Internet, and Dallas County Community Colleges and El Paso Community College on Bitnet (Knapp, 1993). Two of these three, Dallas and El Paso are also on the Higher Education Coordinating Board's THENET list for the Internet (The Texas Higher Education Coordinating Board, 1993b). Other community college campuses or individual professors were believed to be connected to the Internet in other ways, for example, possibly through commercial services such as CompuServe. However, no single study or document had been found by the start of the study that provided information about every individual Texas campus' connectivity to the Internet.

In 1993, The Higher Education Coordinating Board had a dial-in service to a computer system in Austin provides for transfer of files and accessing of data bases by the community colleges and technical colleges. The system can be dialed directly or be accessed via twenty-one of the largest cities in Texas that have local numbers that people can use to connect to the system in Austin without incurring long distance charges. As of the Summer of 1993, the Coordinating Board did not think it had sufficient funds to expand the system to include more services, for example bulletin boards, newsgroups or listservs.

At that time, the Coordinating Board had a computer system in Austin that provided file transfer (FTP), mail (SMTP) and session connect by Telnet. These tools facilitate administrators accessing data bases and files and provide information such as TASP scores using the TCP/IP protocol (J. Lovelady, personal communication, June 18, 1993).

After the initial survey was conducted following the April 1993 teleconference, a pilot study involving two teleconferences was conducted to find the most effective means of proceeding with the research. The title of the first teleconference of the pilot study was: The Global Connection: Internet in the Classroom (Matta, 1993). This teleconference was conducted from El Paso on Wednesday, November 3, 1993. Unfortunately, due to technical difficulties, this teleconference was thirty-five minutes late in starting. It is believed that many participants left early or before the teleconference started. Therefore, the participation and survey results may
not be representative of the type of results that would have been obtained under better conditions. The second teleconference in the pilot study was held on December 2, 1993 with the title: *Educational Use of Copyrighted Material: Infringement or Fair Use* (Chavez, 1993). Both of these teleconferences were provided with a listserv service following the teleconferences. The two listservs were called STARNET and LEGALIST.

Additional Internet services have been developed by The Coordinating Board in 1994 during and after the main research was conducted. They have a gopher server to which they are continually adding information and have interconnected the service to other systems. They installed a "hook" in the TENET gopher (Texas Education Network for K-12 schools) so that information about all the degree offerings in Texas and the institutions that offer them appears under the "College Bound" area of TENET and is "...thereby available to every counsellor in every high school in Texas" (J. Lovelady, personal communication, February 24, 1994).

The decision was made by the Coordinating Board to not set up a low capacity dial-up service. It is believed that increasingly the community and technical colleges in Texas will become Internet capable because the expense of connectivity to the Internet is not that great, particularly if an infrastructure of personal computers and local area networks are already in place on a campus (J. Lovelady, personal communication, February 24, 1994). Lovelady sees his role as an "...information provider to build an attractive service which, when taken with all the other features of Internet will be compelling" (J. Lovelady, personal communication, February 24, 1994).

**Significance of the Study**

Distance education using either teleconferences or telecomputing or a combination of the two have been studied before for other groups besides community college faculty. The groups using this form of educational delivery system in general have been undergraduate and graduate students taking courses of study via distance learning as opposed to single session presentations to college faculty members. Some faculty groups of teachers in the K-12 environment have been studied. However, examples of
multimodal distance education that combined teleconferences and listservs delivered to populations of college professors at the community college level were not found before conducting the research. STARLINK's mission, in particular, is to faculty who provide technical-vocational education at the community college level.

Definition of Terms

Listserv:
A software system for maintaining mailing lists without human intervention. Listserv groups are joined by sending a formatted subscribe message to the computer that runs the listserv (Krol, 1992, 121).

Lurkers:
People who have subscribed to a listserv or bulletin board who read the e-mail messages of other people on the list, but do not respond or send in e-mail messages themselves.

TCP/IP:
Transmission Control Protocol/Internet Protocol is the common name for a family of over 100 data-communications protocols used to organize computers and data-communications equipment into computer networks. It is currently used on the large international network of networks called the Internet, whose members include universities, other research institutions, government facilities, and many corporations. TCP/IP is also sometimes used for other networks, particularly local area networks that tie together numerous different kinds of computers or tie together engineering workstations (Texas Higher Education Coordinating Board, 1991).
TELNET:
A protocol used on the Internet for interactive sessions. This tool allows users to directly access programs running on remotely located computers, such as searchable information databases (Harris, 1994, p. 11).

THENET:
The Texas Higher Education Network a distributed network which is an NSF (National Science Foundation) regional network and connected to other networks worldwide through the Internet. THENET includes online library catalogs, educational computer archives, public databases, and instructional hypermedia libraries, and provides a link for public education with higher education (Stout, 1992)

Limitations

The subjects in this study were volunteers; they were not randomly selected but self-selected. All subjects who participated in the listservs were volunteers who took the initiative to learn how to subscribe to the listserv and were willing to observe and/or contribute to the communications on the listserv. Because the listservs were technically unmoderated, that is the computer system automatically subscribed people who sent the correct subscribe message, it was possible for people to subscribe to the listserv who had not seen a teleconference. Unless a subscriber identified who they were, there was no way of necessarily knowing who they were from their e-mail address.

The survey method that was used in the study strove to provide anonymity for the participants, which may have provided more candid responses without adding bias. However, subjects' names, last four digits of their social security numbers, their institution and their e-mail address were requested and were deemed necessary in order to match subjects who filled out Survey 2 and Survey 3 to determine change. This redundancy of identification was found to be necessary because some subjects did not fill out all of the information requested in the survey. Subjects who filled out Survey 2, administered by the on-site moderators immediately following the
teleconference, were told that their names will be changed to a code to maintain anonymity. When processing the survey data, the data entry personnel did not enter the names of participants, but only the coded information. See Appendix 12 for data entry categories.

Anonymity was maintained in the listserv survey by having participants send their listserv survey responses only to the researcher and not to the listserv as a whole. Subjects were told that their responses would be completely anonymous and that their e-mail address and name would be removed from the survey and heading. However, these elements were used to match participants responses to Survey 2 and Survey 3 and were used to eliminate duplications of individual participants filling out more than one survey. Participants were promised that all their responses would remain confidential. Filling out the survey was voluntary. However, even though the participants were told that anonymity of reporting would be maintained, they may not have had a sense of anonymity, because they knew that the header information was included in all e-mail messages. This may have effected the results.

There was no control over the institutional environments of the subjects that may or may not have supported accessing the Internet and using the listservs. In this study of listservs for faculty, issues of logistical independence and freedom were explored to determine what administrative constraints were imposed upon participants. Advantages of listservs are said to be those of flexible time, space and duration. However, local administrative constraints may have been imposed on participants due to lack of equipment and resources to support all the subjects' participating fully. Costs of connect times may also have been a constraining factor.

In this study, there was no control over the content of the teleconferences. STARLINK® had control over content.

This was a natural, real-world study, with factors, for example technical problems, over which there were no controls and which may have limited the results obtained. Unlike one of the teleconferences of the pilot study, the teleconferences studied did not relate directly to the Internet. Results in the study varied from the pilot results, particularly in to listserv participation. This may or may not have been because the subjects attending the subsequent
teleconferences may or may not have attended the Internet teleconference in which listservs were explained. The Internet teleconference was available however, on video tape to the campuses, but subjects may not necessarily have seen it in that form either.

Subjects who engaged in the listservs may or may not have had predefined relationships with others on the listserv that may have been positive or negative. This may have had a confounding effect upon the subjects' attitudes and therefore upon outcomes.

Delimitations

This research study was subject to the following delimitations:

1. The primary subjects of this study were the faculty, staff and administrative personnel from community colleges, junior colleges and two-year technical institutions who had viewed the specified STARLINK® teleconferences included in the study. However, some comparisons are made to the responses of participants who viewed the STARLINK® teleconferences who are faculty, staff or administrative personnel from upper division institutions and other institutions.

2. The study was limited to three teleconferences, although some references are made to the two additional teleconferences in the pilot study.

3. Only one listserv was provided for the main study. This service was provided from the computer server in the Department of Technology and Cognition at the University of North Texas College of Education with Mercury Software authored by David Harris from New Zealand. Two additional listservs were used in the pilot study delivered by the same computer server providing some comparative data.

Assumptions

In this research, it was assumed that participants attended STARLINK® teleconferences primarily because of their own desire to participate. In some cases, a supervisor may have recommended participants' attending particular
teleconferences. It was assumed that most of the participants would be associated with a community college or two-year technical institution.

It was assumed that there would be some control over the measurement of the subjects who engaged in the listservs and the measurement of teleconference participants who did not engage in the listservs. There was some control over the time and place of the measurement process. There was more control over the measurement process of Survey 2 (immediately after teleconferences by monitors) relative to time and place than of Survey 3 (administered via e-mail four weeks to six weeks after participants signed onto the listserv, because participants chose when, if, and where they responded).

It was assumed that not everyone who attended the teleconference would fill out a Survey 2 because in the past the number of STARLINK® evaluation sheets received from participants were less than the number of people recorded as having attended by the monitors at each site.

This design assumed that participants put their names, the last four digits of their social security numbers, their college name and their e-mail address, if they had one. This was done so that listserv participants who answered Survey 3 could be matched to their answers in Survey 2.

It was assumed that among the five groups studied (from the two teleconferences in the pilot and from the three teleconferences in the study), some subjects would overlap groups, that is, may have attended more than one teleconference and engaged in more than one listserv. Additionally, for each teleconference there were three subgroups: (a) those who only attended a teleconference without engaging in a listserv, (b) those who viewed at least one teleconference and subscribed to a follow-up listserv, and (c) those who viewed a teleconference, signed up for the listserv and also filled out Survey 3. An effort was made to identify which subjects overlapped by matching the people’s identification information given in the surveys.

Subjects were told that their names would be substituted for a code to insure anonymity in the reporting of results. It was assumed that this would facilitate participants’ responding truthfully.

In this study, it was assumed that there are at least two types of knowledge: stored knowledge and knowledge building as defined by R. L.
Boot and V. E. Hodgson (1987). Participants who participated in a listserv in this study, may have gained both types of knowledge: stored knowledge, for example, learning specifically how to access particular information via the Internet, and they may also have engaged in learning and knowledge building that facilitate elaboration and a “change of the meaning-making processes and the enhancement of personal competence” and development (Boot and Hodgson, 1987, p. 6).
CHAPTER II

LITERATURE REVIEW

Multimodal Distance Learning Studies

One of the primary issues identified by Preston (1990) in her content analysis of the trends and issues in educational technology for the period from October 1, 1988 through September 30, 1989, was: "Which face-to-face instructional functions can effectively be replaced by distance education?" The STARLINK® research addressed the issue of whether listservs would be helpful as follow-up activities to teleconferences for faculty development at the community or two-year institution level.

The literature indicates that other projects similar to STARLINK's teleconferencing service have been developed in other states for faculty development at the community college level. For example, Elgin Community College (1989) sponsored by the Illinois State Board of Education, Department of Adult, Vocational and Technical Education developed a vocational education satellite teleconference project. This project accomplished two goals: (a) identified, acquired, copied, and distributed to the Illinois Vocational Curriculum Center, 100 marketing or training videotapes for staff development and classroom use; and (b) provided from 15-25 variable time (1- to 3-hour) satellite teleconferences in four Illinois community college sites for vocational educators who are also business and industrial users.

Before the multimodal STARLINK® study was initiated, no examples were found of projects combining satellite telecommunications with listservs or bulletin board as follow-up for faculty development at the community and technical colleges colleges. However, adult groups other than community college faculty have been involved in multimodal distance learning studies involving teleconferencing or television or video tape with e-mail support.
These groups were either undergraduate or graduate students, or teachers in the K-12 environment.


Multimodal distance education projects are currently being developed for the K-12 environment. NASA's "Live from... Other Worlds" was a pilot project using space technology to take students on "Virtual Field Trips" via interactive satellite television and computer networks that was aired in December, 1993. The organizers reported on the COSNDISC Internet listserv that:

The interactive component of the programs will allow some students to question...researchers, live and on-camera. In order to permit an additional degree of interactivity not practicable during the broadcasts alone, computer-based "discussion centers" (via mail lists and newsgroups) will be used. This will allow other pupils and teachers to contact scientists seen during the programs through electronic correspondence for further information and with follow-up questions. The e-mail feedback will be organized by PBS LEARNING LINK and by NASA's K-12 NREN Initiative (National Research and Education Network)...an archive of relevant materials will be kept on-line using modern Internet tools (anonymous FTP, Gopher and WAIS)...A high point of the three programs will come in the second program when a group of students at NASA's Ames Research Center in California will be able to "drive" a robot camera system -- a Remotely Operated Vehicle or "ROV" —10,000 kilometers away, deep under the Antarctic ice. (M. Siegel personal communication, October 18, 1993)

One of the most unique aspects of this project was the availability of a wide range of online resources to enhance and extend the ways in which the
students could participate. NASA's electronic component of the project distributed the information on the Internet: periodic updates from the research team in Antarctica, channels accepting e-mail questions and the experts sharing answers, background information, a discussion listserv for teachers to share ideas about their experiences with the project (NASA, 1994).

The NASA design for combining satellite teleconferences with listservs and newsgroups was somewhat similar to the STARLINK® project in that there were a series of three teleconferences in a row that were broadcast on December 1, 3, and 7, 1993 that dealt with similar topics.

Mind Extension University: The Education Network, a subsidiary of Jones Education Networks, is a cable network offering 24-hour daily delivery of education programming including classes for personal and professional development, K-12 certificate programs, and bachelor's and master's degrees to 36,000 students by 1994 (Mind Extension University, 1993; Koury, 1994).

ME/U is available to satellite dish owners and affiliated cable companies nationwide by satellite transmission from Englewood, Colorado...The network launched its programming in November of 1987 with the cooperation of its flagship school, Colorado State University and approximately 50...Intercable systems across the country...Today the network is affiliated with more than 800 cable systems nationwide as well as more than 24 nationally-known universities and colleges, and students and viewers representing all 50 states. (Mind Extension University, 1993, p. 3)

Students in specified programs now have the additional service of ME/U Access™. This is a voice mail system which enables students and professors to communicate as a group and individually.

An interactive computer bulletin board service is offered for courses offered in the Master of Arts in Education and Human Development provided by George Washington University for the Mind Extension University. Dan Torbet, a LAN Support Specialist from Jones Information Management in Englewood, Colorado, provides the bulletin board support for the Mind Extension University. It allows for interactions among students
in a course, as well as interactions between the professor and the students. Students may also communicate with students in other courses besides the one for which they are registered. Torbet indicated the feedback from students is, "...excellent, as long as the professors log in," on a regular basis to check on messages for them. When the professors do not check in periodically, the students are, "...less than thrilled," and it is really, "...up to the professors," to provide the service (D. Torbet, personal communication, April 14, 1993).

In the Spring 1993 semester, there were two classes using the service, although more classes have access. So far, no formal study of the service has been made but, Torbet receives student feedback from students' telephone calls and from messages to him over the bulletin board. Torbet said that the students need support at the beginning of each semester. Questions have to do with setting up the communications software and modem on their particular computer (Macintosh, DOS or Apple II) and how to set up the data bites and stop bites, et cetera (D. Torbet, personal communication, April 14, 1993).

Other universities, besides the ones currently connected with the Mind Extension University, have expressed interest in having just the bulletin board service for their students, because of the perceived value of the service. These, for the most part, are universities that have developed video distance learning on their own, but do not have a bulletin board service.

Mind Extension University has produced a video training tape approximately 40 minutes long, that is available at the beginning of each semester to provide trained on how to use the bulletin board. This tape goes through the screens step by step showing, for example, getting into the main menu, how to leave messages, deleting messages and uploading and downloading files. Students are able to upload their files into a "protected file" which allows for security of their homework materials sent to their professors and also can leave files for other students. Torbet thinks that this tape needs to be "revisited," because some information is insufficient for students. When students first log-on, the disk they are provided with has a script that provides an "auto pilot" to get them into the bulletin board. For some students, it is the first time they have used their computers in this way.
One student called in and complained that his modem was making a strange noise when he was trying to dial-up (actually the sound of the modem working) so he turned it off and was unable to connect to the bulletin board! Some students take half of the semester to get fully comfortable with the bulletin board. One problem encountered was the fact that most of the students have only one phone line and try to use the modem at the same time they are phoning into the support telephone number. Torbet estimated that he spends 10-15 hours per week and sometimes 3-4 hours per day, the first three weeks of the semester, supporting students' use of the bulletin board either on the phone or through the bulletin board. After the first three weeks, support requests drop to 1—2 hours per week. He found that, for most students, the first time they used a modem was a unique experience (D. Torbet, personal communication, April 14, 1993).

One Mind University technology class in Spring '93 with 70 students was the most verbose so far in using the bulletin board. From January to the middle of April, they generated 10,000 messages on the bulletin board. Periodically, the bulletin board software is updated, and students need to be notified of these updates. Torbet is able to fairly easily monitor the traffic on the line. He can see what nodes are operating. Torbet is in the process of hooking up the bulletin board to Internet, which will allow further access to information by the students (D. Torbet, personal communication, April 14, 1993).

Jones Education Networks, that operates the Mind Extension University, announced that it is teaming up with the League for Innovation in the Community College to, "... create a cable television-based worldwide distance learning system called The International Community College" (Staff, 1994, p. 11). It is not known yet whether they will be providing faculty development as well as courses for students at the community college level. A bulletin board service could also be made available as has been done with the Mind Extension University.

There are some educational telecommunications services for universities and colleges that combine satellite delivery with other types of data being carried via computers. The Satellite Communications for Learning (SCOLA) located in Omaha, Nebraska, is a consortium of colleges and
universities that transmits foreign news and information to support student foreign language development (Krause, 1989). As of 1989, 24-hour broadcasts were transmitted from 15 countries daily. Other frequencies are used to carry high speed data:

...with resources fed into computers connected to the satellite signal, including vocabulary, discussion topics, speech pattern exercises, and graduated difficulty quizzes. The computer can also receive the text printout of the original language as well as the translation into English. SCOLA can be used to supplement classes in foreign language, international business, international law, international studies, and international relations. (Krause, 1989)

Some United States institutions are changing from conventional delivery of education to delivery of classes to thousands of students across the country via microwave, satellite, teleconference and cable. Warren Baker, President of California Polytechnic State University at San Luis Obispo refers to this as the "virtual university." He calls it that because, "...you can get access to education independent of time and place" (Koury, 1994, p. 3 C).

Some examples of the institutions providing degrees via distance education include: Holy Names College in Oakland, California (bachelor degree in nursing), California State University, Dominguez Hills (only nationwide nursing degree), California State University, Chico (master's degree programs by satellite to companies in 16 state) (Koury, 1994, p. 3 C). Many students in distance learning programs are starting to "...confer with professors by on-line computer services, electronic mail and telephone. Most send in their homework by fax, computer mail or courier" (Koury, 1994, p. 3 C).

Other traditional higher education institutions are involved in multimodal distance education. Southern Methodist University in Dallas provides a live course in engineering via a microwave television network known as TAGER that is delivered to 42 companies in North Texas. The class sessions are taped including the question sessions at the live remote sites. Students who are using the video tapes for the course are able to have their
questions answered via telephone, fax, electronic mail or by postal mail service (Steinert-Threlkeld, 1993, p. 1 F).

An interesting discovery has been made by student who are learning via the video tapes in the SMU engineering program; they can see lectures over and over again until they understand a concept. The National Technological University in Fort Collins, Colorado re-broadcasts the lectures from SMU and other universities via satellite. Douglas M. Yeager, vice president of NTU says that now students who have seen the satellite broadcasts are also requesting video tapes of the broadcasts (Steinert-Threlkeld, 1993, p. 11 F).

Steinert-Threlkeld (1993) referred to this phenomenon of video taped course work as “time-shifting.” With this technology, "Students learn when they want to learn, not when a teacher has to teach. Students learn at the pace at which their brain, eyes, and ears work—not someone else’s" (Steinert-Threlkeld, 1993, p. 11 F).

Through these multimodal systems, students have the flexibility to learn where they want to learn— in their home, office, or on a business trip and in so doing can save commute time. Among participates of The National Technology University, the grade point averages of off-campus students are 0.1 to 0.2 points higher than those of on-campus students (Steinert-Threlkeld, 1993, p. 11 F). Therefore, NTU students, learning by multimodal distance education, may actually be benefited by the system.

In 1993, Southern Methodist University’s engineering school had more students off campus than on campus (approximately, 150 in the studio in Dallas, 150 via videotape, 150 via satellite and 250 studied via the microwave TAGER network) (Steinert-Threlkeld, 1993, p. 11 F).

Murphy, a professor at Texas A & M University, teaches a course in the Theory and Practice of Distance Learning (K. Murphy, personal communication, July 12, 1994). Her graduate students peer tutor undergraduate students taking an education technology foundations course. They teach the undergraduates (and some cooperating teachers in the schools) the basics of computer conferencing and moderate conferences dealing with content area subjects and education technology applications. The students are linked at several sites, including schools, by two-way video conference.
The University of Georgia's (1987) Division of Vocational Education gave the following recommendations for successful teleconferencing: make instruction "high touch" and interactive; prepare the participants in advance with materials and agenda; and realize that teleconferencing is different from face-to-face instruction and need not imitate it.

The Adult Literacy Center at the University of Pennsylvania in Philadelphia produced a professional development series for adult literacy instructors, administrators, and tutors that included teleconferences and on-line computer follow-up (J. Morgan, personal communication, August 5, 1994). The April 28, 1994 program was on technology. The second, on adult numeracy, was held December 1, 1994. Students did not participate in the series. They found that the on-line component was:

...not terribly successful the first time around, largely because adult literacy providers have limited access to on-line services. But they are getting on-line, as is everybody it seems, in ever increasing numbers. Thus we will be continuing to push this as part of the follow-up. (J. Morgan, personal communication, August 5, 1994)

They also provide many resources relating to adult literacy through their Gopher server (J. Morgan, personal communication, August 5, 1994).

The U.S. Food and Drug Administration conducted a national telecourse series via satellite starting August 15, 1994 for federal, state and local food regulatory officials, cooperative extension personnel, educational providers, and industry (C. Otto, personal communication, August 12, 1994). The August 1994 teleconference was the FDA's first formal attempt at combining the two communication methods of satellite teleconferences and computer-mediated communications via a bulletin board service.

The FDA's August 1994 course had over 6,000 registered participants at more than 160 sites. The subject was HACCP: Hazard Analysis Critical Control Point Implementation. The agenda covered 3.5 days (6 hours/day) with most of the course pre-recorded on-site at restaurants, grocery stores, institutions, and aboard ships. The director of the teleconference was one of co-founders of the Discovery Channel. The rest of the course was a mixture
of live co-moderators, panel discussions and faxed in questions from tele-
students. The course had a student manual to accompany it and there were
trained on-site facilitators for most of the sites. The computer service, FDA
PC, was mentioned during each day’s broadcast as a way to continue the
discussion and networking of participants. No formal research was used in
planning to link the two technologies of satellite teleconferencing and a
computer mediated service. It seemed, “...like a natural” (C. Otto, personal
communication, August 12, 1994).

FDA PC is a bulletin board system with four lines which were expanded
to sixteen in October 1994. The system is accessible via an 800 number. They
planned to be connected to the World Wide Web by December 1994. They
have been using FDA PC since February 1992 for disseminating
announcements and providing related materials via file transfer (agendas,
course books) as well as for receiving feedback about conferences. After the
September 23, 1994 teleconference, follow-up on FDA PC included opening
statements from broadcast panelists, follow-up questions/responses from
viewers and others (C. Otto, personal communication, August 12 and 15,
1994). Otto indicated that the FDA also is discussing providing a national
meeting via FDA PC with both presentations and interactive sessions
available.

Bellman, Tindimubona, and Arias (1993) reported the results of 1992
BESTNET project, which involved over three thousand students and faculty
accounts from over a dozen institutions in the United States and Mexico.
The faculty interviewed users of the system and also analyzed the content of
the conferences for both collaborative research projects and various types of
courses. The BESTNET project found that, “Computer conferencing is a
viable interactive component of videotaped or live instructional television
courses providing individualized attention to student needs and
requirements that cannot be obtained using traditional methods of audio and
video feedback” (Bellman, Tindimubona & Arias, 1993, p. 241).

L. S. Anderson (personal communication, May 3, 1994) presented a
telecourse seminar on Planning for Instructional Technology for the K-12
environment for graduate credit in June 1994. This telecourse was delivered
via Mississippi FiberNet 2000 to five sites and was also available on videotape
from the Mississippi State University Television Center. Anderson taught from Starkville, while students at the Mississippi FiberNet 2000 sites had a two-way audio and video link with the professor and the other sites. Each of the 30 students was given an Internet address. They submitted all their assignments electronically and participated on a local mailing list. They conducted several IRC (Internet Relay Chat) sessions on a special channel which provided the potential for simultaneous discussion for all participants during the video/audio interactive class (L. S. Anderson, personal communication, July 7 and 8, 1994).

Zucker (1986) argued that communications technology can isolate students and make them passive recipients of knowledge. However, Niemi and Gooler (1987) countered that the greater interactivity of current technology may have the potential to overcome some of these problems. For example, GTE’s VisNet Visual Communications Network has over 400 downlinks and local closed circuit networks across the United States for its Business Television satellite teleconferencing system. This system can use a “One-Touch” system for the teacher or trainer to talk to individuals and open individual participants’ microphones to encourage participation and feedback (P. Ryan, personal communication, July 6, 1994).

Other ways of using touch-tone phones, using voice mail systems, have been developed to support college classes. PRISM 2000 provides the service of the Digital Professor which can provide the following activities:

• Answer practice drill questions to help prepare them for exams (and receive page number references for incorrectly answered items),
• Leave and receive messages to and from their professors and other students,
• Enjoy class participation in the class forum where they can hear other students’ responses and leave their own responses to the “Question of the Week,”
• Retrieve their class grades on tests and assignments complete with individualized professor’s comments,
• Review individual items in their class syllabus including important dates, the grading scale, assignment descriptions, and class calendar. (Prescott and Johnson, 1992)

The Northern Virginia Community College Extended Learning Institute (ELI) have provided distance learning courses for an Associate in Science Business Administration using a variety of modes of instruction.

The NVCC Telecommunications Center has remote and studio production capabilities, satellite uplink and downlink capabilities, its own cable TV channel, air time on other cable stations, and teleconference facilities. In addition to telecourse and print-based instructional delivery systems, NVCC is also introducing computer conferencing and live, compressed video at five off-campus sites. (Toby Levine Communications, 1992, p. 86)

Their telecommunications center appears to be similar to the LeCroy Center for Educational Telecommunications where STARLINK® programs are produced or uplinked. Even though they are using computer conferencing, the course listing from 1992 did not indicate that they were combining computer conferencing with one of their video services for individual courses for undergraduate students (Toby Levine Communications, 1992, pp. 86-89).

The Oregon Community College Telecommunications Consortium is starting to offer a complete two-year AA transfer degree through using integrated distance learning methods that combine telecourses with Ed-Net, a computer network (Oregon Community College Telecommunications Consortium, 1992). In September of 1992, Oregon State University began an Ed.D. program for working community college professionals in the area of educational leadership. Sixty percent of the classes were held away from the traditional campus setting. P. Schwab reported in a white paper: The Integration of E-mail into the Program Goals of Oregon State University's Community College Leadership Program that thirteen of the seventeen graduate students used Ed-Net e-mail on a regular basis to exchange papers, to
submit assignments to faculty members, and to communicate with the other students and the OSU faculty (P. Schwab, personal communication, September 14, 1993).

The Community College of Maine (MacBrayne, 1993) is an extensive electronic distance learning network designed to offer educational access to the citizens of Maine, giving them the opportunity to update their job skills, earn a degree, or meet with leaders of state and business in CCM's statewide electronic classroom.

There are eighty-four locations across Maine. The students may choose from forty college courses broadcast live each semester via interactive television. CCM offers an associate degree in general studies; associate degree courses in early childhood education, business, and social services; and baccalaureate, graduate, technical, and high school courses. Students have access to URSUS, the online library catalog of the University of Maine System.

The ITV system at the Community College of Maine consists of a combination of technologies: a statewide, multiple video channel, DS-3 duplex digital fiber-optic interconnect or spine between the seven campuses of the University of Maine System; broadcast classrooms at each campus to allow course origination from all campuses; twenty-nine Instructional Television Fixed Service (ITFS) point-to-multipoint microwave transmitters; and inexpensive ITFS receive, display, and audio talkback equipment at each of the seventy-seven class-receive sites. In 1993, they were planning on using computer conferencing and expected to achieve with it the side benefit of computer literacy for their students (MacBrayne, 1993).

Norenberg and Lundblad (1987) presented matrices to assist in selecting technologies for instruction. The first matrix examines the learner, the teacher, and the instruction in relationship to print, audio, audiographic, video, and computer technologies. The second matrix looks at costs. Choice of medium was to be based upon: objectives, cost, personnel, users, anticipated use, level of interactivity, legal barriers, and compatibility, and jurisdiction. Other models for multimodal systems could be constructed.
Teachers Using Telecomputing

The Center for Technology in Education at the Bank Street College of Education conducted a national survey: *Telecommunications and the K-12 Educator*. The survey defined telecommunications in terms of telecomputing, that is using a computer for telecommunications. The study included 550 responses from K-12 educators who are actively involved in telecommunications from forty-eight states (92 percent from public schools). The study found:

- These are the educators who have been pioneering the use of telecommunications activities in their schools, acting as facilitators and resource people for their colleagues.
- They represent a specialized group of educators: they are experienced and highly educated teachers, and are accomplished at integrating computers into their classrooms.
- These teachers work in schools that are well endowed with technology and have been using computer technology for instructional purposes for more than eight years.
- Communicating with other educators, accessing information, and combating professional isolation are the most highly rated incentives for using telecommunications as a professional resource.
- The most highly rated incentives for using telecommunications with students include expanding students' awareness about the world, accessing information, and increasing students' inquiry-based and analytical skills.
- More than two thirds of these educators report that integrating telecommunications into their teaching has made a real difference in how they teach. (Honey & Henríquez, 1993, Executive Summary)

Some models of the use of telecommunications for instructional support at the community college level are available. Whitaker (1990) wrote an article about Austin (Texas) Community College's participation in a cooperative international telecommunications education project involving Adelaide
College (South Australia) and Rio Salado Community College (Arizona). The program goals included cross-cultural sharing of experiences by students studying a similar subject, bridging long distances via telecommunications, and supporting professional development.

Other examples of faculty using the Internet for classroom support were presented in the STARLINK® teleconference: *The Global Connection: Internet in the Classroom* on November 3, 1993. Bruce Sexton from Amarillo College, Amarillo, Texas presented applications for the Computer Science classroom; Fred Kemp from Texas Tech University, Lubbock, Texas presented Internet use for English classes; Paul Bowers of Buena Vista Community College presented applications to Communications and Math and Science (Matta, 1993).

Helping and Hindering Forces in the Implementation of Telecommunications

Hamilton (1987) studied the current and anticipated uses of computers in community colleges in Texas and the Southern Association of Colleges and Schools, and Weir (1987) researched the attitudes and perceptions of Texas community college educators toward the implementation of computers for administrative and instructional purposes. He found that administrative and instructional computing were not widely used in Texas community colleges by faculty and administrators for the following reasons: lack of quality computer training and education, insufficient funding to support such programs, and lack of time or interest in keeping up-to-date with hardware and software changes in the computing industry.

Honey and Henríquez (1993) concluded in their report that in order for telecommunications to become widely used as a educational resource, administrators and policy makers must implement:

- teacher training and support;
- school and district planning for integration of telecommunications into instruction and administration;
• time in the school schedule for professional and student learning activities;
• effective assessment measures;
• financial support;
• multiple phone lines or local area networks in schools.

(Executive Summary)

Teachers using telecommunications identified three factors influencing their selection of telecommunications services as: service offerings, expense, and ease of use (Honey & Henríquez, 1993, Executive Summary). Big Sky Telegraph (1993a, 1993b) for K-12 teachers strives to be user friendly and relatively inexpensive. The service provides support to beginners with files that can be downloaded to give information about online teaching.

Basham (1992) investigated the impact of computer-mediated communication use among rural educators who had access to the Native American Educational Network (ENAN). This case study included online interviews, an online focus group, online survey data, system data and other documents. It was found that fewer than two hundred people utilized the network on a regular basis, even though over one thousand people were authorized users. Among the regular users there were:

...about 25 users who made nearly half of all calls to the system. These users were identified as an elite group of "computer champions" including BIA agency leaders, university professionals, and teachers. They were predominantly white males, while teachers, Native Americans and students seemed to be under-represented.

The interview respondents cited ENAN's efficiency and convenience as a communication tool, especially in maintaining personal and professional contacts, as its greatest strength. CMC's applications for encouraging professional support, projects involving students, continuing education opportunities, and access to information were also discussed.

ENAN use resulted in some organizational changes relating to breaking down traditional barriers of communication, strengthening
organizational patterns, and making partnerships more egalitarian and mutual. Participants' offered that their school organizations were particularly supportive of the new technology, and most were knowledgeable and enthusiastic about the technology. Other data suggested that a large number of potential users were prevented access to ENAN due to lack of training, insufficient on-site support, and technical difficulties. (Basham, 1992, p. 2509A)

This study found the factors that had the greatest importance in adoption and use of computer-mediated communications were (a) administrative support and use, (b) encouragement of local innovators in the schools, (c) the provision of access, (d) the expansion of online resources and (e) providing adequate time to learn how to use online resources and to establish critical mass of users (Basham, 1992, pp. 2509A-2510A).

Anandam (1989) produced a report in the Community, Technical, and Junior College Journal concerning site visits to fifty, 2-year colleges. Some of the objectives in the study were to identify how computers were being applied in instruction as well as the use of distance education. The report indicated, at that time, that in some areas, computer technology had not been used to its full potential (pp. 28-35).

Nancy Palmer (personal communication, September 7, 1993), who researched and wrote the script for the STARLINK® teleconference: The Global Connection: Internet in the Classroom, found among community and technical colleges that:

Although the quality and quantity of equipment varies from campus to campus, faculty, staff and students have been slow to realize the value of the resources available through Internet. As Anne Kearney of the University of Kentucky commented, "Where there are many (computer facilities), few of the faculty have interest; where there are few, the faculty are crying for them." Our purpose in this teleconference is to inform: what Internet is, what it makes available, and the impact it will have on learning and teaching.
Orange Coast College's Nathalie Ferrero has pinpointed a critical element, "Unfortunately, our district has not formally encouraged Internet access and has no training classes available for interested staff." While some schools do offer training, arousing interest and overcoming the "fear" of technology have been difficult...

...In discussions with Internet experts at this and other schools, we've attempted to include those topics they've identified as important. Our aim is not to show the nuts and bolts—they're different from campus to campus anyway. We want to create the feeling of excitement over Internet's possibilities and then direct them to their own MIS departments. (N. Palmer, personal communication, September 7, 1993)

Lynne Marshak Schrum, from the University of Oregon, did a doctoral case study of distance education which identified problems associated with implementing educational innovation. She suggested that, "...the building of cooperative constituencies among disparate organizational cultures requires specific strategies" and that significant time for development is necessary but seldom allowed in initiating agencies (Schrum, 1992, p. 2514A).

Schrum identified the following forces as impacting educational innovations: educational organizations, political organizations, individual needs, and economic realities. She indicated that these forces, "...intensified difficulties inherent in the integration and implementation of new technologies into established organizations (Schrum, 1992, 2514A).

Suciati and Pusch (1992) found in their research among graduate students, the factors that influenced the use of e-mail were ease of access and having no time/place limitations (68 percent of participants) followed by knowledge of the computer (55 per cent of participants). They confirmed that students will participate despite inconvenience, if they have a compelling need, in this case, a need for professional knowledge. The major factor inhibiting their use of e-mail was their having no need for using the e-mail. Additionally, students who either used e-mail for professional purposes, or who perceived e-mail to be important for their professional life also used e-mail for longer periods of time than those who did not.
Lowry, Koneman, Osman-Jouchoux, and Wilson (1994) reported on the use of e-mail to support a Cognition and Instruction class composed of thirteen students who were either teachers or corporate trainers who had a wide variety of experience with computers. The course had a basic seminar class meeting plus discussions of readings via e-mail. Two students who could not attend class were admitted as distance learners. From their review of literature and the results from a written survey, a group interview and an analysis of e-mail logs they learned the following:

- Front end technical logistics and support are critically important to the success of an electronic discussion group...People need both initial and on-going technical assistance and encouragement.
- Discussants over electronic mail form a work group in the same way that they do when they meet face-to-face in class.
- Participants reported enjoying and valuing the electronic discussion group.
- More information is needed on how electronic discussion affects learning. (Lowry et al., 1994, pp. 22-23)

The authors of this article recommended the following characteristics of electronic mail to be researched in relationship to their impact on learning:

- E-mail is self-paced and, therefore, gives people an opportunity to reflect on their contributions to the discussion.
- Discussants can participate at a time and place that is convenient to them.
- E-mail provides automatic notes in the form of a written record of discussion and references mentioned in the discussion.
- E-mail can be excellent for people who have difficulty or hesitation expressing themselves in the more public setting of the classroom.
- E-mail discussion can be disjointed because of the nature of the technology. Discussants experience a delay time in responding ("batch" or "multi-speed" effect), so the discussion may have moved on before someone has a chance to contribute.
• Discussion can also be confusing because the group, responding at different times, ends up discussing several themes at once ("multi-level" effect).

• Because of lack of face-to-face contact, the use of e-mail may have an interesting social impact on learning. Non-verbal communication cues, missing in electronic discussions, add important meaning to the class conversation. In the extreme, e-mail's lack of personal contact can result in behavior like "flaming," which is rudeness or abusive language from one member to another. (Lowry et al., 1994, p. 23)

The Basham (1992) study drew the conclusion that, "...users of the new technology will define its purpose and usefulness, and leaders must allow for this reinvention of the technology to take place" (p. 2510A).

Computer-Mediated Studies

Computer-mediated communications (CMC) are communications that can be many-to-many. Quarterman (1993) says that:

No traditional medium can do this... paper press, radio, and television are one-to-many, and paper post, telephone, and fax are one-to-one. A few variants, such as telephone conference calls, are many-to-many, but only on a small scale, and only in a limited manner, since only one person can really speak at once. With many-to-many CMC (mail lists [listservs], news, bulletin boards, conferencing,) everyone can speak at once, and everyone can decide what to pay attention to. Despite the potential (and often the actuality) of information overload, this basic capability of CMC promotes the globalization of any community that uses it and leads to the formation of communities where there may have formerly only been specialists. (p. 55)

Calcari (1994) reported that in May 1994, "...there were more than 2,217,000 host computers connected to the Internet. Approximately 636,000 of these hosts were registered in the 'edu' (education) domain" (p. 54).
Each of these hosts were in turn connected to networks of computers. The use of computer-mediated communications in higher education is increasing exponentially every day.

Lever (1993) discussed computer-based distance education specifically in community colleges in her *Distance Education Resource Guide*. A questionnaire was sent to over 1000 community colleges in North America and more than 700 responded. Of those responding, 12% were using computer conferencing, 11% electronic mail, and 8% electronic bulletin board service for distance education for students (p. xviii). In some cases, the community colleges indicated that they were using these computer-based services in conjunction with some other form of distance education for students—satellite, video broadcast, interactive video, cable broadcast (pp. 1-46).

One example of computer-mediated communications at the community college level is found at Maricopa Community Colleges in Arizona. Ron Bleed, Vice Chancellor Information Technologies, reported the following via e-mail on the COMMCOLL listserv:

The Maricopa Community Colleges in Arizona make heavy use of Internet/Bitnet. The volume of messages received by our students and faculty are now at 50,000 per day. This access has made a significant impact upon our instructional program.

...Last year we had 7 Russian students take ENG 101 from us while living in Moscow. They completed the entire course thru Internet...

...This past spring, Chancellor Paul Elsner met with 25 students who were using the network and he asked them if they would help him plan a new college on land we already own in NW Phoenix. They responded unanimously and quickly to him, “Sell the land and the use the money to build a ‘virtual’ college on the network.” (R. Bleed, personal communication, July 22, 1993)

Another institution in Arizona, Phoenix University, has, “...thousands of students taking classes by computer,” and claims that it is the twelfth largest private university (Bleiberg, 1994, p. 21 A).
The Dallas County Community College District offered its first class that students can take entirely by computer in the Spring of 1995 (Bleiberg, 1994).

Many listservs are currently available to community college faculty with access to the Internet. One such listserv is COMMCOLL@UKCC which has over 700 community college professionals participating on a daily basis, in wide ranging discussions of community college topics. Participants exchange syllabi, survey class sizes, and discuss for example, grant locations, the use of automated information kiosks, innovative uses of Perkins dollars, and many other issues (P. Schwab, personal communication, September 14, 1993).

Bellman, Tindimubona, and Arias (1993) have reviewed virtual classroom studies that involve the use of computer conferencing (Kerr and Hiltz, 1982; Hiltz, 1990, 1993; Arias and Bellman, 1987, 1990a, 1990b; Bellman, 1988). They found that there is:

...no significant difference in performance among students taught in face-to-face and computer conferencing based courses, which supports the viability of this method for distance learning programs. These studies also found that computer conferencing worked particularly well in minority student education. This is a consequence of the self-paced timing of instruction, the ability of students to receive immediate feedback about their errors, and the ability to ask questions in a more anonymous communicative setting. (Bellman et al., 1993, p. 240)

The same studies showed that females do well with the medium. In an earlier study, Lakoff (1975) found that in face-to-face interactions, women at times lose their turns to speak in conversation with men. Harasim (1986) reported in the *Journal of Distance Education* that women are able to express themselves more easily and fully with computer-mediated communications. Ugbah (1987) found through an analysis using MANOVA’s that sex, and organizational tenure do not have an effect on general organizational climate, information adequacy and the uses of computer-mediated communications. He also found that position tenure, position level, education, age, and training on the use of CMC have an effect on information adequacy factors, general climate, and uses of CMC. Extensive compilations of
CMC research dealing with gender (Cunningham, 1994; Kaplan & Farrell, 1994; We, 1994) were presented in the July 1994 issue of The Arachnet Electronic Journal on Virtual Culture.

Suciati and Pusch (1992) found in their study of e-mail use, that there was no gender difference in computer phobia or computer use among graduate students who were enrolled in an instructional design department.

Kuehn (1993) analyzed the content of the communications on a bulletin board service. He found that computer mediated communications do not just involve participants sharing text, but also that subjects used various innovative symbols to enrich the text and to provide clues to the author's intent.

Smeltzer (1992) researched the general structural characteristics of CMC messages on two bulletin-board services, analyzing the message intent into three categories: information requesting, information giving, and information neutral. The structure of the messages were analyzed by: message length (the number of words, the number of sentences, and the average sentence length per message), message complexity, and message readability (measured by the FOG Index indicating the the grade level needed to comprehend that message). Smeltzer found that the technical and general boards generated the greatest number of messages. The average CMC message was five sentences long, 70 words with 14 words per sentence. The FOG Index indicated the messages required a reading level between the eighth and ninth grade. Smeltzer found that participants primarily wanted to receive information from the CMC environment, especially the users in the technical and general boards. He discovered that if the intent of the message was to give information, the message was longer in length, more complex, but more readable. Beals (1992) discovered that, on average, messages which include a personal event narrative, and longer messages, receive more responses.

Mabrito (1990) found “high apprehensive” writers are “less threatened” receiving and giving commentary via CMC compared to face-to-face.

Walther (1992) in the article: “Interpersonal Effects in Computer-Mediated Interaction: A Relational Perspective” addressed the strengths and weaknesses of CMC. “Social Presence Theory” (feeling that other participants are jointly involved in the interactions) and “Media Richness Theory”
(communication via various media differs, depending upon bandwidth or the number of cue systems available to the participants) were used to explain the interpersonal effects discovered in CMC research and to highlight the lack of nonverbal cues in CMC and thus the conditions that effect communications.

Walther (1992) also discussed the timing factor weaknesses of CMC that cause confusion of participants during CMC experiments and the effects of participants’ responding in a limited amount of time.

Smith (1986) found that asynchronous computer conferencing for task-oriented problem solving may have a detrimental effect on the completeness of the information exchanged, on the relevance of the information shared, and on the completeness of the consideration given to all aspects of the problem.

Susan Tucker Kinney’s dissertation (1993) studied the effect of medium and task on dyadic communication. This was a controlled laboratory study that examined two person communications in face-to-face, telephone, and computer text modes with high and low equivocal tasks to clarify the relevant factors for communication support of dispersed individuals. It was found that the computer text only medium and the audio only medium were as effective and personally satisfying as face-to-face encounters. This study also reinforced prior research that found that outcomes are task-dependent.

Increasingly, e-mail is being used to support instruction in higher education, continuing education, as well as open university courses. An example of electronic mail use in higher education is presented in the paper: Telecommunications and Distance Education: Using Electronic Mail To Teach University Courses in Alaska by Fredrickson (1992). Gray (1989) described the use of computer-mediated communication for inservice training for teachers and lecturers to learn to use electronic communications tools.

R. Flaherty (personal communication, September 10, 1994), the Project Director of the Virtual Medical Center administered by the Montana AHEC at Montana State University reported that their bulletin board serves, “...mostly rural health professionals from around the world, with clinical support services such as medical library services, drug information services, clinical
case discussions and CE courses.” Their continuing education courses include pre and post tests and are available for AMA credit.

Mason (1989) reviewed an Open University course that used computer-mediated communications to enhance instruction in information technology. The course’s foundation was seven blocks of print materials, enhanced by a “Course Reader” (a tutor), audio and broadcast media, and a computer component that included application software packages and computer conferencing. However, it was found that:

...A balanced summary of the impact of CMC on this course in the first year would have to conclude that for the majority of students, tutors, and course team members, computer conferencing was an interesting but marginal activity. For the committed or ‘converted’ minority, however, there is little doubt that this medium was an exciting, innovative and satisfying way of participating in distance teaching and learning. (Mason, 1989, p. 145)

Mason (1989) pointed out the importance of having a significant number of contributions to a computer-mediated service: "The life-blood of a conferencing system is the contributions and interactions of its users. It can integrate with and enhance other teaching media, particularly print, but not when relegated to a 5% stake in a course" (p. 143-4).

Grint (1989) interviewed a small group of twelve students (8 men and 4 women) who were involved in the course Mason (1989) described. The students said the lack of spontaneous, real time exchanges was a disadvantage; they experienced sensory overload; they objected to trivial, irrelevant comments on e-mail; they had problems with the software; invisibility and anonymity did not stimulate greater levels of participation (the opposite was found to be the case by other researchers: Kiesler, Siegel & McGuire, 1984; Hiltz, Johnson & Turoff, 1982); clues to status of participants was noticed by students; women found conversing with men electronically easier than face-to-face; they perceived CMC to be a mode of communication configured to transmit technical expertise, since they did not think
themselves to be experts, much of the communications through e-mail was conducted by self-appointed experts (Grint, 1989, pp. 190-192).

Bacsich (1987) in the article, "Computer Conferencing in Distance Education," discusses some of the advantages to computer-mediated communication for distance learning. Using electronic mail, bulletin boards and listservs, interactions no longer require the simultaneous presence of people in order to communication. However, Harasim (1990) has made the observation that "...asynchronicity is not atemporality. While there is more flexibility over the time of an interaction online, timeliness in discussing the current topic remains important" (p. 47). Mason and Kaye (1990) reported that computer mediated communications can provide "...enhanced opportunities for dialogue, debate, and conversational learning...(and) a real sense of community and affiliation..." (pp. 16-17). Smith, Kim, and Bernstein (1993) gave general strategies for teaching using either e-mail or bulletin boards, specifically in journalism education.

In 1986 Gage commented on the advantages of using writing, the medium of CMC, to communicate:

Writing is thinking made tangible, thinking that can be examined because it is on the page and not in the head invisibly floating around. Writing is thinking that can be stopped and tinkered with. It is a way of holding thought still enough to examine its structure, its flaws. The road to clearer understanding of one's thoughts is traveled on paper. It is through an attempt to find words for ourselves in which to express related ideas that we often discover what we think. (cited in Harasim, 1990, p. 49)

J. Harris (1993) at the University of Texas at Austin teaches graduate courses dealing with effective ways to use the Internet to support instruction for K-12 teachers. These courses are taught in an asynchronous, online environment, with only a few face-to-face meetings. From literature searches, as well as her own empirical research, Harris has found that computer-mediated communications can "...support the emergence and
cooperative construction of knowledge and comprehension among the members of an online group" (Harris, 1993).

Harris (1993) believes that, "...online teaching (comprised primarily of hosting, providing guidelines, moderating discussion, catalyzing groupwork, and the like) is probably more an art to be practiced than a set of skills to be acquired." She has outlined some of the suggestions given by Romiszowski and de Haas (1991) for online group facilitators:

- keep the main discussion on track by providing leading questions
- if the discussion starts getting off track, refocus
- if a distracting topic appears that is generating interest, create a branch so that the competing conversation is separate but optional
- focus effort by suggesting that students look deeper into topics when applicable
- provide summaries of what has been transpiring by drawing together main themes (cited by Harris, 1993)

These suggestions were designed mainly for a course taught online by a teacher.

Levin, Kim and Riel (1990) gave the following criteria for a network community to function well:

1. A group of people who work together or share interest in a task, but who find it difficult to meet in the same location and/or at the same time
2. A well-specified task to be accomplished by this group
3. Ease of access to a reliable computer network
4. A sense of responsibility to the group and/or task
5. Strong leadership and final evaluation of the group task. (p. 189)

Bacsich (1987) pointed out that computer conferencing is the lowest cost of all teleconferencing approaches.
It is a common mistake to believe that speech and text are comparable in communication cost: in fact the communications bandwidth required for text is at least an order of magnitude less than for speech. This fact combined with pressure from users for cost-effective data communications together with a less regulated marketplace has meant that long-distance text communications are now significantly cheaper than speech. (Bacsich, 1987, pp. 108-109)

Bacsich (1987) has said that there are some advantages in computer conferencing in that participants are able to “self-document” that is, keep copies of their own messages and the messages and files of others. However, Bacsich has contended that this also creates the potential problem of information overload. Another limiting factor, the ability to type reasonably well, was also noted.

Bacsich (1987) has said that another advantage to computer conferences is that they allow time for thought.

Because the computer conference is not like a face-to-face conference, there is less pressure to generate an impromptu answer. (One of the functions of the conference administrator is to control the pace of the interaction). Shyness is not such a problem as in face-to-face conference. (pp. 108-109)

Kaye (1987, 1990) discussed computer conferencing and electronic mail in relationship to open learning for adults. Boot and Hodgson (1987) in their article “Open Learning: Meaning and Experience” in the book, Beyond Distance Teaching—Towards Open Learning, noted that “...while learning and development are natural processes, learning and development opportunities are not necessarily a normal part of everyday working life” (p. 5). However, learning via computer-mediated communication has the potential of becoming a normal part of everyday work life if it can be made easily accessible to faculty and therefore allowed to be integrated into everyday work life.
An online professional development independent study course has been offered by the University of Oregon and the International Society for Technology in Education (Schrum, 1992, April). The course was designed to help the students "...learn about an emerging technological field, and interact using a telecommunication network." It introduced educators "...to current classroom and personal uses of computer mediated communication (CMC), databases, and distance learning...Offered entirely online." The course was designed so that the information technologies being studied, including electronic mail, computer conferencing, remote database searching, and information about distance education by satellite were used to learn about the technologies. Entitled, "Telecommunications and Information Access," the course has offered educators the opportunity to earn graduate credit (Schrum, 1992, April).

At the latest count, eighty-five students had enrolled in Schrum's course from all over the world, including New Zealand, Taiwan, and Canada. Of those enrolled, about one third moved rapidly through the course, one third were "winding through" it, and one third paid their money but never signed onto the system (Schrum, 1993). The course was taught on an individual basis. Schrum pointed out the need for educators to stay current in their profession, but that unfortunately certain factors interfere with continued learning: "...time, geographical location, commitments, and energy" (Schrum, 1993).

Schrum reported that students gave a positive response to the course and the technology as:

...an effective way to learn material otherwise unavailable to them. They were pleased with the immediate feedback for their lessons. However, they expressed concerns about costs, technical difficulties, and general lack of support for implementation for telecommunications in education. (Schrum, 1992, April)

Schrum asked the participants how useful the course had been for them. She found that the usefulness depended upon certain factors: individuals' learning styles (students drop out if they feel isolated), students' purposes and
goals, costs, computer interface (GTE was found to have a poor user interface; CompuServe was found to be better), and reinforcement needed (Schrum, 1993).

When asked if lack of face-to-face interaction was a problem, most of the participants reported that it was not an issue for them. A larger issue for them was that independent study lacks collegial interaction and community. This course is taught through e-mail and participants learn the lessons and do the assignments at their own pace (Schrum, 1993).

Schrum also found that an online course needs strong administrative support, as well as other support via telephone, faxes or meetings (Schrum, 1993).

Yvonne Marie Andrés of the Global SchoolNet Foundation teaches two courses online for classroom teachers, university professors who teach pre-service teachers, and in-service teacher trainers entitled: “Hello Internet: Tools for the Classroom” and “Making and Managing Global Learning Projects: Using the Internet Effectively in the Classroom.” Her participants identified the following positive aspects of the courses: sharing of resources with colleagues, providing equal opportunity for input in class discussions, meeting face to face in the first class, customizing the course time to participants’ own schedules, modeling new learning skills for other family members, accessing current news and source information, accessing library catalog, choosing only what you need when you need it, “meeting” new friend with like interest (Andrés, 1993).

Andrés identified certain challenges and obstacles to online courses: requires good articulation skills, computer systems and services are unreliable and certain e-mail editors are a problem, differences in student hardware, software and network access (best access for teachers was in their homes), strain when sharing one phone line (20-30% installed an additional phone line), patience required when questions are not being answered immediately, requires more time than anticipated, ease of getting side-tracked on the Internet and not doing assignments, home and school distractions (a learning approach not for the undisciplined), and there was no way to prove the authenticity of the message sender (Andrés, 1993).
Andrés gave the following tips for instructors teaching courses online: have clear prerequisites (students should have an Internet account, know how to e-mail, and know how to copy a file to their own computer), provide a readiness screening survey to group people by experience, provide an upfront attitudinal “pep talk” so that participants know that they will experience frustration because the information is not fool-proof and that they must be prepared for change, provide information about net etiquette, establish a buddy system for first-line trouble shooting and cooperative learning (buddies are picked at the first face-to-face meeting), have unanswered questions referred back to the group, encourage side-by-side learning with participants’ own students, specify one task in mini-lesson form, suggest weekly time line for assignments to be done, have participants write an activities log, establish collaborative research team projects, produce summaries and process checklists, provide a closing activity with a summary meeting at the end of the five to six week course, provide follow-up through Special Interest Groups (SIGS), and provide extended resources (Andrés, 1993).

In establishing courses, there appears to be more of an effort to use more organizing strategies. Finn (1984) hypothesized in his study that the use of organizing strategies (group process) was related to agenda setting, to the demands of the specific task, and to the demands of the specific medium and that all of these were all related to the performance measures of consensus and decision quality. His results provided limited support for the idea that organizing enhances group performance in CMC. However, task-specific organizing was found to be positively related to decision quality, while organizing tailored to the medium was found to be negatively related to decision making. The degree of previous experience with computers and the presence of females in the group were significantly related to the groups’ reaching consensus.

Rice (1982) found people’s initial usage levels of a computer network for teleconferencing are not good indicators of eventual usage levels. Also, he found that “electronic migration” from teleconferencing group to group seemed common.

Increasingly, whole courses are being delivered completely via the Internet. Gail S. Thomas contends that she was the first person to complete
degree requirements entirely through online study, earning an M.A. in Media Studies in 1988 from the New School for Social Research in New York (Connected Education, 1993b). Since 1985, Connected Education, Inc., an educational organization chartered in New York, has offered online courses for academic credit in cooperation with the New School and other schools. The New School Online Program has had 1500 registrants from 37 states and 18 countries (Connected Education, 1993a). The New School also offers non-credit online writer's workshops, tutoring in English as a second language, foreign language workshops, and workshops in online database search (Connected Education, 1993b).

Thomas Edison State College in New Jersey offers a bachelor's degree completely through their Computer Assisted Lifelong Learning Network (Kennedy, 1994, p. 1 D). Students access the computer system via modem to: inquire about the college, enroll in classes, pay bills, receive and submit assignments, have class discussions and talk with instructors or other students. Five to eight courses are offered each semester. Textbooks, audio cassettes, videotapes, and other materials are used to support the computer-mediated instruction. In 1994, only about 50 of Edison's 8,700 students were in the virtual program, partly because of the amount of time and work necessary for instructors to support the classes via e-mail messages. In the Fall of 1994, Thomas Edison State College plans to expand its program to serve community college students by combining video and computer technology. The students will be able to receive a wide variety of bachelor's degrees without leaving their community college campuses.

Dr. Steve Eskow, who for twenty years was a community college professor and president of Rockland Community College of SUNY, is now President of The Electronic University Network, part of the commercial America Online service. In the Fall of 1993, Eskow established a PhD. program via the EUN. By the Fall of 1994 there will be ten different colleges offering credit and degree programs and others offering continuing education and noncredit work via EUN (S. Eskow, personal communication, August 10, 1994).
...We negotiate with the colleges to determine which of our services they want/need, and sign a contract outlining mutual responsibilities. We are paid a fee per credit hour generated for our services. The procedure begins with discussions between ourselves and key faculty or academic administrators. We offer a total service: faculty training in the use of the medium and course development; editorial assistance to help faculty develop courses; administrative services, including preparation and shipping of course materials and collection of fees; recruitment and marketing nationally; training students in the use of the software... (S. Eskow, personal communication, August 10, 1994)

E-mail is used for tutorials and counseling and for individual work between the students and instructors over EUN. Dialog and discussions are done by means of the bulletin boards or the asynchronous conferencing facilities of America Online. Accreditation is handled through the colleges and universities using the service of the EUN (S. Eskow, personal communication, August 10, 1994).

Eskow said that:

I'm now creating and teaching in what may be the nation's first accredited Ph.D. program that's all online, requires no periods of face to face—and uses no image media! I respect the teaching power of television and the ability of satellite technology to distribute the (professor) to hundreds of points, and we work with video and audio whenever we can. My own scholarly and practitioner interest is in this simple text-based medium, since I believe that it allows for the renewal of the tutorial function...and the dialogic seminar on message boards or listservs. (S. Eskow, personal communication, August 8, 1994)

Eskow takes the following approach to multimodal instruction and considers the interactions over the Internet to be the primary source of instruction rather than a support function:
Our bias is toward asynchronous rather than "realtime" instruction: we would therefore prefer tapes that students can view on their own schedules, and rewind and replay, to "live" broadcasting...We have doubts about the validity of too many media and too many sensory channels leading to confusions rather than reinforcement. We use fax, audio tape and voice mail as auxiliaries and sparsely...AOL has its own "message board" format, a bulletin board with icons that simplify a set of quite powerful functions and threading capacity...Our courses are built around materials that are sent to students: individualized tutorials; and dialog and discussion via computer conferencing. In place of lectures, we have things to read in a "teleguide"...sent to students on line. A lecture that students all read in a "teleguide" might be considered one to many. (S. Eskow, personal communication, August 10, 1994)

M. Honey (personal communication, July 13, 1994) reported that Bank Street College of Education, in collaboration with the Education Development Center, planned to offer twelve on-line mathematics forums starting September, 12, 1994 that were supported by the Annenberg/CPB Math and Science Project. These Mathematics Learning Forums were designed for K-8 teachers who chose to explore new mathematics teaching practices in their classrooms based on current nation-wide mathematics reform efforts. The courses were offered for graduate credit, inservice credit, or personal enrichment, with each course lasting eight weeks and having an enrollment limited to ten. Each forum was hosted by a faculty facilitator. During the eight-week forum teachers engaged in on-line discussions with colleagues to plan, revise and implement activities for their students. Participants also viewed videotapes of students and teachers in a range of school settings, and discussed readings relevant to the topics.

The Ontario Institute for Studies in Education's computer conferencing system was reviewed by Seaborne (1987). This system provided access to adult education courses through personal computers at any time of the day. Assignments, comments, and requests for materials were sent online. Problems that participants encountered included: accessing the system, understanding the instruction sheets, and uploading or downloading
materials. However, the participants were satisfied with the convenience, the quality of the interactions with the instructor, and reported a sense of community among the students (Seaborne, 1987 pp. 3-26).

Other types of organizations are also developing courses via the Internet. The MASIE Center located in Cambridge, MA and Raquette Lake, NY advertised on the EDTECH Internet listserv a free training course for corporate training managers, corporate training professionals, government training professionals, and higher education colleagues called: "Training Skills for the New Trainer — Teaching People to Use New Technologies" (E. Masie, personal communication, July 21, 1994). The class was designed to be delivered via Internet e-mail and included two optional telephone conference calls. Elliott Masie, the President of The MASIE Center was the facilitator the class. Guest teachers from the various major software publishers provided guest lectures and seminar sessions.

There has been extensive research and reporting of findings related to computer-mediated communications. The Proceedings from an International Symposium on Computer Conferencing (Miller, 1991) contains the texts of seven presentations and six juried papers dealing with teacher education and human resource development using computer conferencing. The presentations included the following: "Computer Conferencing in the Context of Theory and Practice of Distance Education" by Michael G. Moore; "An Introduction to Computer Conferencing: A Look at Software Available in the Academic World" by Alex Cruz; "Delivering Credit Courses by Computer and Other Observations" by Donald R. McNeil; "The Fully Electronic University, or, Mind Expansion without Drugs" by Edward B. Yarrish; "Teaching by Computer Conferencing" by Linda Harasim; "Guidelines for Conducting Instructional Discussions on a Computer Conference" by Mark E. Eisley; and "Developing a Learning Community in Distance Education" by Robin Mason. Some of the juried papers of interest here are as follows: "Telecommunications Networks in Action: An Inter-University Project" by Constance Pollard and Valerie Akeyo; "Electronic Mail, Conferencing, and Student Teaching" by Paul E. Post; "Research and Development Activities Regarding Opportunities and Problems with Computer Conferencing for Rural America" by Ronald M. Stammen; and
"Examining Computer Conferencing as a Technique for Enhancing Personnel Development Activities" by Robert M. Torres et al.

Norton and Stammen (1989) studied a computer conferencing pilot project initiated by the Consortium for the Development of Professional Materials for Vocational Education and developed by the Center on Education and Training for Employment at Ohio State University. In their report: Computer Conferencing: Distance Learning That Works, Norton and Stammen listed the four higher education institutions that were involved in the consortium and pilot tested the program and materials developed in the project: Ohio State University, the University of Arkansas, Temple University, and the University of Central Florida. The computer conferencing workshop, staff development program, and accompanying program guide developed by the Consortium are also described in the report.

Some research that combines workshops with computer-mediated communications for professional development has been done. A 1989 Lowell University study examined the synergistic effects of linking workshops for science teachers with electronic conferencing. The rationale for the study was that the two methods of professional development and communication would have an impact beyond that which either would have had alone (Science Teachers' Area Resource Swap, Lowell University, 1989).

Adult Learning

Much research has been conducted in the past in regards to adult learning. A three year study called: "Future Directions for a Learning Society (FDLS) Program," sponsored by the College Board was designed to find future strategies to serve the needs of adult learners. The following results were found:

An impressive 83 percent of the learners surveyed described some past, present, or future change in their lives as reasons to learn...In short, they talked about how their lives had changed, were changing, or would change and how they had to learn to cope with those changes. (Aslanian & Brickell, 1980, p. 49)
Some of the reasons given for learning by adults were:

- 17 percent regarded the learning activity itself as the benefit they wanted; 83 percent were learning to obtain some other benefit.
- 17 percent got their satisfaction during the learning experience, apart from any later effect; 83 percent got their satisfaction from a later effect.
- 83 percent wanted some reward from learning; 17 percent regarded the process of learning or the possession of knowledge to be its own reward.
- For 83 percent, learning was utilitarian; for 17 percent, learning was its own justification.
- For 83 percent, learning was the means; for 17 percent, learning was the end." (Aslanian & Brickell, 1980, p. 51)

Therefore, in general adult learners are looking for utilitarian rewards and benefits, and learning is the means for obtaining the rewards. By the same token, if the later effect of a learning experience is not considered beneficial, adults will not usually value the experience.

Reilly (1988) reported that studies of job satisfaction of community college faculty have been conducted since the early 1900's. These studies have identified a variety of theoretical constructs and have measured widely different dimensions of satisfaction.

Filan, Okun, and Witter (1986) found in a study of community college faculty that intrinsic work motivations, financial rewards, good supervision, and opportunities for skill enhancement are all positively correlated with job satisfaction. Less satisfying features of the workplace have been identified as: Lack of time to adequately prepare for class or keep up to date with the field or to develop innovative teaching methods (Friedlander, 1978; Hutton & Jobe, 1985) and lack of support for instruction (Hutton & Jobe, 1985).

The Aslanian and Brickell (1980) study identified life events that interviewed adults mentioned as, "...making them decide to learn at a particular point in time and classified them into the seven life areas: career, family, health, religion, citizenship, art, and leisure" (p. 56).

Of the 83 percent of adults who gave life changes as their reasons for learning, 56% mentioned career events as triggers for learning, which was the
highest percentage, with 36% identifying family events, 4% health, 2% religion, and 1% citizenship. Triggers in art and leisure were less than one-half of one percent of those responding.

"Many adults explained that their existing jobs had changed—sometimes suddenly—and that such changes had triggered the need to learn simply in order to keep their jobs" (p. 68).

However, the Aslanian and Brickell (1980) report did point out: 
"Running faster to stay in the same place requires continual learning, especially in occupational fields with changing technologies, changing government regulations, changing markets, or intense competition" (p. 69).

Aslanian and Brickell (1980) mentioned other factors that facilitate adults being motivated to learn:

Many adults who were interested in career advancement discovered that they had to learn in order to advance. For some, getting a promotion and assuming new responsibilities often triggered the need to learn a new skill. For others, the triggers came in different forms: they included seeing peers move ahead, having a boss suggest that they get ready for a future promotion, and a change in family circumstances requiring higher incomes. (p. 70)

Harnish and Creamer (1985-86) in their studies of community college faculty pointed out the significance of the career and personal needs, and priorities of faculty at different times in their lives; needs for variety, challenge, and outside professional stimulation, renewal, and recognition; and changing priorities related to career/life stages. Potentially, tapping into new technologies, like Internet services, can provide some of this needed outside professional stimulation and renewal.

Aslanian and Brickell (1980) found that our society is becoming a “learning society.” They found that half of the adult learners interviewed had studied at least two different topics in the past year (p. 107). They also discovered that adults learn everywhere and that most of the adult learning takes place outside of formal education institutions (p. 107).
Aslanian and Brickell (1980) reported that, "Most adults do not learn for the sheer pleasure of learning...Most learn because they want to use the knowledge" (p.110) and that adults learn in order to cope with some change in their lives (p. 111). It was found that:

Adults who learn because their lives are changing more often learn several things at once, more often learn career skills, and more often learn in formal educational institutions. Conversely, those who learn for other reasons frequently learn informally about a single topic unrelated to careers. (p. 111)

Boot and Hodgson (1987) define open learning as "...freedom from constraints on the learning process" (p. 5). Lanfranco (1993) says that teleteaching has the dual task of creating an open learning environment and "animating" learning activity within that environment. "The task is to use the technologies at hand to construct educational objects, agents and events which serve curricular, just-in-time, and/or as-needed learning and research."

Lanfranco (1993) describes telelearning as occurring in two modes: a self-guided mode and a curricular mode. The STARLINK® study combined both a curricular mode (video teleconferences and handouts) and a self-guided mode (phone calls and listservs) for participants.

Lanfranco (1993) indicated that:

...the user is self-guided by a set of user-determined learning or research tasks (that) will be largely self-structured with a strategy but no curriculum. The curricular mode is best thought of as a special case wherein tasks may be specific and time limited. in the self-guided mode the tasks may be "as needed," "when convenient, or "just in time."

(Lanfranco, 1993)

Cunningham (1987) defined the characteristics of open learning as follows:

1. It is open to learners to learn
- when they want (timing, frequency, duration)
- how they want (modes of learning, for example lecture, seminar, project, meditation, reading or physical exercise)
- what they want (that is, learners can define what constitutes learning to them)

All of the above may be constrained by the resources available to the learner and by particular organizational policies...

2. Learners are involved in assessment of their own learning, specifically in terms of negotiating criteria and methods by which assessment takes place. They are also involved in the process by which judgements are made.... (pp. 40-41)

Coffey (1977) and Boot and Hodgson (1987) addressed the issue of constraints on the learning process:

...such constraints are grouped as administrative (time, space, duration, cost, etc.) and educational (objectives, methods, sequencing, entry qualifications, assessment, etc.). Removing the former might be with the intention of increasing logistical independence, while removing the latter might be with the intention of encouraging independence of mind. But the removal of all of these constraints would in effect leave us with no educational provision at all. The issue, then, is less one of openness and more one of the extent to which formal educational provision has bounded learning. Indeed, perhaps we ought to use the term "unbounded learning" in connection with such provision. This would at least acknowledge that learning and development are natural processes rather than things provided by educators. Unfortunately, it still fails to acknowledge that for many people the organizations and institutions in which they live and work are the greatest source of constraint. In other words, while learning and development are natural processes, learning and development opportunities are not necessarily a normal part of everyday working life. (Boot & Hodgson, 1987, p. 5)
Steinfield (1984) found that how e-mail was used was a function of having a well developed e-mail infrastructure. The degree of access to computers and interactions with relevant co-workers were found to explain the variance in use. Also important was both a positive orientation to the system and having communication needs not supplied by other media. Newer and younger employees used e-mail more for social purposes than other employees.

Major goals for providing educational services like teleconferences and listservs, include the transference of information and the development of knowledge through learning. Boot and Hodgson (1987) discussed assumptions about learning and knowledge as follows:

Different assumptions about learning seem to be based upon different assumptions about the nature of knowledge. For some, knowledge can be conceived of as a (valuable) commodity which exists independently of people and as such can be stored and transmitted (sold). For others, knowledge, or more appropriately knowing, is best seen as a process of engaging with and attributing meaning to the world, including self in it. For the former, then, learning becomes a process of acquisition and addition of facts and skills. For the latter, learning is the elaboration and change of the meaning-making processes and the enhancement of personal competence.

Given those two sets of assumptions about knowledge and learning, it is not surprising to find different assumptions about the purpose of education. The purpose of education based on the first set of assumptions is the dissemination of stored knowledge, to make it available to those who lack it. The purpose of education based on the second set of assumptions is the development of the whole person, especially the continuing capacity to make sense of oneself and of the world in which one lives. (Hodgson, 1987, p. 6)

Suciati and Pusch (1992) found that in a graduate community, the main purpose for using e-mail was to exchange academic information.
In 1986 Needham addressed, at the community college level, the question, "Are Communications Technologies in Education a Threat to Faculty?" He indicated that communications technologies have the potential to "transform the educational process," change the "role of faculty," and further "the professional development of faculty." Needham stated that in order to realize technologies potential, administrators and policy makers must begin planning and allocating adequate resources for faculty development in reference to computer skills, as well as:

...the new skills required to incorporate the technologies into the course(s) and to transform the learning environment into one in which technology enhances learning. Leadership is required to change faculty from conveyors of information to directors of learning environments...Perhaps technology's primary gift to community college faculty is the demand that they look again at the essentials of teaching and learning. (Needham, 1986)

Summary

The search of the literature revealed research and project reports in the area of distance education and distance learning that have spanned the last century, including instruction delivered by mail, radio, broadcast television, telephone, satellite, microwave, compressed video via fiber optics, facsimile, and various forms of computer-mediated communications.

The literature indicates that increasingly various forms of multimodal distance learning are being used in the K-12 environment as well as in higher education and continuing education. Teleconferences alone are being used in Texas and other states for faculty development at the community college level.

Currently, higher education institutions, including community college campuses, are increasingly being connected to the Internet (Knapp, 1993; J. Lovelady, personal communication, June 18, 1993; The Texas Higher Education Coordinating Board, 1993b) and access to e-mail being provided, at least to faculty and in many cases to students (Bleed, 1993a, R. Bleed, personal
communication, July 22, 1993). Electronic mail is being used to support instruction (Fredrickson, 1992; Mason, 1989; Mason & Kaye, 1990) and inservice training (Gray, 1989). Computer conferencing is used for accessing adult education courses through personal computers at any time of the day (E. Masie, personal communication, July 21, 1994; Seaborne, 1987). However, computer technology is not always used to its full potential in community colleges (Anandam, 1989).

Increasingly various combinations of multimodal distance learning are being used by students and teachers in higher education and continuing education (Mind Extension University, 1993; Steinert-Threlkeld, 1993) and in the K-12 environment (M. Siegel personal communication, October 18, 1993). These include various delivery systems for video (satellite, broadcast, cable, compressed video, videotape) in combination with communications via telephone, fax, electronic mail (Suciati & Pusch, 1992), GTE "One Touch" System (P. Ryan, personal communication, July 6, 1994), bulletin boards (Mind Extension University, 1993), listservs or newsgroups (M. Siegel personal communication, October 18, 1993), Internet Relay Chat (L. S. Anderson, personal communication, July 8, 1994) or by postal mail service (Steinert-Threlkeld, 1993).

Some examples of multimodal distance education are found at the community college level that combine telecourses with computer network systems, but only for student programs, not for faculty development (Lemke, Loser & Manning, 1992; Oregon Community College Telecommunications Consortium, 1992).

Community colleges have combined in various ways, computer conferencing, voice mail, telephone, audio conferencing, fax, the postal service, and video using cable, broadcast television, video tape and/or compressed video (Lemke et al., 1992, p. 511). A critical success factor for the telecomputing component of these projects was the frequency of login by the professor, facilitator or expert supporting the listserv, bulletin board, computer conference or e-mail service (D. Torbet, personal communication, April 14, 1993).

Studies have indicated that computer-mediated communications' usefulness depends upon certain factors including: the participants' learning
styles, students' purposes and goals, costs, computer interface, and individuals' reinforcement needs (Schrum, 1993).

The search of the literature identified some factors that can influence the use of telecommunications: knowledge of how to use computers, ability to type, good articulation skills, amount of teacher training and on-site support, administrative support, organizational culture, encouragement of local innovators, amount of time available on the system, amount of time personally available, individual needs including needs for professional knowledge, availability of multiple phone lines or local area networks in institutions, ease of use, and economical and technically dependable system (Andrés, 1993; Bacsich, 1987; Basham, 1992; Honey & Henríquez, 1993).

Extensive work has been carried out in the field of computer-mediated communications, particularly in the last decade. Some work has been reported in regards to computer-mediated communications being used for classroom support at the community college level and for faculty communications. Bellman, Tindimubona, and Arias (1993) investigated studies of "virtual classrooms" and found that there is "...no significant difference in performance among students taught in face-to-face and computer conferencing based courses" (p. 240) and that computer conferencing is a "viable interactive component of videotaped or live instructional television courses" (p. 241).

Walther (1993) investigated the time and communication channel in asynchronous computer conferencing versus face-to-face meetings on the development of interpersonal impressions. He found that computer-mediated groups gradually increased in impression development to a level approaching that of face-to-face groups. Valacich, Paranka, George, and Nunamaker (1993) studied ideational performance of groups using verbal or computer-mediated communication while face-to-face or distributed from one another and found that the groups using computer mediation outperformed groups using verbal communications.

Smeltzer (1992); Kuehn (1993); Walther (1992) and others have researched the general structural characteristics of CMC messages. It has been found that women are able to express themselves more easily and fully with computer-mediated communications (Harasim, 1986).
Various advantages have been found with computer-mediated communications; they: do not require the simultaneous presence of people; provide enhanced opportunities for dialogue, debate, and conversational learning; allow for the renewal of the tutorial function between teacher and student; may give a sense of community and affiliation; facilitate thinking through writing; support the emergence and cooperative construction of knowledge and comprehension while providing less pressure to generate impromptu answers; and can provide self-documentation.

Attrition rates of participants leaving an online course vary depending upon the type of course. Those who teach online courses have found that in general, the more structured the course (specific length to course, specific subject, credit given, specific assignments, instructor support, same or similar computer service being used by participants) the less the attrition rate (Andrés, 1993; Odasz, 1993; and Schrum, 1993). Mason (1989) has indicated that the "...life-blood of a conferencing system is the contributions and interactions of its users."

Some attributes of open learning that were identified in the literature were: voluntary, intentional, little structure, "just in time," as needed, or when convenient (Boot & Hodgson, 1987; Lanfranco, 1993). These attributes may have a positive or negative effect upon participation and learning.

In searching the literature, some organizations have been found that are successfully using telecomputing for online courses, telecomputing for course support, and others that are combining teleconferencing and telecomputing to achieve their goals for distance learning.

Collis and Levin (1993) suggested in their paper, "Research on Telecommunications and Learning: An International Perspective," presented to the Tel-Ed '93 Global Connections Conference, that, "For teacher educators, research can suggest increasingly effective strategies for improving teacher training relative to telecommunications use, including strategies for effective inservice, for effective ongoing support, and for stimulation of teacher interest and commitment" (p. 56).

In addition to the aforementioned citations, Schlosser and Anderson (1994) have provided an overview of distance education by compiling a
review of the literature that gives extensive references that discuss further issues relative to distance education.

Before the start of the STARLINK® research, no specific study or report had been found that dealt with faculty development at the community college level that combined teleconferences with a listserv service to provide after teleconference follow-up support. Given the fact that systems of teleconferencing and telecomputing were already in place on many community college campuses in Texas and other states, it was logical to investigate combining these media as a means to provide faculty development.
CHAPTER III

PROCEDURES FOR DATA COLLECTION

Research Design

The research design used in this study was nonexperimental. A nonexperimental design was chosen in order to maintain a natural setting, as opposed to a laboratory situation for the data collection. This research employed a descriptive design including survey research as well as ex post facto examination of listserv interaction data.

The survey method was used because no other more cost effective method was available to gather the data in such a dispersed population in such a short period of time. Sproull noted that questionnaires, "...should be used only when people's attitudes, values, beliefs or self-reports are desired or to clarify information" (Sproull, 1988, p. 190), as was the case in this study. With this design, the researcher had control over what was measured, when the measurement took place and what to ask or observe (Sproull, 1988, p. 149).

The research design was executed according to the plan in Table 3. A survey (STARLINK® Survey 1—see Appendix 1) was administered after the April 13, 1993 STARLINK® Teleconference to gather preliminary information as discussed in Chapter I. Another survey was conducted immediately following each of five teleconferences held on November 3, 1993, December 2, 1993, January 26, 1994, February 2, 1994 and February 9, 1994 (STARLINK® Survey 2—see Appendix 3). This survey was sent as part of the packets supplied by STARLINK® to each of the downlink sites. The remote sites were community/junior/technical colleges, upper division colleges and universities, and other institutions. The moderators at each site were given instructions (see Appendix 4) to administer and collect Survey 2 at the end of each of the five teleconferences. The moderators were asked to read the
directions, provide the materials and monitor the subjects while they responded (Sproull, p. 160). The surveys were collected by the moderators and returned to STARLINK® by mail.

Table 3

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<th>Research Design</th>
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<td>Teleconference/Survey/Listserv/Survey</td>
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| Teleconference | T1 S2 | T1 S2 L1 S3 | T2 S2 | T2 S2 L2 S3 | T3 S2 | T3 S2 L3 S3 | T4 S2 | T4 S2 L3 S3 | T5 S2 | T5 S2 L3 S3 |

Key:

- T1, T2...T5 = Teleconferences 1 - 5
- L1, L2, L3 = Listservs 1, 2, and 3
- S2, S3 = Survey 2 and Survey 3

(Note: Survey 1 was done after the April 1993 Teleconference)

Information about the listservs was announced and printed on the screen during the teleconferences. Participants were given a Listserv Information Sheet with instructions for subscribing to the listserv that supported the teleconference they had attended (see Appendix 5). Each listserv was available for subscription on the day of the teleconference it supported. Immediately following each teleconference and during the length of the study, subjects were given the opportunity to freely subscribe or unsubscribe to the listserv and participate in discussions with others who had participated in the same teleconference. Listserv participants were also given information about subscribing to the other two listservs in the welcome message (see Appendix 7). Participants were not restricted, except by Internet
ethical rules, in the topics of their discussions. The listserv service was not removed from the computer system in the Department of Technology and Cognition in the College of Education at the University of North Texas until there was no activity on the listservs for several months.

Another survey (STARLINK® Survey 3 - See Appendix 6) was administered via the listservs to survey faculty who had participated in the listservs. This survey was e-mailed to all subjects on each of the three listservs, to elicit subjects' reactions to the listservs and to determine if there had been a change in their satisfaction ratings of follow-up activities as compared to Survey 2. Reminders to send in their responses, following the first mailing, were sent via e-mail to list members to ensure that Survey 3 was received and to achieve a higher percentage of responses. Participants were also given the option of receiving hard copies of the e-mailed surveys via U.S. postal service if they had difficulty with sending files. Some participants chose this option.

Additional data were collected through the examination of the documents (Sproull, p. 160) generated by the e-mail traffic of the listservs. Data included: The number of people signing up for the listservs and the number of people who actively participate in the listservs (as opposed to "lurkers" who observe, but do not send in e-mail and whom it will be impossible to count).

E-mail messages were coded according to the type of message and the sender: Requests for information/or giving information (RI/GI), subject of teleconference/or off the subject of the teleconference (ST/OS), expert/novice (based on content) (E/N), male/female (M/F).

Subjects

The subjects were a self chosen group of faculty and administrators from United States community/junior/technical colleges who had watched at least one of five teleconferences presented by STARLINK® in November or December 1993 or January and February 1994 (Matta, 1993; Chavez, 1993; Hartman, 1994a, 1994b, 1994c ) and who volunteered to participate. Some other institutions, including upper division institutions, subscribed to the
STARLINK® service and these participants were included in some of the data analysis for comparisons. Some Canadian institutions also participated in the STARLINK® teleconferences.

It was not feasible to randomly select groups of people to complete the surveys for this research before the surveys were administered because there were no means of knowing which colleges would participate in each of the teleconferences ahead of time. It was anticipated that a large number of subjects would participate in this study, particularly for the STARLINK® teleconference series on Teaching Strategies because it was advertised via the Public Broadcasting System mailing list.

The Survey Instruments

Sproull, 1988, indicated that if research deals with opinions, attitudes, beliefs, or values, the best source for information is people as opposed to "hard data" (p. 161). The instruments used were two survey instruments that were developed directly from the research questions. Kerlinger (1986) presented the "Criteria of Question-writing" in: Foundations of Behavioral Research:

1. Is the question related to the research problem and the research objectives?
2. Is the type of question appropriate?
3. Is the item clear and unambiguous?
4. Is the question a leading question? (Leading questions suggest answers and therefore threaten validity.)
5. Does the question demand knowledge and information that the respondent does not have?
6. Does the question demand personal or delicate material that the respondent may resist?
7. Is the question loaded with social desirability? (People tend to give responses that are socially desirable.) (pp. 444-445)
Sproull (1988) provides a checklist for each questionnaire item to determine whether it should be included in the final questionnaire (p. 203). Sproull also gives other tips for writing questionnaires and surveys: write in clear language, avoid value laden words and phrases, avoid suggestive (biased) wording, ask one question per item, specify the framework of the question, consider adding an open-ended item for comments, limit the number of items, and use a word processor for facilitating changes (Sproull, p. 202). Suggestions were also given for item placement within a survey (Sproull, p. 206).

Sproull's criteria were applied in writing the survey questions. The surveys were evaluated and critiqued by the Dallas Director of STARLINK® and two professors at the University of North Texas. The panel was asked to critique the surveys to determine their construct validity for measuring what they are designed to measure. Changes in the instruments were made according to the suggestions given.

In Survey 2, questions 2, 8, and 9a were "fixed-alternative items" (Kerlinger, 1986, p. 442). The subjects chose one of the supplied responses of yes or no. Questions 1 and 5 were similar in that only three possible answers were given. Question 6, a "forced-choice" question, asked subjects to only choose one out of a list of seven choices of what hindered them from using the Internet. The seventh choice was an open ended "other" with a blank after it.

Questions 3, 4 and 7 were summated rating scales that asked for: information about participants' levels of needs for training, opinions of the helpfulness of various types of listed training options, and opinions of the helpfulness of a listserv as follow-up to the teleconferences (Kerlinger, p. 443 and p. 453). Question 9a asked the opinions of the subjects in regard to follow-up activities and provided for "open-ended" extended answers to the question (Kerlinger, p. 442). Specific information about participants' names, last four digits of their social security numbers, colleges and e-mail addresses were asked for at the end of the survey.

Survey 3 (electronic mail questionnaire) was a longer survey with eighteen questions. Most subjects who completed this survey, were expected to have filled out Survey 2. The first question, determined whether this was
the case or not. All subjects filled out Survey 3 some time between March 1, 1994 and April 6, 1994, with most replies (twenty-one of twenty-eight) returned between March 1 and March 10. People replying had experienced the listserv service from four weeks to up to four months.

Questions 1, 2, 4, 5, 8, 12, 13, 15, 16, and 17 of Survey 3 were all “fixed-alternative items” or “closed or poll questions” with, in some cases, follow-up open-ended questions that asked participants to explain their answers (Kerlinger, p. 442). An open-ended response item is “a question or statement with no fixed responses, requiring the respondent to generate a written or oral response” (Sproull, p. 200). Sproull notes that there are certain advantages and disadvantages to the open-ended response format and recommends that open-ended questions only be used for the reasons mentioned (pp. 200-201). Following these suggestions, only one open-ended question was used in Survey 2 (Question 9b). In Survey 3, subjects were invited to add another alternative or asked to explain or add to their answers in Questions 3, 5, 7, 10, 11, 12, 13, and 15.

Questions 3 and 7 of Survey 3 were rank-ordered questions. Questions 6, 9, 10 and 14 were scales. Question 11 gave seven suggested hindering forces to learning the Internet. However, it was a forced-choice question allowing only one choice. Question 17 asked which of the five listed teleconferences they had seen. All the five teleconferences had the listserv service provided. Question 18 asked participants to identify how they were connected to the Internet and provided them with four alternatives.

In designing the surveys, questions about the same content were included in Surveys 2 and 3 to determine if there were any differences in responses after the subjects participated in the listserv service. For example, Question 18 of Survey 3 was similar to Question 5 of Survey 2. Question 10 of Survey 3 was related in content to Question 4 in Survey 2, in that subjects were asked what training actually facilitated their learning about the Internet, as opposed to anticipating in Survey 2 how helpful certain forms of training would be for learning to use e-mail. The content of Question 11 of Survey 3 was related to Question 6 of Survey 2. These both identified hindering forces to using the Internet.
Questions 2, 3, 4, and 13 of Survey 3 were related to Question 9 of Survey 2, in that all addressed the issue of the helpfulness of follow-up activities and what else was needed.

Questions 2, 3, 4, 5, 6, 7, 8, 9, 12, 13, and 14 of Survey 3 dealt specifically with the benefits of the listservs, which would not have been experienced by respondents of Survey 2. Questions 15 and 16 of Survey 3 asked whether participants would sign up again for a listserv service and if they would prefer to have the service through a newsgroup or conference service to avoid having their e-mail boxes filled up with messages. Some Survey 3 questions addressed aspects of the subjects' learning as adult learners.

Administration of the Survey Instruments

Sproull's (1988) suggestions for instructions to questionnaire administrators (pp. 207-208) were used as a basis for the "Instructions to Survey Administrator" (see Appendix 4) which were included with copies of the surveys that were sent out to institutions in their STARLINK® packet. Also included in the packets were copies of an evaluation sheet that STARLINK® uses after each of its teleconferences (see Appendix 13). Therefore, participants were asked to complete two questionnaires after a teleconference. The downlink site coordinators mailed the filled in copies of Survey 2 back to the STARLINK® offices along with the standard STARLINK® evaluation sheets. All Survey 2 forms were grouped together according to their downlink sites.

Survey 3 was sent to all of the participants of the listservs via e-mail or the U.S. Mail (if specifically requested). Participants returned Survey 3 by the same means.

Data Analysis

The data included: (a) the results from Survey 2—collected after each of the five teleconferences, (b) the results from Survey 3—collected after the three listservs had been experienced, and (c) data from the listserv service
interactions including communications sent by electronic mail only to the moderator/researcher.

The researcher coded all the returned surveys (2 and 3) with a unique three digit campus code, that also categorized the types of institutions of the downlink sites as follows:

1. Texas community/junior/technical colleges,
2. Community/junior/technical colleges outside of Texas,
3. Institutions awarding degrees beyond the Associate Degree,
4. Other downlink sites.

Any surveys without identification as to college affiliation (not indicated on the survey or not bundled with other surveys from an identified institution) were not included in the data to be processed.

Data entry code sheets were constructed by the researcher for the two surveys. These data entry sheets were approved by the University of North Texas Educational Research Laboratory and by the Computing Center Data Entry Service at the University of North Texas. All surveys were processed by the Data Entry Service and the resultant data files were given to the researcher both on floppy disks and on the researcher's account on the main frame computer at the University of North Texas.

SPSS-X statistical software was used to process the raw data (NORUSIS/SPSS, 1988). Associations between and among variables were studied through nonparametric statistical tests. Frequencies, percentages, means, medians, and modes were calculated for the data. The statistical tests included:

1. the Pearson chi-square ($\chi^2$) test of homogeneity to determine associations between answers to questions
2. the McNemar chi-square ($\chi^2$) test, which is called the test for significance of change to compare matched Surveys 2 and 3 (Hinkle, Wiersma, Jurs, 1988 pp. 557-568)
3. the Wilcoxon matched-pairs signed-ranks two-tailed test, where appropriate, for matched questions of Survey 2 and Survey 3
4. the two-tailed t-test for independent samples.
The open-ended answers to questions were compiled. Additionally, listserv interaction data was examined and analyzed.
CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

Introduction

The analysis of data collected for this study is presented in four sections. Section One is an analysis of Survey Two and the responses to Research Questions One and Two. Section Two presents information about the listserv service, an analysis of Survey Three and the responses to Research Questions Three through Fifteen. The third section provides an analysis of the matched Surveys Two and Three and the response to Research Question Three. Section Four presents an analysis of the listserv communications. Section Five lists some of the participants' comments about the STARLINK® listserv service.

It should be noted that the analysis of Survey One was presented in Chapter I, pages 11-17. That survey was conducted before the main study to determine whether it was feasible to perform the research.

Subjects

The respondents to the surveys were faculty and administrators in community, technical or junior colleges. Some additional respondents were from upper division universities and the results from their surveys are reported to provide comparisons to community college personnel. It is probable that the faculty who attended the STARLINK® teleconferences are people who actively seek professional development for themselves, and that their attendance at teleconferences on campuses was voluntary.

Neither Survey 2 nor 3 asked for the age of the respondents, but Survey 3 asked for gender. The subjects included both males and females. It was
assumed that the subjects would vary in ethnicity and race but, neither ethnicity nor race were asked for in the surveys.

The total number of people attending the five teleconferences from all sites throughout North America, as indicated by the cards returned to STARLINK® by site coordinators are given in Table 4. Additional people may have attended for whom cards were not returned. See Appendixes 8, 9 and 10 for lists of institutions.

Table 4

<table>
<thead>
<tr>
<th>Teleconference</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Internet</td>
<td>394</td>
</tr>
<tr>
<td>2 Copyright</td>
<td>389</td>
</tr>
<tr>
<td>3 Teaching Strategies 1</td>
<td>1592</td>
</tr>
<tr>
<td>4 Teaching Strategies 2</td>
<td>1096</td>
</tr>
<tr>
<td>5 Teaching Strategies 3</td>
<td>777</td>
</tr>
</tbody>
</table>

There appeared to be a difference among the groups of participants in the five teleconferences. The participants at The Global Connection: Internet in the Classroom, the first teleconference of the pilot study, had a different profile from the people in the other four teleconference as evidenced by their answers on the survey. As a group the first teleconference attendees had more: experience with computers, knowledge of e-mail, more access to the Internet and needed less training in using the Internet. Seventy percent rated the potential helpfulness of a STARLINK® listserv as follow-up to the teleconference between moderately helpful to extremely helpful. This was between 7% to 17% higher than the other groups’ ratings of a listserv. For training, they gave higher rankings to workshops and friends than did the people in the other group. Some of these results are understandable given the subject of the teleconference, the Internet.
Main Study: Teaching Strategies Series—TEACHTEK Listserv

The main study combined the three part series on teaching strategies and the TEACHTEK listserv. This teleconference series was received by a total of 211 downlink satellite sites throughout the United States and Canada. Some of these sites may only have videotaped the teleconferences. One hundred and eighty-three sites were community, technical, or junior colleges or institutions that award associate degrees (see Appendixes 8 and 9). Twenty-eight of the downlink sites were upper division institutions awarding only bachelor degrees and above or other types of institutions (see Appendixes 10 and 11 for the lists of institutions eligible for watching the STARLINK® teleconference series). Data analysis indicated that 83 institutions were represented by surveys administered immediately following the teleconferences (see Appendixes 8-11). These surveys were received from a total of 919 participants for the three-part series on Teaching Strategies (405 from Texas Community and Technical Colleges - representing 28 colleges, 398 from community/technical/junior colleges or institutions awarding associate degrees outside of Texas - representing 45 colleges, and 116 from upper division institutions and other organizations, representing ten institutions).

It had been determined that random sampling of the population would not be feasible prior to the study because participation in filling out the surveys was completely voluntary at each site. Therefore, the results can not be generalized to the whole population of college faculty in the United States. Non-parametric, descriptive statistical analysis was mainly employed in the study, but some inferential statistical tools were used in comparing independent samples.

Section One: Analysis of Survey Two and Responses to Research Questions One and Two

The largest number of participants attending a single teleconference and who also completed Survey 2 was from the first Teaching Strategies teleconference. In some cases, participants completed Survey 2 more than once. For example, two people on the TEACHTEK listserv completed Survey
2 three times (after every teleconference in the teaching series), and three people on that listserv completed Survey 2, two times. Therefore, in some cases, respondents had already experienced the listserv service when they completed Survey 2. When the Survey 2 data from all three teleconferences in the teaching series were compiled and analyzed, it was found that the results from the series taken together was within a percentage point of the results taken only from Survey 2 at the first teleconference in the series. Additionally, subjects from the first teleconference completed Survey 2 before experiencing the TEACHTEK Listserv and were therefore providing before treatment information. Therefore, it was determined that only the Survey 2 results from the first program in the series on teaching would be used for the following data analysis and report of Survey 2.

Survey Two: Question One

“How long have you used a computer? Please circle one. 0-1 years, 2-5 years, 6 or more years.”

Forty-four point four percent of faculty (252 responses, 3 blank) in the Texas Community and Technical Colleges had used computers six or more years, and 38.9% had used them for two to five years. Therefore, 83.3% had used computers for two or more years.

Fifty-three point two percent of faculty (278 responses, 6 blank) in Community and Technical Colleges outside of Texas had used computers six or more years, and 33.5% had used them for two to five years. Therefore, 86.7% had used computers two or more years.

Seventy-one point three percent of faculty (94 responses, 2 blank) in the U.S. Upper Division Institutions and other institutions had used computers six or more years, and 16% had used them for two to five years. Therefore, 87.3% had used computers two or more years.

In general, STARLINK® participants are used to working with computers, a fundamental knowledge necessary for accessing a listserv. Texas community college faculty had fewer years of experience with computers than community college faculty outside the state. Upper division faculty had the most experience with computers.
Survey Two: Question Two

"Do you know how to use Internet e-mail (electronic mail)? Please Circle one. Yes  No."

Table 5 below presents information about participants’ knowledge of how to use Internet electronic mail. In the table, "Blank" indicates that the answer to the question was left unanswered.

Table 5
Percent Participants With Knowledge of How to Use Internet Electronic Mail

<table>
<thead>
<tr>
<th>Institutions Type:</th>
<th>#Participants</th>
<th>%Yes</th>
<th>%No</th>
<th>Blank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Texas Comm./Tech. Colleges (252)</td>
<td>24.2%</td>
<td>74.2%</td>
<td>1.6%</td>
<td></td>
</tr>
<tr>
<td>Comm. Colleges - Outside TX (278)</td>
<td>30.2%</td>
<td>68.3%</td>
<td>1.4%</td>
<td></td>
</tr>
<tr>
<td>U.S. Upper Division &amp; Others (94)</td>
<td>46.8%</td>
<td>52.1%</td>
<td>1.1%</td>
<td></td>
</tr>
</tbody>
</table>

Table 5 indicates that almost half of faculty at upper division institutions know how to use electronic mail, but only 25% to 30% of the community and technical college faculty surveyed are familiar with it. This limited the number of people immediately available for a listserv service.

Survey Two: Question Three

"To what extent would you need more training on how to connect to and use Internet e-mail?" Scale: 1-5, Limited Training to Extensive Training.

Table 6 indicates that the community college faculty in Texas need more training in how to use electronic mail compared to those outside the state and those in upper division institutions. These results are understandable given their experience with electronic mail as indicated from the results in Table 5.
Table 6
Extent of Training Needed by Participants to Connect to and Use Internet Electronic Mail

<table>
<thead>
<tr>
<th>Institutions Type</th>
<th>#Participants</th>
<th>Extensive</th>
<th>Limited</th>
<th>Blank</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>- Much</td>
<td>- Some</td>
<td></td>
</tr>
<tr>
<td>Texas Comm./Tech. Colleges (252)</td>
<td>50.0%</td>
<td>25.8%</td>
<td>2.8%</td>
<td></td>
</tr>
<tr>
<td>Comm.Colleges - Outside TX (278)</td>
<td>38.8%</td>
<td>32.0%</td>
<td>1.4%</td>
<td></td>
</tr>
<tr>
<td>U.S. Upper Division &amp; Others (94)</td>
<td>33.0%</td>
<td>41.5%</td>
<td>1.1%</td>
<td></td>
</tr>
</tbody>
</table>

Survey Two: Question Four

"Put a number after each of the following to indicate how helpful they would be for learning to use Internet. Use the scale (1-5: Not Helpful to Very Helpful). Workshop, Friend, Listserv, Computer Tutorial, Teleconference, Videotape, Books, Others."

Participants also ranked the helpfulness of various ways to learn to use the Internet. The resultant helpfulness ranking by all three groups of participants calculated separately according to their means was essentially the same with one being the highest rank: (1) workshop, (2) friend/colleague, (3) computer tutorial, (4) videotape, (5) teleconferences, (6) books, (7) listserv, (8) other.

There was one exception to this ranking. The faculty from the upper division ranked books as slightly higher than teleconferences.

It should be noted that the listserv was ranked next to last as far as perceived helpfulness in learning to use the Internet. This information was taken before participants signed up for the listserv. These results may have been due to lack of experience with the medium, or with unsuccessful experience with other listservs.
Survey Two: Question Five

"Do you have access to Internet e-mail via your institution's computer network or by modem? Please circle one. Yes, access to Internet via my institution's computer network. Yes, access to Internet via modem. No, I have no access to Internet e-mail."

Table 7: Percent of Participants With Access to Internet Electronic Mail

<table>
<thead>
<tr>
<th>Institution Type</th>
<th># Participants</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Texas Community/Technical Colleges</td>
<td>(252)</td>
<td></td>
</tr>
<tr>
<td>Yes, access to Internet via institution's network</td>
<td></td>
<td>28.6%</td>
</tr>
<tr>
<td>Yes, access to Internet via modem.</td>
<td></td>
<td>8.7%</td>
</tr>
<tr>
<td>(Total with known access to Internet)</td>
<td></td>
<td>37.3%</td>
</tr>
<tr>
<td>No, I have no access to Internet e-mail.</td>
<td></td>
<td>52.0%</td>
</tr>
<tr>
<td>Blank</td>
<td></td>
<td>10.7%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Institution Type</th>
<th># Participants</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Com. &amp; Tech. Colleges Outside Texas</td>
<td>(278)</td>
<td></td>
</tr>
<tr>
<td>Yes, access to Internet via institution's network</td>
<td></td>
<td>41.4%</td>
</tr>
<tr>
<td>Yes, access to Internet via modem.</td>
<td></td>
<td>5.8%</td>
</tr>
<tr>
<td>(Total with known access to Internet)</td>
<td></td>
<td>47.2%</td>
</tr>
<tr>
<td>No, I have no access to Internet e-mail.</td>
<td></td>
<td>37.8%</td>
</tr>
<tr>
<td>Blank</td>
<td></td>
<td>15.1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Institution Type</th>
<th># Participants</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Division and Other Institutions</td>
<td>(94)</td>
<td></td>
</tr>
<tr>
<td>Yes, access to Internet via institution's network</td>
<td></td>
<td>53.2%</td>
</tr>
<tr>
<td>Yes, access to Internet via modem.</td>
<td></td>
<td>11.7%</td>
</tr>
<tr>
<td>(Total with known access to Internet)</td>
<td></td>
<td>64.9%</td>
</tr>
<tr>
<td>No, I have no access to Internet e-mail.</td>
<td></td>
<td>30.9%</td>
</tr>
<tr>
<td>Blank</td>
<td></td>
<td>4.3%</td>
</tr>
</tbody>
</table>

Table 7 indicates that only 37.3% of the Texas community college participants had access to Internet. Forty-seven point two percent of the community college participants outside of Texas have access, and 64.9% of upper division institution faculty have access. Having access to the Internet
was necessary in order to subscribe to the STARLINK® listservs. It was believed at first that the University of North Texas system could only handle Internet addresses, but one person subscribed to the TEACHTEK listserv via a Bitnet address and did receive messages from the list. Bitnet access was not surveyed in Survey 2.

Survey 1, which was conducted before the main research was done, indicated that less than half of the participants who answered that survey administered immediately following the April 13, 1993 STARLINK® teleconference had easy access to a computer and modem for using Internet. Out of 74 responses, 38 said they did not have easy access, two did not know whether they did or did not have access and one had a modem, but no access to Internet. From that survey and from THENET data, it was known that at least twenty-one of the two-year institutions in Texas had access to the Internet. This represented approximately 25% of the community colleges and two-year institutions in Texas. As of August 1994, several months after the research was completed, community college faculty at twenty-three Texas community/junior/technical institutions and six Texas college districts or college systems (representing more than one college campus each) had access to the Internet (see Appendix 2).

Survey Two: Question Six

“What prevents you from using Internet resources and listservs? Circle the one that hinders you the most. No access, no training, no time, uncomfortable, don’t need to know, no support, other?”

Participants indicated the hindrances to their using Internet resources and listservs. Table 8 indicates that no access is the major hindrance to using the Internet by almost 50% of the Texas Community and Technical Colleges. Note that the upper division faculty indicated their major hindrance was no training, possibly because more of them have access to Internet in their institutions. Twenty-five point five percent of upper division participants left this question blank, which may indicate that nothing hinders them.
Table 8

Percent of Participants Checking Hindrances To Using Internet Resources and Listservs (listed in rank order according to responses)

<table>
<thead>
<tr>
<th>Institution Type:</th>
<th># Participants</th>
<th>Percent Checked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Texas Community/Tech. Colleges (252)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) No Access</td>
<td>(252)</td>
<td>48.0 %</td>
</tr>
<tr>
<td>(2) No Training</td>
<td>(252)</td>
<td>26.6%</td>
</tr>
<tr>
<td>(3) No Time</td>
<td>(252)</td>
<td>8.3%</td>
</tr>
<tr>
<td>(4) Uncomfortable</td>
<td>(252)</td>
<td>2.8%</td>
</tr>
<tr>
<td>(5) Other</td>
<td>(252)</td>
<td>1.6%</td>
</tr>
<tr>
<td>(6) No support</td>
<td>(252)</td>
<td>0.8%</td>
</tr>
<tr>
<td>(7) Do not need to know</td>
<td>(252)</td>
<td>0.4%</td>
</tr>
<tr>
<td>Blank Responses</td>
<td></td>
<td>11.5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comm. &amp; Tech. Colleges Outside Texas (278):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) No Access</td>
<td>(278)</td>
<td>35.6%</td>
</tr>
<tr>
<td>(2) No Training</td>
<td>(278)</td>
<td>27.3%</td>
</tr>
<tr>
<td>(3) No Time</td>
<td>(278)</td>
<td>8.6%</td>
</tr>
<tr>
<td>(4) Uncomfortable</td>
<td>(278)</td>
<td>6.1%</td>
</tr>
<tr>
<td>(5) Other</td>
<td>(278)</td>
<td>3.2%</td>
</tr>
<tr>
<td>(6) Do not need to know</td>
<td>(278)</td>
<td>2.2%</td>
</tr>
<tr>
<td>(7) No support</td>
<td>(278)</td>
<td>1.4%</td>
</tr>
<tr>
<td>Blank Responses</td>
<td></td>
<td>15.5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S. Upper Division/Others (94):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) No Access</td>
<td>(94)</td>
<td>24.4%</td>
</tr>
<tr>
<td>(2) No Training</td>
<td>(94)</td>
<td>34.0%</td>
</tr>
<tr>
<td>(3) No Time</td>
<td>(94)</td>
<td>8.5%</td>
</tr>
<tr>
<td>(4) Uncomfortable</td>
<td>(94)</td>
<td>1.1%</td>
</tr>
<tr>
<td>(5) Other</td>
<td>(94)</td>
<td>3.2%</td>
</tr>
<tr>
<td>(6) Do not need to know</td>
<td>(94)</td>
<td>1.1%</td>
</tr>
<tr>
<td>(7) No support</td>
<td>(94)</td>
<td>2.1%</td>
</tr>
<tr>
<td>Blank Responses</td>
<td></td>
<td>25.5%</td>
</tr>
</tbody>
</table>

**Survey Two: Question Seven**

"Using the scale below, how helpful do you think it would be for you to access the STARLINK® listserv, called "TEACHTEK", via e-mail to interact
with other participants and experts after this teleconference? This listserv will be operating for at least three weeks after the teleconference. Depending upon interest, it may be extended beyond that time.” Scale: 1-5, Not Helpful to Extremely Helpful.

Table 9 gives the results when participants were asked to indicated what they believed the helpfulness of a listserv would be for providing a follow-up activity for a teleconference.

Table 9
Percent of Participants Indicating Helpfulness Rating of a STARLINK® Listserv: TEACHTEK
(Participants had not experienced the listserv when they filled out this survey).

<table>
<thead>
<tr>
<th>Institution Type:</th>
<th># Participants</th>
<th>Percent Checked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Texas Community/Tech. Colleges (252)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BLANK</td>
<td>19.0%</td>
<td></td>
</tr>
<tr>
<td>NOT HELPFUL</td>
<td>5.6%</td>
<td></td>
</tr>
<tr>
<td>SOMEWHAT HELPFUL</td>
<td>7.9%</td>
<td></td>
</tr>
<tr>
<td>MODERATELY HELPFUL</td>
<td>32.9%</td>
<td></td>
</tr>
<tr>
<td>VERY HELPFUL</td>
<td>21.0%</td>
<td></td>
</tr>
<tr>
<td>EXTREMELY HELPFUL</td>
<td>13.5%</td>
<td></td>
</tr>
<tr>
<td>MODERATE to EXTREMELY HELPFUL Total:</td>
<td>67.4%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Institution Type:</th>
<th># Participants</th>
<th>Percent Checked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Com. &amp; Tech. Colleges Outside Texas (278)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BLANK</td>
<td>24.8%</td>
<td></td>
</tr>
<tr>
<td>NOT HELPFUL</td>
<td>6.5%</td>
<td></td>
</tr>
<tr>
<td>SOMEWHAT HELPFUL</td>
<td>14.7%</td>
<td></td>
</tr>
<tr>
<td>MODERATELY HELPFUL</td>
<td>33.8%</td>
<td></td>
</tr>
<tr>
<td>VERY HELPFUL</td>
<td>14.0%</td>
<td></td>
</tr>
<tr>
<td>EXTREMELY HELPFUL</td>
<td>6.1%</td>
<td></td>
</tr>
<tr>
<td>MODERATE to EXTREMELY HELPFUL Total:</td>
<td>53.9%</td>
<td></td>
</tr>
</tbody>
</table>
Table 9 shows that 67.4% of Texas community and technical college faculty indicated that a STARLINK® listserv for after teleconference follow-up would be moderately to extremely helpful. 53.9% of community college faculty outside of Texas and 64.9% of upper division institution personnel gave a rating of moderate to extremely helpful to a STARLINK® listserv. It should be noted that these ratings were given to the listserv service before participants had experienced the TEACHTEK listservs.

**Survey Two: Question Eight**

"Do you plan on signing up for the TEACHTEK listserv? (If yes, please see the TEACHTEK Listserv Information Sheet.) Please circle one: Yes No."

Participants indicated whether they planned on subscribing to the TEACHTEK listserv as reported in Table 10. About 25% of people from the three institution types planned to subscribe to the TEACHTEK listserv as indicated in Table 10. This would have been about 232 people. Seventy-one people were recorded as actually subscribing to the listserv (approximately 30.6% of those saying they would sign up and approximately 11.4% of the total number of people who filled out surveys).
Table 10
Percent of Participants Who Planned to Subscribe to TEACHTEK Listserv

<table>
<thead>
<tr>
<th>Institution Type</th>
<th># Participants</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Texas Com. &amp; Tech. Colleges</td>
<td>(252)</td>
<td>25%</td>
</tr>
<tr>
<td>Com. &amp; Tech. Coll. Outside Texas</td>
<td>(278)</td>
<td>24.1%</td>
</tr>
<tr>
<td>U.S. Upper Division/Others</td>
<td>(94)</td>
<td>28.7%</td>
</tr>
</tbody>
</table>

Survey Two: Question Nine

Were the follow-up activities after this teleconference helpful to you? If not, why not? Please circle one, Yes No.”

Participants were asked if the follow-up activities after the teleconference at their site were helpful to them. Table 11 presents the frequency results.

Table 11
Percent of Participants Agreeing or Disagreeing That On-site After Teleconference Follow-up Activities Were Helpful

<table>
<thead>
<tr>
<th>Institution Type</th>
<th># Participants</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Texas Com. &amp; Tech. Colleges</td>
<td>(252)</td>
<td>31.7%</td>
</tr>
<tr>
<td>Com. &amp; Tech. Coll. Outside Texas</td>
<td>(278)</td>
<td>28.1%</td>
</tr>
<tr>
<td>U.S. Upper Division/Others</td>
<td>(94)</td>
<td>28.7%</td>
</tr>
</tbody>
</table>

Table 11 provides results that are similar to the results from the evaluations of follow-up activities that were done by The Resource Group during the first years that the STARLINK® service was provided. For the ten teleconferences studied, post-conference activities were conducted only 43.2 percent of the time and of those attending the activities, only 61.7 percent indicated they were helpful.

It should be noted in Table 11 that 57.5 percent to 57.9 percent of community college personnel left this question blank, indicating possibly that no follow-up activity was presented or that if an activity was provided, it was
not experienced. Therefore, the post-teleconference activities may have occurred only 42.5 percent to 42.1 percent of the time for the community college faculty in Texas or nationally. Among the participants answering the question, only 74.7 percent, 66.7 percent, and 62.8 percent respectively of the three divisions of institutions, answered "yes," indicating that the post-teleconference activities at the individual downlink sites were helpful. These figures were slightly higher than the results of The Resource Group's evaluation that indicated only 61.7 percent of people attending the activities found them helpful.

At the bottom of Survey 2, participants were asked to fill in their name, the last four digits of their social security number, their college, and their e-mail address. This information was used to match individual participants who filled out Survey 3 to their Survey 2.

Research Question One

It should be noted that when all the data from Survey 2 for all the five teleconferences were compiled and analyzed as a unit, all of the associations reviewed below for Research Questions One and Two were found to have significant associations at the $p < .05$ level. However, because it was found that some participants had completed Survey 2 more than once, it was determined to use only Survey 2 from the first teleconference in the series on teaching strategies for the analysis below. This was the largest group of unique subjects, all of which had not previously experienced the TEACHTEK listserv.

Research Question One asked:

What is the association between the following: (a) the number of years of experience with computers, (b) knowing how to use Internet e-mail, (c) having access to the Internet and each of the following factors: (a) believing that a listserv will be helpful for follow-up to teleconferences, (b) choosing to subscribe to a listserv?
The Number of Years of Experience With Computers and Believing That a Listserv Will Be Helpful for Follow-up to Teleconferences

The \( \chi^2 \) (chi-square) test of homogeneity (Hinkle, Wiersma, Jurs, 1988, pp. 557-566) was calculated to compare answers to Questions 1 and Question 7 to determine if there was an association between faculties' knowledge of computers and their belief that a listserv follow-up activity would be helpful or not. The null hypothesis was tested at the \( p < .05 \) level. The Pearson \( \chi^2 \) calculation indicated that there was not a significant association between the two variables of computer knowledge and the belief that a listserv follow-up activity would be helpful \( [p = .55024 \text{ (community colleges inside Texas)} \text{ and } p = .56443 \text{ (national community colleges)}] \). Despite the fact that Texas faculty had less years of experience with computers than community college faculty from outside the state (44.4 percent in Texas had six or more years of computer experience versus 53.2 percent outside of Texas with the same number of years experience) they considered a listserv to have more potential for being helpful to them. Sixty-seven point four percent of community college faculty inside Texas and 53.9 percent of national community college faculty indicated that a listserv would be moderately helpful to extremely helpful to them.

However, when the Pearson \( \chi^2 \) (chi-square) was calculated for all of the participants completing Survey 2 for the first teaching strategies teleconference (including upper division faculty), it was significant at the \( p = .02618 \) level, indicating that there was an association between the variables. Sixty-four point nine percent of the upper division faculty indicated a listserv would be moderately helpful to extremely helpful to them, which was more in line with the opinions of the community college faculty within Texas.

Knowing How to Use Internet E-mail and Believing That a Listserv Will Be Helpful for Follow-up to Teleconferences

Questions 2 and 7 were similarly compared to determine if there was an association between knowing how to use e-mail and believing that a listserv follow-up activity would be helpful or not. An association was not found.
between the variables among faculty at community colleges in Texas at \( p < .05 \) \((p = .17887)\) but there was a significant association found for faculties at national community colleges (significance at \( p = .00001 \)). This may have been because of the lack of e-mail knowledge among Texas community college faculty (only 24.2 percent knew how to use it versus 30.2 percent among national community colleges) and the fact that 67.4 percent of Texas community college faculty subjects believed that at listserv would be moderately to extremely helpful versus 53.9 percent of national community college subjects. The Texas community college faculty viewed a listserv positively even though they had not experienced it.

**Having Access to the Internet and Believing That a Listserv Will Be Helpful for Follow-up to Teleconferences**

Questions 5 and 7 were compared. An association was shown to exist between having access and believing that a listserv would be helpful for the national community colleges faculty at \( p = .00001 \) for the Pearson, tested at the \( p < .05 \) level. For the Texas community college faculty, an association was not shown \((p = .67535)\). This may have been because of the lack of access to the Internet by Texas community college faculty and again their positive attitude towards a listserv service.

**The Number of Years of Experience With Computers and Choosing to Subscribe to a Listserv**

The \( \chi^2 \) (chi-square) test was calculated for Questions 1 and 8. The Pearson \( \chi^2 \) test at the \( p < .05 \) level showed the association was significant for Texas community college faculty at \( p = .00064 \).

However, the Pearson \( \chi^2 \) showed the association was not significant at the \( p < .05 \) level for national community college faculty at \( p = .70612 \) level. This may due to the fact that even though they had more years of experience with computers (86.7 percent with two to six or more years, and 44.4 percent of those having six or more years), only 24.1 percent were interested in signing up for the listserv.
Knowing How to Use Internet E-mail and Choosing to Subscribe to a Listserv

The \( \chi^2 \) (chi-square) test was calculated for Questions 2 and 8. At \( p < .05 \), there was a significant association between knowing how to use e-mail and choosing to subscribe to a listserv service for both Texas community college faculty and national community college faculty at \( p = .00001 \).

Having Access to the Internet and Choosing to Subscribe to a Listserv

The \( \chi^2 \) (chi-square) test was calculated for Questions 5 and 8. The Pearson test indicated, at the \( p < .05 \) level, that there was a significant association between having access to the Internet and choosing to subscribe to a listserv service for both Texas community college faculty and national community college faculty at \( p = .00001 \).

Research Question Two

What is the association between: (a) believing that a listserv will be helpful for follow-up to teleconferences, and (b) choosing to subscribe to a listserv?

The same calculation of \( \chi^2 \) (chi-square) test was performed for Questions 7 and 8 to determine if the perceived helpfulness of a listserv was associated with interest in signing up for the STARLINK® listserv. The Pearson showed there was a significant association, at the \( p < .05 \) level, for both Texas community college faculty and national community college faculty with \( p = .00001 \).

Section Two: Analysis of Survey Three for the Listserv Service and Responses to Research Questions Four to Fourteen

Listserv Service

Listserv participants were teachers and in some cases support staff, for example, faculty development personnel or computer lab staff. The three
listservs for the pilot and main studies were made available to participants for subscription on the day of the teleconference dates: November 3, 1993 (STARNET), December 2, 1994 (LEGALIST) and January 26 (TEACHTEK) respectively.

Information about upcoming teleconferences and STARLINK® listservs was also given via the listservs. Only three STARLINK® participants were on multiple listservs. Of the three, only one was on all three lists. During the pilot study, 40 people signed onto the STARNET listserv that supported the one teleconference about the Internet. Four of the people on the STARNET listserv were people involved in supporting the study, but only the moderator communicated to the listserv. The second survey was sent to the STARNET listserv via e-mail four months after the start of the list and two replies were received.

The second pilot listserv, LEGALIST, had 14 people on the list with two of those involved in the study. One was the moderator. The e-mail survey was sent to the group three months after the start of the listserv and one reply was received.

The main research study had 60 people subscribed to the TEACHTEK listserv at a single point in time with four of the participants involved in supporting the study. Two of these people, including the moderator, communicated with the listserv. Two more of the participants are the listserv were experts from the teaching strategies teleconferences. A total of 77 people were documented as subscribed, at some point in time, to TEACHTEK.

All the experts who were scheduled to be on the teaching strategies teleconference series were contacted before the teleconference series started by e-mail or by telephone to ask if they were interested in being on the TEACHTEK listserv to provide follow-up to the teleconferences. Two of the panelists agreed to do this by January 12 and 16 respectively. Two other experts did not have Internet addresses and applied for them in order to participate on the listserv, but were unable to receive Internet addresses in time to participate in TEACHTEK. A fifth panelist said she did not have enough time to participate, even though she did have e-mail access.
The first two listservs had fewer participants and less e-mail traffic than the TEACHTEK listserv of the main research. There are several possible reasons for this:

1. The subjects of the first two listservs were more limited in scope (the Internet and Copyrighted Materials) and may not have had as wide an appeal or stimulated further inquiry.

2. The first two teleconferences had fewer total teleconference participants.

3. The Teaching Strategies series was advertised nationally via the PBS (Public Broadcasting System) mailing list vs. only STARLINK®'s more limited mailing list. Therefore, the teleconference series had a substantially larger audience.

4. The pilot listservs were follow-ups to single teleconferences vs. a series of three teleconferences for the TEACHTEK listserv.

5. The TEACHTEK listserv shared ideas about teaching, which is a primary focus of faculty members' jobs.

6. Having the TEACHTEK listserv support a series of programs that covered a three week period, meant that each week there was new material from the teleconference to simulate discussions.

7. The moderator facilitated conversations more on TEACHTEK, giving responses to comments and asking questions, versus waiting for others to respond as had been done in the pilot.

8. There were three experts from the teleconferences participating in TEACHTEK (two panelist plus the Dallas Director of STARLINK®) versus one expert per listserv for the pilot programs.

9. The pilot listservs were started during November and December which can be busy months for faculty, versus January and February.

The listservs were most active during the two weeks immediately following each of the teleconferences. Some e-mail traffic was sent by members up to four months after a teleconference.

A second survey (Survey 3) was sent out March 1, 1994 to all three listservs via electronic mail. A second copy of Survey 3 was sent out via e-mail a week later to give participants another opportunity to complete it. Also, within the context of the regular listserv discussions, the
moderator/researcher mentioned that she would send copies of the survey again if someone did not have it.

Additional copies of the survey were requested by some of the listserv members either in e-mail form or in hard copy form. Four listserv participants requested hard copies of the survey to be mailed to them and they all returned them in the stamped and addressed envelopes provided by the researcher.

When Survey 3 was received by the researcher either by e-mail or U.S. mail, a personal e-mail message was sent back to the participants who had sent them to thank them for returning the survey. Also, if any questions were incomplete, the researcher asked the unanswered question(s) in a personal e-mail message. This insured that the returned copies of Survey 3 were more fully completed. The participants in all cases responded to these e-mail messages. In some cases, they gave more information than just the answer to the question. Survey 3 was completed and returned by some participants on the same day, March 1, 1994 that it was sent out by the researcher/moderator.

The analysis of the data indicated that listserv participants, for the most part found the listservs helpful as follow-up to the teleconferences. The institution type, number and gender of the people responding to Survey 3 are given in Tables 12. A total of twenty-five participants from the TEACHTEK listserv completed and sent back Survey 3. This represented a 43.9 to 46.3 percent return rate for those subscribed to the listserv. The number of participants on TEACHTEK ranged between 54 and 57 during the time that the e-mail survey was sent out between March 1 - 9, 1994). For all 71 participants who were on TEACHTEK at some point in time, 25 completed forms represented a 35.2 percent return rate. Survey 3 was only completed by participants who were not connected directly to the research and none of the experts completed Survey 3.

Two STARNET participants (out of 36) filled out the e-mailed Survey 3 and one LEGALIST participant (out of 12) filled out the survey.
Table 12

Number of Participants from Institution Types, Numbers of Males and Females, and Number of Institutions Represented by Completed E-mailed Surveys From the Three Listservs

TEACHTEK

<table>
<thead>
<tr>
<th>Institution Type</th>
<th># Participants</th>
<th>Gender</th>
<th># Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>F/M</td>
<td></td>
</tr>
<tr>
<td>Texas Community/Tech. Colleges</td>
<td>5</td>
<td>3/2</td>
<td>4</td>
</tr>
<tr>
<td>Comm./Tech. Colleges Outside TX</td>
<td>12</td>
<td>2/10</td>
<td>10</td>
</tr>
<tr>
<td>U.S. Upper Division &amp; Others</td>
<td>8</td>
<td>4/4</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
<td>9/16</td>
<td>20</td>
</tr>
</tbody>
</table>

STARNET

<table>
<thead>
<tr>
<th>Institution Type</th>
<th># Participants</th>
<th>Gender</th>
<th># Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>F/M</td>
<td></td>
</tr>
<tr>
<td>Texas Community/Tech. Colleges</td>
<td>2</td>
<td>1/1</td>
<td>1</td>
</tr>
</tbody>
</table>

LEGALIST

<table>
<thead>
<tr>
<th>Institution Type</th>
<th># Participants</th>
<th>Gender</th>
<th># Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>F/M</td>
<td></td>
</tr>
<tr>
<td>U.S. Upper Division &amp; Others</td>
<td>1</td>
<td>1/0</td>
<td>1</td>
</tr>
</tbody>
</table>

The following section gives the results from the e-mailed surveys of the participants of the listservs: TEACHTEK, STARNET, and LEGALIST. Survey 3 was sent to all listserv participants via e-mail after they had experienced the listservs for at least three weeks and in case of the STARNET listserv participants, up to four months.

Seventy-six percent of TEACHTEK listserv members who filled out the e-mailed survey also filled out the STARLINK® Survey administered right after the teleconference. The three participants from the two pilot listservs
completed both Survey 2 and 3. 82% (23) of the 28 people who filled out Survey 3 and answered Question 1, said they had filled out Survey 2. However, only 16 were found that were able to be matched. This was because not everyone filling out Survey 2 filled in the information about social security number and e-mail address which was used to match surveys.

The results from Survey 3 for each of the three listserv groups were calculated using nonparametric statistics.

Research Question Three

What changes occur in participants’ helpfulness ratings of follow-up activities, if the follow-up activity is a listserv?

Participants were asked about the helpfulness of the listserv service as a follow-up activity both in Survey 2 and Survey 3 in order to determine if there was a change after having experienced a STARLINK® listserv. The amount of change between the two surveys is given in Section Three. The presentation of the data for Survey Three Question Two is given below.

Survey Three: Question Two

"Was this listserv helpful to you as a follow-up activity for the teleconference?"

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXTREMELY HELPFUL</td>
<td>2</td>
<td>7.1</td>
</tr>
<tr>
<td>HELPED QUITE A BIT</td>
<td>9</td>
<td>32.1</td>
</tr>
<tr>
<td>MODERATELY HELPFUL</td>
<td>15</td>
<td>53.6</td>
</tr>
<tr>
<td>HELPED A LITTLE</td>
<td>1</td>
<td>3.6</td>
</tr>
<tr>
<td>NOT HELPFUL</td>
<td>1</td>
<td>3.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>28</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>
The Mean was 2.643 (closer to HELPED QUITE A BIT), the Median 3.000 (MODERATELY HELPFUL) and the Mode 3.000 (MODERATELY HELPFUL). Participants on the TEACHTEK listserv (25 completed Survey 3) had only experienced the listserv service for four to five weeks at the time the survey was sent out via the Internet that produced the information for Table 13. One person commented that they did not think that the listserv had been going long enough to evaluate it. It is also interesting to note that 92% of the 28 subjects indicated in answering Question 15 that they would sign up again for another STARLINK® listserv.

Research Question Three will be more fully answered in Section Three in which comparisons are made between participants’ answers to Survey 3 Question 2 with Survey 2 Question 7. When comparing the answers to these questions, the values were changed so that extremely helpful was coded as 5 (rather than 1), so that the two questions had the same coding. Therefore, for Survey 3 Question 2 the mean was newly calculated as 3.357.

Research Question Four

To what extent does the combination of two-way audio, one way video teleconferences and a listserv satisfy participants’ perceived needs for information and learning than video teleconferences only?

Survey 3: Question 4

“Did accessing this listserv, after viewing the STARLINK® teleconference, satisfy your needs more than just viewing the teleconference only would have? Please mark an X by one item.”

Table 14 indicates that the majority of people on the three listservs, 82.1%, found that the teleconference and the listserv service satisfied their needs more than just viewing the teleconference only would have. Eighty percent of TEACHTEK listserv participants (20 people) indicated that the teleconferences and listserv service combination satisfied their needs. One person, who is from an upper division institution, said the teleconferences alone were sufficient. Three people (12%) said the teleconferences and
listserv did not meet their needs. One of these is from an upper division university. Another person said that they would have preferred a bulletin board or gopher so that their e-mail box would not fill up. All three people on the other listservs were satisfied with the teleconference and listserv combination.

Table 14

*Extent of Satisfaction with Teleconference and Listserv Service*

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>TELECONFERENCE &amp; LISTSERV SATISFIED</td>
<td>23</td>
<td>82.1</td>
</tr>
<tr>
<td>TELECONFERENCE ALONE SATISFIED</td>
<td>1</td>
<td>3.6</td>
</tr>
<tr>
<td>TELE &amp; LISTSERV NOT HELPFUL</td>
<td>3</td>
<td>10.7</td>
</tr>
<tr>
<td>OTHER</td>
<td>1</td>
<td>3.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>28</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Research Question Five

To what extent is a listserv supportive of the work of college faculty as indicated by self-reporting?

*Survey 3: Question 5*

"Has the listserv facilitated changes in the way you do your work? If yes, please state what has changed."

Table 15 indicates that 57.1% of people did not think that the listservs facilitated changes in the way they did their work. The Mean was 1.429 (Closer to No), Median was 1.000 (No) and the Mode was 1.000 (No).

Eleven people (44%) on the TEACHTEK listserv said that the listserv had facilitated changes in the way they do their work. Fourteen TEACHTEK respondents (56%) said that the listserv did not facilitate changes. Two others said no changes had occurred "yet."
Table 15

*Determinations of Whether Listservs Facilitated Changes in Work*

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
<td>16</td>
<td>57.1</td>
</tr>
<tr>
<td>YES</td>
<td>12</td>
<td>42.9</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Another participant said that they, "...did not feel that they could answer the question positively at this point because they were just beginning teaching." However, those people who did indicate changes in their work, listed items that were fairly substantial changes. The changes that people documented were:

- The ways to, "...structure their class to facilitate cooperative activities."
- Reinforced what they were doing, made them more comfortable.
- Tried several suggestions for learning in their classes.
- Used a few specific exercises, but they hoped to integrate more of the concepts in a new course they were developing at their school.
- The listserv had, "...become part of their daily routine." They said they spent at least 30 minutes on Internet every academic day.
- Used parts of Claire Weinstein's lecture (one of the experts) in their Educational Psychology class. They also planned to try one of the other activities.
- They were striving for more cooperative group learning experiences.

A STARNET participant said it inspired him to start his own listserv. The LEGALIST participant did not note any changes.
Survey 3: Question 6

"Has using this listserv, specifically established for community college personnel, been particularly supportive of your college teaching?"

Table 16
Degree of Support Listservs Have Given to College Teaching

<table>
<thead>
<tr>
<th>Degree of Support</th>
<th>Value</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLANK</td>
<td>0</td>
<td>1</td>
<td>3.6</td>
</tr>
<tr>
<td>VERY SUPPORTIVE</td>
<td>1</td>
<td>4</td>
<td>14.3</td>
</tr>
<tr>
<td>QUITE SUPPORTIVE</td>
<td>2</td>
<td>5</td>
<td>17.9</td>
</tr>
<tr>
<td>SUPPORTIVE</td>
<td>3</td>
<td>7</td>
<td>25.0</td>
</tr>
<tr>
<td>SOMEWHAT SUPPORTIVE</td>
<td>4</td>
<td>6</td>
<td>21.4</td>
</tr>
<tr>
<td>NOT VERY SUPPORTIVE</td>
<td>5</td>
<td>2</td>
<td>7.1</td>
</tr>
<tr>
<td>NOT APPLICABLE</td>
<td>6</td>
<td>3</td>
<td>10.7</td>
</tr>
</tbody>
</table>

Total 28 100.0

The Mean was 3.107 (SUPPORTIVE), the Median 3.000 (SUPPORTIVE) and the Mode 3.000 (SUPPORTIVE).

When the data from Table 16 were analyzed further, it was found that 50% of the TEACHTEK Listserv participants found the listserv “supportive” to “very supportive” of their college teaching. 20% said it was “somewhat supportive.” The LEGALIST participant agreed that the listserv was “somewhat supportive.” The two STARNET participants said their listserv was “very supportive” of their teaching.

Only two people out of twenty-eight said the listserv was “not very supportive” of their teaching.
Research Question Six

For what purposes do participants use a listserv and what aspects of a listserv are most helpful to them?

Survey 3: Question 7

“For what purpose did you access the listserv? Rank from 1-5 with 1 being your primary purpose.”

For the subjects on all the listservs, the resultant ranking of their reasons for accessing the listserv service was: (1) professional development, (2) curiosity, (3) answers to questions, (4) technological support, (5) other.

For the TEACHTEK listserv, the participants’ resultant ranking of their reasons for accessing the listserv was the same.

Some of their comments were:

• My biggest challenge is learning to move the “cursor” around and answering the surveys. I am totally new to Internet.

• I was looking for teaching strategies. To me, Dr. Weinstein’s lecture was the best part about the program. I would like to learn more about LASSI.

• To learn what others have done in similar situations.

STARNET participants, like the TEACHTEK participants listed professional development first, but the LEGALIST participant listed answers to questions first.

Survey 3: Question 3

“What aspects of the listserv were most helpful to you as follow-up to the STARLINK® teleconference? Rank the following from 1-6 with 1 being the most helpful aspect: resources of experts, clarification of concepts, met new colleagues, questions answered, learned about Internet, other.”
For TEACHTEK the resultant ranking was: (1) resources of experts, (2) clarification of concepts, (3) learned about Internet, (4) met new colleagues, (5) other, (6) questions answered.

The following were listed as other aspects by the participants:

- Reinforced ideas and applications
- "See what others are doing."
- Moderator's responses.
- As a faculty developer, saw, "...faculty questions answered when asked, in a non-threatening venue off-campus."

For STARNET, the listserv that supported the teleconference on the Internet, the resultant ranking was: (1) resources of experts, (2) met new colleagues, (3) learned about Internet, (4) clarification of concepts, (5) questions answered.

LEGALIST resultant ranking was: (1) resources of experts, (2) questions answered, (3) clarification of concepts, (4) met new colleagues, (5) learned about Internet, (6) other.

It should be noted that the resources of experts was considered to be the most important aspect on all three listservs. Also, it is interesting to see the high ranking of learning about the Internet, which was listed in the third position by both the TEACHTEK and STARNET participants. This seemed to be an "added bonus" for those on TEACHTEK who mainly were seeking the resources of experts who had knowledge of how to improve teaching at the community college level. See also, Survey 3 Question 9 which is concerned with the perceived helpfulness of the listserv service in learning how to explore other services on the Internet.

Research Question Seven

Does the content of a listserv provide information and learning resources that extend beyond the content of the original teleconference it is designed to support and do participants consider a listserv to provide open learning?
Survey 3: Question 8

"Did the content of the listserv provide learning resources that extended beyond the original content of the teleconference?"

Ninety-two point nine percent (26) of the subjects answered the question with, "yes." Therefore, all listserv survey participants, except two people, agreed that the content of the listservs provided learning resources that extended beyond the original content of the teleconferences.

Survey 3: Question 9

"Has accessing this listserv been helpful in learning how to explore other services on the Internet? Mark one."

The value of 3 in Table 17 indicated MODERATELY HELPFUL. The main intent of the listservs was not to learn about the Internet, with the exception of the STARNET listserv which supported The Global Connection: Internet in the Classroom teleconference. One person on STARNET chose "Extremely Helpful" in answering this question and the other chose "Moderately Helpful." The one person from LEGALIST chose "Not Helpful."

Table 17

<table>
<thead>
<tr>
<th>Degree of Support</th>
<th>Value</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLANK</td>
<td>0</td>
<td>1</td>
<td>3.6</td>
</tr>
<tr>
<td>EXTREMELY HELPFUL</td>
<td>1</td>
<td>7</td>
<td>25.0</td>
</tr>
<tr>
<td>HELPED QUITE A BIT</td>
<td>2</td>
<td>2</td>
<td>7.1</td>
</tr>
<tr>
<td>MODERATELY HELPFUL</td>
<td>3</td>
<td>8</td>
<td>28.6</td>
</tr>
<tr>
<td>HELPED A LITTLE</td>
<td>4</td>
<td>4</td>
<td>14.3</td>
</tr>
<tr>
<td>NOT HELPFUL</td>
<td>5</td>
<td>5</td>
<td>17.9</td>
</tr>
<tr>
<td>NOT APPLICABLE</td>
<td>6</td>
<td>1</td>
<td>3.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
<td></td>
<td>100.0</td>
</tr>
</tbody>
</table>

The Mean was 2.929, the Median 3.000, and the Mode 3.000.
Sixty percent of the participants from TEACHTEK chose "Moderately Helpful" to "Extremely Helpful." Therefore, participants believed there to be some added benefits in learning more about the Internet and how to use it, which went beyond the original content of the teleconferences themselves.

Survey 3: Question 12

"Do you think that using a listserv allows "open learning" in which participants have more control over: when they learn, how often they learn, how long they learn and what they learn? Mark one."

On the TEACHTEK listserv, 72% (18) said, "Yes", 8% (2) said, "No" and 20% (5) said, "Maybe" with the following explanations:

- "This depends upon the availability of someone to stimulate discussion." (1 person)
- "Have to keep up with the list. This list did not seem to use a standard format for establishing threads." (1 person)
- "Listserv is a relatively rigid format." (1 person)
- "Depends on how it is done." (1 person)
- "Time is critical - need time to converse." (1 person)

The STARNET participants both said, "Yes," to the question. The LEGALIST participant said that, "... listservs can do this, but often times the mail becomes overwhelming. Newsgroups can often take that overwhelming feeling away, you control when you read, what you read, and can set up things like KILL files to avoid topics you have no interest in."

Research Question Eight

What are participants' training preferences for learning to use the Internet and what modes have they found to be most helpful?
Survey 3: Question 10

"How helpful have the following been in your learning to use the Internet?"

The participants were asked to indicate how helpful various resources were in learning to use the Internet. The resultant ranking was as follows:

1. Friend/Colleague
2. Other
3. Institution's Workshop(s)
4. Books
5. Listserv
6. Videotape
7. STARLINK® teleconference on Internet
8. Computer tutorial

This compared to the earlier ranking from the earlier surveys administered immediately following the teleconferences which were:

1. Workshop(s)
2. Friend/Colleague
3. Computer Tutorial
4. Videotape
5. Teleconferences
6. Books
7. Listserv
8. Other

Notice that the listserv is given a higher ranking (fifth) after experiencing the listserv as compared to before the STARLINK® listserv experience (seventh). Also, friend and colleague is rated first after experiencing the listserv compared to a workshop first ranking in Survey 2.

The STARLINK® teleconference about the Internet was not seen by 68.2% of the respondents and therefore may have received a lower ranking
Of those who saw it, five considered it helpful to very helpful. One said it was somewhat helpful and one said it was not helpful.

Sixty-two point five percent of TEACHTEK participants said that they found the listserv extremely helpful to moderately helpful in learning how to explore other services on the Internet. One STARNET user said the listserv was extremely helpful and another said it was moderately helpful. The LEGALIST user said the listserv was not helpful in learning how to explore other Internet services.

Other sources that were listed as helpful in learning to use the Internet were:

- computer service: free consultants
- their institution's network handout
- IHETS Workshops
- "...playing around and trying things out."

**Research Question Nine**

What are the helping and hindering forces that facilitate or do not facilitate participants' using listservs after teleconferences?

**Survey 3: Question 10**

"How helpful have the following been in your learning to use the Internet?" The participants were asked to choose from a five point scale ranging from *Very Helpful* to *Not Helpful*, or sixth choice of *Never Experienced* for the each of the following:

- Institution's Workshop
- Faculty/Colleague/Friend
- STARLINK® Listserv
- Computer Tutorial
- STARLINK® Teleconference on Internet
- Video Tape
- Books
- Other
The top four helping forces were:

1. Faculty/Friend/Colleague
2. Other
3. Institution’s Workshop(s)
4. Books

Other sources that were listed as helpful in learning to use the Internet in Survey 3 were:

- computer service: free consultants
- their institution’s network handout
- IHETS Workshops
- “...playing around and trying things out.”

Survey 3: Question 11

“What hinders or has hindered your learning to use the Internet more effectively: Mark one with an "X" that has hindered you the most.”

Table 18

Frequency of Hindering Forces to Using the Internet

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>LACK ACCESS- COMPUTER/NETWORK</td>
<td>2</td>
<td>7.1</td>
</tr>
<tr>
<td>LACK TRAINING</td>
<td>4</td>
<td>14.3</td>
</tr>
<tr>
<td>LACK OF TIME</td>
<td>16</td>
<td>57.1</td>
</tr>
<tr>
<td>NO STAFF SUPPORT</td>
<td>1</td>
<td>3.6</td>
</tr>
<tr>
<td>OTHER</td>
<td>5</td>
<td>17.9</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 18 indicates that lack of time was the main hindering factor in learning to use the Internet more effectively. Since these people had access to the Internet, they identified other factors that hindered them.
Participants wrote in next to “other” the following:

- Lack of access to a computer or network. One person said that the community college was too “cheap” to provide access.
- “Not applicable” (2 people)
- “No problems” (1 person)
- “Lack of mail box space/limited access to download on disk” (1 person)
- “College not connected to information highway” (1 person).

Note: No person completing the survey chose any of the following options:

“Feeling uncomfortable about using computers”
“No real need to know Internet for work”
“College does not give staff support”

Therefore, the helping and hindering forces that effect campuses’ use of telecomputing and the accessing of listservs by participants included:

- Helping forces on campus:
  Easy access to Internet provided by institution
  Institution workshops
  Faculty/Friends/Colleagues supporting one another
  Local “gurus” willing to help
  Computer consultants
  Institution’s network handout
  Time to “play around” to figure out the system
  Books and other media resources (videotapes and computer tutorials)

- Hindering forces:
  Lack of time
  Lack of access to the Internet
Lack of training are the major hindrances to participants' using telecomputing.

Until campuses provide more access to the Internet, STARLINK® participants will be prevented from participating in STARLINK® listservs. However, in one case, a participant on TEACHTEK sent a message to the listserv, asking a question for a colleague who did not have an Internet address.

Research Question Ten

Are participants' after teleconference goals for continued learning met by using listservs or is some other support needed?

Survey 3: Question 13

"Were your after teleconference goals for continued learning best met by using the listserv or was some other support needed? Please mark one."

Table 19

Frequency of Continued Learning Best Met by Using A Listserv For Total Answering Survey Three

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Value</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLANK</td>
<td>0</td>
<td>2</td>
<td>7.1</td>
</tr>
<tr>
<td>YES</td>
<td>1</td>
<td>19</td>
<td>67.9</td>
</tr>
<tr>
<td>NO</td>
<td>2</td>
<td>7</td>
<td>25.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>28</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Mean = 1.179, Median=1.000, Mode=1.000

When asked whether their after teleconference goals for continued learning were best met by using the listserv or whether some other supports were needed, Table 19 indicates that 67.9% (19) of all subjects answering
Survey 3 said, "Yes." Sixty-eight percent (17) of the TEACHTEK members said, "Yes." One STARNET and the LEGALIST member also answered yes. People indicated through additional comments that they needed more support for continued learning from the following:

- Computer support services
- "The listserv would have been much more effective if the group had been (more) active on-line. Perhaps this was the wrong time of year for this."
- Colleague discussion groups.
- Books, articles and interactions with colleagues.
- Local sources
- "My campus provided no follow-up. Group discussion/sharing would have been a great response, with the possibility of building shared-interest teams or support groups to promote and sustain dialog about teaching."
- Local guru.

Research Question Eleven

What are participants' preferences for the configuration of a listserv in regards to experts on the list and methods of access.

Survey 3: Question 14

"How necessary do you think it is to have experts for the teleconference on the listserv to answer questions? Please mark one with an 'X'."

Table 20 indicates that 67.9% of the listserv subjects said it was "very necessary" or "quite necessary" to have experts from the teleconferences on the listserv to answer questions. Only one person from all three listservs considered it to be "unnecessary" and 28% indicated it was either "necessary" or "somewhat necessary" to have experts.
Table 20

*Subjects' Determination of Necessity for Experts to be on Listservs*

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Value</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOT NECESSARY</td>
<td>1</td>
<td>1</td>
<td>3.6</td>
</tr>
<tr>
<td>SOMEWHAT NECESSARY</td>
<td>2</td>
<td>6</td>
<td>21.4</td>
</tr>
<tr>
<td>NECESSARY</td>
<td>3</td>
<td>2</td>
<td>7.1</td>
</tr>
<tr>
<td>QUITE NECESSARY</td>
<td>4</td>
<td>11</td>
<td>39.3</td>
</tr>
<tr>
<td>VERY NECESSARY</td>
<td>5</td>
<td>8</td>
<td>28.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>28</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Both the median and the mode for all 28 people was "quite necessary," with the Mean=3.679, Median=4.000, and Mode=4.000.

*Survey 3: Question 16*

Would you prefer to have STARLINK® listservs provided through an Internet newsgroup/conference service instead of via your e-mail box? Please mark one with an "X."

Table 21

*Subjects Preferences for Newsgroup Service Rather Than a Listserv Via E-mail*

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Value</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>1</td>
<td>8</td>
<td>28.6</td>
</tr>
<tr>
<td>NO</td>
<td>2</td>
<td>12</td>
<td>42.9</td>
</tr>
<tr>
<td>DO NOT KNOW</td>
<td>3</td>
<td>8</td>
<td>28.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>28</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Mean=2.000, Median=2.000, Mode=2.000. Table 21 shows that most people (42.9%) said that they preferred the listserv as it was, rather than having the service provided through a newsgroup. Some of the subjects (8)
who completed Survey 3 possibly did not know what a newsgroup/conference service was, and therefore were unable to compare it to a listserv service. One person asked what the difference was. Twelve people preferred the format of the listserv e-mail service as it presently existed and therefore the mean, median and mode were all "no."

Research Question Twelve

Once participants experience a listserv, what percent are interested in signing up for another listserv that supports a teleconference?

Survey 3: Question 15

"Would you sign up again for a listserv if STARLINK® provided this service for follow-up to its teleconferences: Please mark one with an 'X'."

Table 22
Subjects Indication of Whether They Would Sign Up Again for a STARLINK® Listserv

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Value</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>1</td>
<td>26</td>
<td>92.9</td>
</tr>
<tr>
<td>NO</td>
<td>2</td>
<td>2</td>
<td>7.1</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>28</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The Mean was 1.071, Median was 1.000, and Mode was 1.000. Table 22 shows that the majority of people would sign up again for a STARLINK® listserv. Ninety-two percent of TEACHTEK members who answered Survey 3 and the three subjects from the other listservs said that they would sign up again for a listserv if STARLINK® provided the service for follow-up to its teleconferences. One upper division member said they would not sign up again because there were not enough results for the time they invested. It
should be pointed out that STARLINK's services are specifically designed for community college faculty.

The other person who said they would not sign up again said, “Wish I could, but it jams up my mail box.” This situation could be corrected if a newsgroup or gopher site was used. However, as noted in Table 21, when asked if they preferred to have STARLINK® listservs provided through an Internet newsgroup/conference service instead of via their e-mail box, 42.9% said, “No.”

Research Question Thirteen

If a listserv is provided for a series of teleconferences, how many of the teleconferences are seen by the listserv participants.

Survey 3: Question 17

"Please mark an ‘X’ next to all the STARLINK® teleconferences that you have seen (live or on video tape).”

Table 23
Frequency of Subjects Viewing the Five Teleconferences:

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Value</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES, SEEN</td>
<td>1</td>
<td>6</td>
<td>21.4</td>
</tr>
<tr>
<td>NOT SEEN</td>
<td>2</td>
<td>22</td>
<td>78.6</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>28</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Educational Use of Copyrighted Material: Infringement or Fair Use? (Dec. 2, 1993)

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Value</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES, SEEN</td>
<td>1</td>
<td>3</td>
<td>10.7</td>
</tr>
<tr>
<td>NOT SEEN</td>
<td>2</td>
<td>25</td>
<td>89.3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>28</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Table 23 Continued
Frequency of Subjects Viewing the Five Teleconferences:

*I Taught It But They Didn’t Learn It*—Program 1: Getting Beyond the Yes But (Jan. 26, 1994)

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Value</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES, SEEN</td>
<td>1</td>
<td>23</td>
<td>82.1</td>
</tr>
<tr>
<td>NOT SEEN</td>
<td>2</td>
<td>5</td>
<td>17.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>28</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

*I Taught It But They Didn’t Learn It*—Program 2: Sharpening Your Teaching Skills (Feb. 2, 1994)

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Value</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES, SEEN</td>
<td>1</td>
<td>23</td>
<td>82.1</td>
</tr>
<tr>
<td>NOT SEEN</td>
<td>2</td>
<td>5</td>
<td>17.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>28</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

*I Taught It But They Didn’t Learn It*—Program 3: Student Learning Strategies (Feb. 9, 1994)

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Value</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES, SEEN</td>
<td>1</td>
<td>18</td>
<td>64.3</td>
</tr>
<tr>
<td>NOT SEEN</td>
<td>2</td>
<td>10</td>
<td>35.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>28</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

In addition to the information in Table 23, it was found that 92% (23) of those responding from the TEACHTEK listserv indicated they saw the first teleconference in the series, *I Taught It But They Didn’t Learn It*—Getting Beyond the Yes But... (Jan. 26, 1994). 84% (21) saw the second: *I Taught It But They Didn’t Learn It*—Sharpening Your Teaching Skills (Feb. 2, 1994) and 76% (19) saw the last: *I Taught It But They Didn’t Learn It*—Student Learning Strategies (Feb. 9, 1994). One person from the TEACHTEK listserv left this question completely blank. This may have meant they saw none of the teleconferences. One participant (upper division) saw only the first teleconference.
Both participants from STARNET had seen the accompanying teleconference: *The Global Connection: Internet in the Classroom* (Nov. 3, 1993). Four people from TEACHTEK saw that program about the Internet—*The Global Connection*. The two STARNET participants also viewed the next STARLINK® teleconference: *Educational Use of Copyrighted Material—Infringement or Fair Use?* (Dec. 2, 1993), which was also seen by the LEGALIST member (the accompanying teleconference for the LEGALIST listserv). No person from the TEACHTEK listserv who filled out Survey 3 (except for one person who was on multiple listservs) saw the Copyright teleconference. None of the three people from the first two listservs who completed Survey 3 watched the series on teaching.

Earlier in this chapter in Table 4, the total number of people attending the five teleconferences at all sites was given as follows:

Table 4

<table>
<thead>
<tr>
<th>Teleconference</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Internet</td>
<td>394</td>
</tr>
<tr>
<td>2 Copyright</td>
<td>389</td>
</tr>
<tr>
<td>3 Teaching Strategies 1</td>
<td>1592</td>
</tr>
<tr>
<td>4 Teaching Strategies 2</td>
<td>1096</td>
</tr>
<tr>
<td>5 Teaching Strategies 3</td>
<td>777</td>
</tr>
</tbody>
</table>

It should be noted in Table 4 that in the teaching series, the number of people attending declined from the first to the last. For the last in the series, only about half the original number (48.8%) attended. However, the attendance among participants of the listservs who answered Survey 3, was better than those people who only watched the teleconferences. Nineteen out of 25 (76%) of the TEACHTEK subjects answering Survey 3 saw the last in the series. The two participants on STARNET not only saw the teleconference that went with that listserv, but also saw the following teleconference on Copyright. Reminders about upcoming teleconferences were sent out by the
moderator of the three listservs. This, along with the discussions on the listservs may have contributed to better attendance by listserv participants.

It is difficult to determine the effect of the STARLINK® listserv service on the decision to view subsequent teleconferences (on the same subject or different subjects). It can only be reported that in the case of the participants of TEACHTEK, a higher percentage of people who completed Survey 3 saw a greater number of the programs in the series on teaching strategies than did the general population of people who viewed the STARLINK® teaching series.

Research Question Fourteen

How are participants of listservs connected to the Internet?

Survey 3: Question 18

"How are you connected to the Internet? Please mark with an "X" all that apply."

Table 24
Frequency of Subjects Connected to the Internet Via Various Means:

- Via Their Institution's Network

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Value</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>1</td>
<td>24</td>
<td>85.7</td>
</tr>
<tr>
<td>NO</td>
<td>2</td>
<td>4</td>
<td>14.3</td>
</tr>
</tbody>
</table>

Total 28  100.0

- Via a Modem in Their Office Connected to a Commercial Service

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Value</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>1</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>NO</td>
<td>2</td>
<td>28</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Total 28  100.0
Table 24 Continued

Frequency of Subjects Connected to the Internet Via Various Means:

- Via a Modem at Home Connected to Their Institution’s Network

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Value</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>1</td>
<td>6</td>
<td>21.4</td>
</tr>
<tr>
<td>NO</td>
<td>2</td>
<td>22</td>
<td>78.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>28</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

- Via a Modem at Home Connected to a Commercial Service

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Value</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>1</td>
<td>3</td>
<td>10.7</td>
</tr>
<tr>
<td>NO</td>
<td>2</td>
<td>25</td>
<td>89.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>28</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Table 24 indicates that the primary way that participants were connected to the Internet was via their institution’s computer network (85.7 percent). Six people had modems at home that allowed them to access the Internet.

Research Question Fifteen

Is there a significant difference between the responses of male and females to questions regards to listservs?

On the three listservs, there were eleven females and seventeen males. The Pearson $\chi^2$ (chi-square) test at the $p < .05$ level was calculated to determine if there was an association between male or female and their answers to the questions of Survey 3. Only one significant association was found at $p = .026$ level. Six males indicated they had modems at home and none of the females had modems at home. Two-tailed t-tests for independent samples for the male and female answers to questions were also calculated. No significant difference was found in their answers at the $p < .05$ level.
Section Three: Analysis of the Matched Surveys Two and Three and the Response to Research Question Three

Participants were asked for their name, last four digits of their social security numbers, their college name and their e-mail address to insure that duplicate information was not received and to match Survey 2 forms completed by participants with their Survey 3 completed by electronic mail to determine if there was a change in their perceptions. Participants were informed that this personal information would be removed from the reported data and would be kept confidential.

Most participants who completed Survey 2 did not put down an e-mail address and if they did, many times it was incomplete or incorrect. The researcher found this to be the case when she attempted to sent e-mail messages to people who provided their Internet addresses in their Survey 2 forms. Most of the time the messages were returned because of insufficient e-mail addresses.

This lack of knowledge of their correct e-mail address may be an indication that this is still a new medium to the participants of STARLINK®. It was noted in the analysis of Survey 2 Question 2 in Table 5 that while almost half of the faculty surveyed at upper division institutions said they knew how to use electronic mail, but only 25 to 30 percent of community and technical college faculty surveyed were familiar with it.

As noted in the analysis of Survey 2 Question 8, fewer participants actually signed up for the listservs than indicated they would. Table 10 showed that about 25 percent of people from the three institution types planned to subscribe to the TEACHTEK listserv. This would have been about 232 people. Seventy-one people actually signed up for the TEACHTEK listserv (4.5% of the total participants who attended the first teleconference in the series).

The participants' responses to Survey 3 were matched to their Survey 2 response sheets. In Survey 3, twenty-three people said they completed Survey 2, but only 13 subjects' surveys were able to be matched due to incomplete information provided by participants in Survey 2. They were asked for their
name, last four digits of their social security numbers, their college, and their e-mail address.

The McNemar $\chi^2$ (chi-square) test for significance of change or the Wilcoxon matched-pairs signed-ranks two-tailed test was calculated using the results from the matched questions of Survey 2 and Survey 3 to determine if there were changes in thirteen participants' responses after experiencing the STARLINK® listserv service. The tests indicated that there were no significant changes in the thirteen participants' answers to matched questions. Six of the thirteen people were females and seven were males. Ten were from community or technical colleges. Four of these were from community colleges in Texas. The other three people were from universities.

No Significant Changes: Survey 2 Question 4 and Survey 3 Question 10

Part 1 of Survey 2 Question 4 concerning the helpfulness of workshops for learning to use the Internet was compared to that part of Survey 3 Question 10 that asked about the helpfulness of workshops for learning about the Internet. The Wilcoxon match-pairs signed-ranks test found that there was no significant difference in the rankings of participants for workshops at $p = .1056$. The mean for the 13 people for Survey 2 was 3.400 and the mean for Survey 3 for the 13 people was 2.800. But the mean for the whole group of 28 for Survey 3 was 3.367 which again indicates there was not a significant change.

Part 2 of Question 4 of Survey 2 asked subjects to rank how helpful a friend would be for learning to use the Internet. The same question was asked in Survey 3 Question 10. The Wilcoxon matched-pairs signed-ranks two-tailed test indicated that there was not a significant change with $p = 4772$. However, these participants ranked faculty/colleague/friend higher (mean = 3.846) than before in Survey 2 (mean = 3.636). This indicated that they found their faculty/colleague/friend slightly more helpful in learning to use the Internet after experiencing the STARLINK® listserv service. This may have been because they asked and received support from faculty or colleagues about the Internet when they were in the process of signing up and using the
listserv service or even because they received helpful from new friends/coworkers on the listserv.

Sixty-nine point two percent of the 13 people indicated that a faculty/friend was very helpful or quite helpful, while 63.6 percent of the same people had indicated a friend as very helpful or quite helpful for learning to use the Internet earlier in Survey 2. Sixty-seven percent of the 28 people who completed Survey 3 said a faculty/friend was very helpful or quite helpful for learning to use the Internet.

Part 3 of Survey 2 Question 4 asked subjects to rank how helpful a listserv would be for learning to use the Internet. The same question was asked in Survey 3 Question 10. The Wilcoxon matched-pairs signed-ranks two-tailed test indicated that \( p = 0.4631 \) and therefore there was not a significant change. The mean originally was 2.556 (half way between somewhat helpful and helpful) for Survey 2 and was 2.750 after experiencing the listserv service. However, it should be noted that five people (38.5 percent) indicated that the listserv was quite helpful or very helpful for learning about the Internet after experiencing a STARLINK® listserv. When they completed Survey 2, no person indicated that a listserv would be very helpful and only one person said they thought a listserv would be quite helpful for learning about the Internet. For the whole group of 28 people who answered Survey 3, Question 10 about the listserv the mean was even higher at 2.846.

The thirteen subjects also did not significantly change their rankings of the helpfulness of the following (Parts 4, 5, 6) for learning to use the Internet as calculated by the Wilcoxon matched-pairs signed-ranks test: computer tutorials \( (p = 0.1797) \), teleconferences \( (p = 0.4652) \), and video tape \( (p = 0.1797) \). There were not enough cases to compare the rankings of the category of "other" for Survey 2 Question 4 and Survey 3 Question 10.

Part 7 of Question 4 of Survey 2 asked subjects to rank how helpful books would be for learning to use the Internet. The same question was asked in Survey 3 Question 10. The Wilcoxon matched-pairs signed-ranks test indicated there was not a significant change in the participants' perception of how helpful books are for learning about the Internet at a level of \( p = 0.7150 \). The original mean for this question on Survey 2 for the 13 people who also
answered Survey 3 was 3.300 (helpful). After experiencing the listserv the mean was 3.625. For all 28 people answering Survey 3 for this question, the mean was even higher at 3.765 (closer to quite helpful than to helpful). The participants valued books more for learning about the Internet after experiencing the listserv service. This may have been because they started to consult Internet books after they were on the listserv service.

**No Significant Changes: Survey 2 Question 6 and Survey 3 Question 11**

Answers to Survey 2 Question 6: “What prevents you from using Internet resources and listservs?” (Possible answers: no access, no training, no time, uncomfortable, don’t need to know, no support, other?) were compared to answers to Survey 3 Question 11: “What hinders or has hindered your learning to use the Internet more effectively?” (Possible answers: Lack of access to computer or network, lack of training, lack of time, feeling uncomfortable about using computers, no real need to know Internet for work, college does not give staff support, other?). The McNemar Two-Tailed Test found that there was no significant difference in the answers of the 13 matched subjects with $p = 1.0000$. Additionally, each individual part of the two questions were matched and compared to determine if there was a significant change using the McNemar. In each case, no significant change was found. On both Survey 2 and 3 participants chose “lack of time” more than any other choice as being their main hindrance to learning to use the Internet more effectively.

**No Significant Changes: Survey 2 Question 7 and Survey 3 Question 2**

Answers to Survey 2 Question 7: “How helpful do you think it would be for you to access the STARLINK® listserv via e-mail to interact with other participants and experts after this teleconference? This listserv will be operating for at least three weeks after the teleconference. Depending upon interest, it may be extended beyond that time.” (Scale of 1-5 Not Helpful to Extremely Helpful) were compared to answers to Survey 3 Question 2: “Was the listserv helpful to you as a follow-up activity for the teleconference?”
The Wilcoxon matched-pairs signed-ranks test was calculated with $p = .7532$. Therefore there was no significant difference in participants' ranks before and after experiencing the listserv.

Table 25

Comparison of 13 Subjects' Answers to Survey 2 Question 7 and Survey 3 Question 2 Concerning Listserv Helpfulness

Survey 2: Question 7

<table>
<thead>
<tr>
<th>Value Label</th>
<th>Value</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOT HELPFUL</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>MODERATELY HELPFUL</td>
<td>3</td>
<td>6</td>
<td>46.2</td>
</tr>
<tr>
<td>HELP QUITE A BIT</td>
<td>4</td>
<td>5</td>
<td>38.5</td>
</tr>
<tr>
<td>EXTREMELY HELPFUL</td>
<td>5</td>
<td>1</td>
<td>7.7</td>
</tr>
<tr>
<td>BLANK</td>
<td>0</td>
<td>1</td>
<td>7.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>13</td>
<td><strong>100.0</strong></td>
<td></td>
</tr>
</tbody>
</table>

Mean 3.583

Survey 3: Question 2

<table>
<thead>
<tr>
<th>Value Label</th>
<th>Value</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOT HELPFUL</td>
<td>1</td>
<td>1</td>
<td>7.7</td>
</tr>
<tr>
<td>MODERATELY HELPFUL</td>
<td>3</td>
<td>6</td>
<td>46.2</td>
</tr>
<tr>
<td>HELPED QUITE A BIT</td>
<td>4</td>
<td>4</td>
<td>30.8</td>
</tr>
<tr>
<td>EXTREMELY HELPFUL</td>
<td>5</td>
<td>2</td>
<td>15.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>13</td>
<td><strong>100.0</strong></td>
<td></td>
</tr>
</tbody>
</table>

Mean 3.462

It appears that the people who signed up for the listserv thought before experiencing it that the listserv would be helpful and therefore were the ones who subscribed to the service. Table 25 indicates that in Survey 2, one person thought the listserv would be extremely helpful, five indicated it would help quite a bit and six people said moderately helpful. The mean was 3.583 (closer to very helpful or helped quite a bit than moderately helpful).

After experiencing the listserv, the 13 matched subjects had a mean of 3.462 with two people indicating the listserv was extremely helpful, four
people saying it helped quite a bit, six said it was moderately helpful, and one person said it was not helpful. Their mean on Survey 3 was 3.462.

The reason the mean went down was because one person said the listserv was not helpful after experiencing the listserv service. The answer was qualified by saying that, "There has been too short a time since the STARLINK® teleconference series for meaningful evaluation. Activity on this listserv has been fairly slow." Later this person indicated that he may have not received all of the messages from the listserv. Additionally, this was a professor from an institution that only awards degrees beyond the associate level. The TEACHTEK listserv was designed primarily to serve community college professors.

In Survey 3, one additional person chose extremely helpful, while in Survey 2 only one person had chosen extremely helpful. For the most part, people seemed to have received from the listserv service what they expected to receive, and therefore there was not a significant change in their opinion of the helpfulness of the service. It should also be noted that in Survey 3, Question 15, when asked if they would sign up again for a listserv if STARLINK® provided the service for follow-up to teleconferences, 92.9% of the 28 people answering Survey 3 said they would sign up again.

No Significant Changes: Survey 2 Question 9 and Survey 3 Question 2

Answers to Survey 2 Question 9: “Were the follow-up activities after this teleconference helpful to you?” (Yes/No) were compared to answers to Survey 3 Question 2: “Was this listserv helpful to you as a follow-up activity for the teleconference?” Question 2 was recoded to a binomial, Yes/No, with the “Not helpful” choice coded as “No,” and all other answers coded as, “Yes.” The McNemar two-tailed test indicated that $p = 1.0000$ at the .05 level. Therefore there was no significant change in the 13 participants’ answers.

No Significant Changes: Survey 2 Question 9 and Survey 3 Question 4

Answers to Survey 2 Question 9: “Were the follow-up activities after this teleconference helpful to you?” (Yes/No) were compared to answers to
Survey 3 Question 4: "Did accessing this listserv, after viewing the STARLINK® teleconference, satisfy your needs more than just viewing the teleconference only would have?" ("Yes, the teleconference and the listserv satisfied my needs," or "No, the teleconference alone was sufficient," or "No, the teleconference and the listserv did not meet my needs."). The answers to Survey 3 Question 4 were recoded to calculate the McNemar test so that both "No" answers were given the same code. The two-tailed test indicated $p = 1.0000$ at the .05 level. Therefore, there was no significant change.

These questions from Survey 2 and 3 were phrased differently and may not have been as equivalent as they should have been in order to effectively compare them. However, each question was also asked to elicit frequency data as discussed earlier in this chapter.

*No Significant Difference: Survey 2 Question 9 and Survey 3 Question 13*

Answers to Survey 2 Question 9 "Were the follow-up activities after this teleconference helpful to you?" (Yes/No) were also compared to the answers in Survey 3 Question 13: "Were your after teleconference goals for continued learning best met by using the STARLINK® listserv or was some other support needed?" (Yes/No). The McNemar Test at the .05 level resulted in $p = 1.0000$. Therefore there was no significant difference in their answers. Participants who answered Survey 3 were given a blank line to add comments if their answers to Question 13 if they answered no. This was discussed in the section on the analysis of Survey 3.

*No Significant Changes: Survey 3 Question 2 and Survey 3 Question 13*

The two-tailed McNemar test was calculated comparing two questions that were both on Survey 3. Survey 3 Question 2: "Was the listserv helpful to you as a follow-up activity for the teleconference?" was compared to Survey 3 Question 13: "Were your after teleconference goals for continued learning best met by using the STARLINK® listserv or was some other support needed?" This calculation was done to determine if there were
significant differences in the participants' answers to these two similar questions about the helpfulness of the STARLINK® listserv on the same survey instrument. Question 2 was recoded as a binomial (yes/no) so that the calculations could be done. The $p = .6875$ indicated there was no significant difference in the way the participants answered these two questions on the same survey.

*Research Question Three*

What changes occur in participants' helpfulness ratings of follow-up activities, if the follow-up activity is a listserv?

The McNemar test for significance of change was calculated using the results from Question 9 of Survey 2 and Question 2 of Survey 3 to determine if there was a change in the perceived helpfulness of follow-up activities when a listserv was provided. Question 9 of Survey 2 asked, "Were the follow-up activities after this teleconference helpful to you?" Question 2 of Survey 3 asked, "Was the listserv helpful to you as a follow-up activity for the teleconference?" with a Likert scale for answering. With the two-tailed test, the $p = 1.0000$. Therefore there was no significant change in the helpfulness rating of the follow-up activities when the follow-up was a listserv.

In analyzing the frequency data, it was found that among the 13 people whose two surveys were matched, five people answered "yes" in Survey 2 to Question 9, eight people left it blank and no people said "no." Therefore the mean was 1.000 - "yes."

In Survey 3 Question 2 was recoded to a binomial in which "not helpful" was coded as "no." Two of the thirteen people indicated "no" and the other eleven chose some form of positive helpfulness. Therefore the mean was also 1.000 or "yes," so there was no significant change between the matched surveys. Because there were so few people answering Question 9 in Survey 2 and so many people left this question blank (indicating possibly that they did not attend a follow-up activity or possibly that there was no one offered), it is difficult to effectively analyze this data.
Section Four: Analysis of the Listserv Communications

Two types of documents were collected as electronic files to provide additional data to examine in this research (Sproull, p. 160). The first set of documents was the lists of subscribers to the listserv service that were obtained by periodically sending specific request messages to the mail server (MAISER) on the computer in the Department of Technology and Cognition, at the College Education at the University of North Texas. These were separate documents categorized according to the three individual listservs for the pilot studies and the main study.

The second set of documents was the e-mail traffic generated by the listservs. These were saved by the moderator/researcher on a remote computer. The documents were grouped according to the listservs from which they were generated.

Analysis of the MAISER Documents For the Listservs

It should be noted, that subscribers could sign on or sign off from the listserv service at any time by sending subscribe or unsubscribe messages to the mail server (MAISER) at the University of North Texas. The listservs were established within the Mercury software on the computer so that they were available for subscription on the day of the STARLINK® teleconferences.

Table 26 presents the highest number of people recorded as subscribed to the three listservs at any one time. For the most part, with the exception of a couple of people, most people on all the listservs maintained their subscription until the research was completed. However, there was actually a greater total number of people subscribed over time than the numbers in Table 26 indicate, because people subscribed and unsubscribed voluntarily over the length of the research.

The MAISER (mailserver) at North Texas did not keep a compiled list of subscribers, but only added or deleted e-mail addresses to each list. However, the researcher made periodic checks of who and how many were subscribed. For the most part, the listservs were mainly subscribed to by participants
within a week of the corresponding teleconference. There were only a few participants who unsubscribed before the end of the research study. E-mail comments sent to either the listservs or directly to the moderator, indicated that unsubscribing occurred mainly because the listserv did not fulfill their needs, or they did not have enough time to read and participate and/or they no longer wanted their e-mail box filled with the messages.

Table 26
Greatest Number of Subscribers on Listservs at a Single Time With the Number of Subjects, Moderators, Observers, Experts from Panels, and Directors of STARLINK®

<table>
<thead>
<tr>
<th>Listserv</th>
<th>Date</th>
<th>Total</th>
<th>#Sub</th>
<th>#Mod</th>
<th>#Obser</th>
<th># Ex</th>
<th>#Dir</th>
</tr>
</thead>
<tbody>
<tr>
<td>STARNET</td>
<td>2/18/94</td>
<td>40</td>
<td>34</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>LEGALIST</td>
<td>1/18/94</td>
<td>14</td>
<td>10</td>
<td>1</td>
<td>1</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>TEACHTEK</td>
<td>3/15/94</td>
<td>60</td>
<td>54</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Key:
Total = Total number of people subscribed to listserv at one point in time
# Sub = Number of Listserv Subscribers
# Mod = Number of Moderators
# Obser = Number of People Observing Listserv Only
# Ex = Number of Experts Participating on the Listserv
# Dir = Number of Directors of STARLINK®

The STARNET listserv was provided as follow-up to the STARLINK® teleconference *The Global Connection: Internet in the Classroom*. As indicated in the analysis of Survey 2 earlier in this chapter, the people for this teleconference had more experience with computers and e-mail. However, from the information given by participants of the STARNET Survey 2, it was found that thirty-six people who provided their e-mail addresses in this survey did not subscribe to the listserv. Thirty of these people were from Texas and six were from out of state. Sixteen of the people from the Texas community colleges said they would sign up but did not and nine said they would not sign up and did not. Five people with e-mail addresses gave no
answer to the subscription question. Twenty-one people from Texas community colleges were interested in the list, but gave no e-mail address and did not sign onto listserv. Therefore, even though people had access to e-mail, they did not necessarily subscribe to the listserv as a follow-up activity.

The moderator/researcher did receive some of the completed Survey 2 questionnaires for all of the STARLINK® teleconferences studied early enough to send out e-mail messages to those who filled in their e-mail addresses to invite them to subscribe to the STARLINK® listserv service if they had not already done so. Unfortunately, many of the e-mail addresses were incomplete or incorrect. Consequently, the e-mailed invitations only produced a few more subscribers. In a few cases, if the e-mail domain was recognized by the researcher as matching that of one of the participants on the listserv, that person's help was requested in helping their colleague on the same campus subscribe to the listserv.

Table 26 indicates that STARNET had a total of 40 subscribers for one point in time with two experts from the panel of The Global Connection teleconference subscribed to the listserv. Additionally, four people on the STARNET listserv were connected to the research project: two professors, one technical support person, and the researcher/moderator. With the exception of the researcher/moderator, the other three people did not participate in the communications of the listserv but only read the messages. Another person was on the listserv who was involved in planning and production of the STARLINK® teleconference.

The LEGALIST listserv with 14 subscribers at one point in time, had one expert from the panel of the copyright teleconference. The day immediately after the teleconference, six people were on the listserv. Two people who were signed onto the STARNET listserv also subscribed to LEGALIST. This may have been because the copyright teleconference was announced by the moderator via STARNET with information about subscribing to the new listserv. These people both saw the copyright teleconference and the teleconference about the Internet as indicated in their Survey 3 answers.

One of the people on both listservs unsubscribed to LEGALIST before the January date below. By March 15, 1994, two additional people had subscribed, but two had unsubscribed, so the number of people was again fourteen, as of
the January date. The Dallas director of STARLINK®, one professor overseeing the research, and the moderator/researcher were also on the LEGALIST listserv.

The listing of the people on the main study TEACHTEK listserv was requested and received by the researcher from the MAISER mail server on February 1, 5, 7, 9, 10, 15, 17, 18, 25, and March 15, 1994. TEACHTEK had the most subscribers of all the listservs with sixty members signed at a single point in time. The total number of people identified as subscribed at some time in the Spring of 1994 to TEACHTEK was 77. These included 71 participants plus two panel experts, one moderator/researcher, one director of STARLINK®, one STARLINK® department assistant and two others connected to the research study.

The increase in the total number of participants can be attributed to several influences: (1) the total number of people who saw the teleconference about teaching techniques was substantially greater than for the two earlier teleconferences because of broader advertising via PBS, (2) the teleconference for TEACHTEK was a series of three programs over a period of three weeks which may have provided more incentive to subscribe and more opportunity to see the subscribe information, (3) a few of the people who subscribed to TEACHTEK had heard about it from being on one of the other two listservs, (4) some participants subscribed after being told about the listserv by a colleague, and (5) the content of teleconference and TEACHTEK were designed to support a major part of a professor's job—teaching, which had a broader appeal.

It is difficult to determine the effect of the STARLINK® pilot listserv service on people's subscribing to subsequent listservs. Only three people were on multiple listservs (beyond those directly involved in the study). Of the three people, only one was on all three lists. The researcher sent e-mail messages to the three people that had signed onto multiple lists in order to ask them to only fill out one survey that was sent out to all three listservs.

It is difficult to determine why people subscribed to the listserv at the time that they did. For example, people may have subscribed only after seeing the listserv service notice more than once via the teleconference or from
seeing the information in the handouts more than once. In general, most of the subscriptions were in the first two weeks after the teleconferences.

After the third teleconference in the STARLINK® teaching series, a new person subscribed to all three listservs which woke up the other two listservs (STARNET and LEGALIST) that had not been active for more than a month. The triple subscription was not surprising, given that fact that the welcome message to TEACHTEK gave information about subscribing to the two other listservs (see Appendix 7). This new participant unsubscribed from the first two listservs when she found there was not going to be much activity on them.

There were at least two known people who signed onto the listserv service who had not see the corresponding teleconference. They apparently heard about the listservs from other colleagues who were on the listserv or from gaining access to the teleconference handouts which included subscribe information.

It should also be noted that two days before the first in the series of STARLINK® teleconferences on teaching strategies, the server that was to handle the messages for TEACHTEK was down with a virus. This shut down operations for two days, but it was operating the day of the first teleconference.

Additionally, there was a glitch in the TEACHTEK file that established the listserv within the Mercury software that caused problems with participants’ signing onto the TEACHTEK listserv the first day. Everyone was able to subscribe to the listserv and was receiving the welcome message, but it appeared that the list of names was not being developed by the computer. In fact, the list of names was held in a separate file but a typographical error—one extra character, prevented the computer from sending out the messages it was receiving to the people on the list. One of the subscribers to one of the pilot listservs who also subscribed to TEACHTEK from Amarillo College, assisted in troubleshooting the problem by sending back messages that he received.

The problem was corrected quickly and the system operated well. These problems with the computer caused some confusion among people who were signing up early including those who: (1) knew about the listserv service
after participating in one of the pilot STARLINK® listservs, (2) had seen the handout notices before the teleconference was broadcast, or (3) had received one of the notices from the moderator about the STARLINK® teaching series and the TEACHTEK listserv. In a multi-modal distance learning project, the proper functioning of the technology systems are extremely important.

Analysis of the E-mail Documents From the Listservs

The computer server at the University of North Texas did not store the messages sent to the listserv but simply processed them and sent them to each e-mail address on the specified list. The messages were saved remotely by the researcher on a separate computer.

A limited analysis of these documents is given below. The analysis of the actual messages was not a main objective of this study. Other researchers, referred to in the Literature Review in Chapter II, have examined this aspect of computer mediated communications in depth.

Of the 77 people who were subscribed to TEACHTEK at some time, 48 (62.3%) people actively participated in the listservs (as opposed to the 29 “lurkers” [37.6%] who observed the listserv and possibly read the e-mail, but did not send in e-mail). There were 22 people (31%) among the 71 subscribers who sent three or more e-mail messages to the listserv. Of those, 11 subscribers (15.5% of the 71) sent five or more messages to the listserv, which represented 56% of the total messages sent by STARLINK® participants (not experts' messages or moderator's messages). Nine people who answered Survey 3 either sent no messages or sent only one message to the listserv.

Lurkers may have also subscribed and/or unsubscribed to the listserv that were not documented in MAISER documents that were received in February and March. For example, from accessing the MAISER mail server, it was found that there were no new subscriptions between February 17 and February 18, 1994, but there were two unsubscriptions. The activity of subscribing and unsubscribing was very easy to accomplish and could have occurred during a time when the TEACHTEK list was not being checked by the researcher.
E-mail messages were coded according to the type of message and the sender:

- Requests for information/or giving information (RI/GI)
- Subject of teleconference/or off the subject of the teleconference (ST/OS).
- Male/female (M/F).

The e-mail traffic started immediately following the first teleconference on January 26, 1994. The week of February 14 (the week after the final teleconference) the listserv traffic was quite active. Survey 3 was sent out March 1 and by March 25 the e-mail traffic on the TEACHTEK listserv decreased to almost nothing. However, as late as May 11, 1994, a person sent an e-mail to TEACHTEK requesting information from the listserv.

**Table 27**

**TEACHTEK Participants' Gender, Message Type, Number of E-mail Messages, and Those Completing Survey 3**

<table>
<thead>
<tr>
<th>#Gender</th>
<th>Message Type and Number of Messages</th>
<th>Totals</th>
<th>Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. F</td>
<td>GI ST (1)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2. M</td>
<td>RI ST (1) GI OS (1) RI OS (3)</td>
<td>5</td>
<td>S3</td>
</tr>
<tr>
<td>3. M</td>
<td>GI OS (1)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4. F</td>
<td>RI ST (1)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5. M</td>
<td>GI ST (2) RI ST (2)</td>
<td>4</td>
<td>S3</td>
</tr>
<tr>
<td>6. F</td>
<td>none</td>
<td>0</td>
<td>S3</td>
</tr>
<tr>
<td>7. M(E)</td>
<td>GI ST (12) GI OS (1)</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>8. F</td>
<td>GI OS (2) RI OS (1)</td>
<td>3</td>
<td>S3</td>
</tr>
<tr>
<td>9. M</td>
<td>GI ST (5) RI ST (2) RI/GI ST (3)</td>
<td>10</td>
<td>S3</td>
</tr>
<tr>
<td>10. M</td>
<td>GI ST (11) RI/GI ST (2) GI OS (1)</td>
<td>14</td>
<td>S3</td>
</tr>
<tr>
<td>11. M</td>
<td>RI/GI ST (1)</td>
<td>1</td>
<td>S3</td>
</tr>
<tr>
<td>12. F</td>
<td>GI ST (6) RI ST (4) GI OS (1) RI OS (1)</td>
<td>12</td>
<td>S3</td>
</tr>
<tr>
<td>13. M</td>
<td>GI ST (1)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>14. F</td>
<td>GI ST (1) RI/GI ST (1)</td>
<td>2</td>
<td>S3</td>
</tr>
<tr>
<td>15. F(E)</td>
<td>GI ST (7) RI ST (1) GI OS (5)</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>16. M</td>
<td>GI ST (7) RI ST (1) RI/GI ST (1) GI OS (2) RI OS (1)</td>
<td>12</td>
<td>S3</td>
</tr>
<tr>
<td>17. M</td>
<td>RI/GI ST (2)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>18. M</td>
<td>RI OS (2)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>19. M</td>
<td>GI ST (1)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>20. M</td>
<td>RI/GI ST (2)</td>
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<td>S3</td>
</tr>
<tr>
<td>21. M</td>
<td>GI OS (1)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>22. M</td>
<td>RI/GI ST (2) GI OS (2) RI OS (1)</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>23. —</td>
<td>RI OS (1)</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
Table 27 Continued
TEACHTEK Participants’ Gender, Message Type, Number of E-mail Messages and Those Completing Survey 3

<table>
<thead>
<tr>
<th>#Gender</th>
<th>Message Type and Number of Messages</th>
<th>Totals</th>
<th>Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>24. F</td>
<td>GI ST(2)</td>
<td>2</td>
<td>S3</td>
</tr>
<tr>
<td>25. M</td>
<td>GI ST (1) RI ST(1) RI /GI ST (4)</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>26. M</td>
<td></td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>27. M</td>
<td>GI ST (3) RI OS (1) RI /GI ST (4)</td>
<td>5</td>
<td>S3</td>
</tr>
<tr>
<td>28. M</td>
<td>GI ST (2) RI /GI ST (1)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>29. M</td>
<td>GI ST (4) RI OS(1)</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>30. MD</td>
<td>GI ST (5) RI ST (1) GI OS (1)</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>31. M</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>32. M</td>
<td>RI /GI ST (1) GI OS (1)</td>
<td>1</td>
<td>S3</td>
</tr>
<tr>
<td>33. F</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>34. F</td>
<td>RI OS (4)</td>
<td>4</td>
<td>S3</td>
</tr>
<tr>
<td>35. F</td>
<td></td>
<td>0</td>
<td>S3</td>
</tr>
<tr>
<td>36. M</td>
<td>GI ST (3) RI ST (1)</td>
<td>4</td>
<td>S3</td>
</tr>
<tr>
<td>37. F</td>
<td>GI ST (1)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>38. M</td>
<td>GI ST (1)</td>
<td>1</td>
<td>S3</td>
</tr>
<tr>
<td>39. M</td>
<td>GI ST (1)</td>
<td>1</td>
<td>S3</td>
</tr>
<tr>
<td>40. M</td>
<td>GI ST &amp; OS(1) GI OS (2)</td>
<td>3</td>
<td>S3</td>
</tr>
<tr>
<td>41. M</td>
<td>GI ST (3)</td>
<td>3</td>
<td>S3</td>
</tr>
<tr>
<td>42. M</td>
<td>GI ST(2) RI ST (2) RI / GI ST (1)</td>
<td>5</td>
<td>S3</td>
</tr>
<tr>
<td>43. M</td>
<td>RI ST(4)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>44. M</td>
<td>none</td>
<td>0</td>
<td>S3</td>
</tr>
<tr>
<td>45. M</td>
<td>none</td>
<td>0</td>
<td>S3</td>
</tr>
<tr>
<td>46. M</td>
<td>GI ST (1) RI OS (1)</td>
<td>2</td>
<td>S3</td>
</tr>
<tr>
<td>47. F</td>
<td>none</td>
<td>0</td>
<td>S3</td>
</tr>
<tr>
<td>48. F</td>
<td>GI ST (1)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>49. M</td>
<td>GI OS (1)</td>
<td>1</td>
<td>S3</td>
</tr>
<tr>
<td>50. F</td>
<td>GI ST (2) RI /GI ST(1) GI OS (1)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>51. —</td>
<td>RI OS (1)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>52. F</td>
<td>RI ST (2)</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Totals:
<table>
<thead>
<tr>
<th>F/M</th>
<th>GI ST</th>
<th>RI ST</th>
<th>RI /GI ST</th>
<th>GI OS</th>
<th>RI OS</th>
<th>RI /GI OS</th>
<th>Total Surveys</th>
</tr>
</thead>
<tbody>
<tr>
<td>17/32</td>
<td>(88)</td>
<td>(23)</td>
<td>(22)</td>
<td>(24)</td>
<td>(18)</td>
<td>(5)</td>
<td>(180)</td>
</tr>
</tbody>
</table>

Key for Table 27:
# = Subject Number
F/M = Female/Male
E = Expert from Teleconference Panel
D = Director of STARLINK®
GI ST = Gave Information on Subject of Teleconference
GI ST & OS = Gave Information on & off Subject of Teleconference
RI ST = Requested Information on Subject of Teleconference
RI /GI ST = Requested & Gave Information on Subject of Teleconference
GI OS = Gave Information off Subject of Teleconference
RI OS = Requested Information off Subject of Teleconference
RI /GI OS = Requested & Gave Information off Subject of Teleconference
S3 = Completed Survey 3
None = No E-mail Messages Were Posted to TEACHTEK
— = Gender of Subject Not Known - (Note: Three subjects unknown gender)
Some samples of the e-mail traffic of Table 27 are contained in Appendix 11. The names were deleted to maintain anonymity.

All participants of TEACHTEK who completed Survey 3 were included in Table 27, even though four of the subjects did not send any e-mail messages to the listserv. The data for one person who was on both TEACHTEK and STARNET is also noted in the Table 27. However, only his TEACHTEK e-mail messages were itemized. Twenty-five additional subjects were on the listserv but did not send e-mail traffic and therefore they are not represented in Table 27.

One expert from the Teaching Strategies series went into emergency surgery immediately following a teleconference. Her daughter sent messages to the moderator of the listserv, who in turn forwarded the messages to the listserv. This expert, despite extreme pain contributed a great deal of information to the listserv either by way of forwarded e-mail or by mail sent directly to the listserv.

Table 27 indicates, for the most part, the messages of the TEACHTEK listserv stayed within the topics of the teleconference series on improving teaching and the development of new teaching strategies that it was designed to support. One hundred and thirty-three messages out of 180 were on the subject of the teleconference, either requesting and/or giving information. The 47 e-mail messages that did not deal with the specific subject of teaching and improving teaching strategies constituted a minor part of the e-mail traffic. Most of these messages, particularly when people were first subscribing included: (1) self introductions by the new members (requested in the welcome message), (2) the logistics of subscribing or unsubscribing to the listserv, (3) questions and explanations of how the computer listserv system worked or where it was located, and (4) others of various content. Some of the participants commented about the quality and value of the teleconferences themselves.

In Survey 3 Question 8, participants were asked, "Did the content of the listserv provide learning resources that extended beyond the original content of the teleconference?" Only two out of the 28 people said, "No." Out of the 13 TEACHTEK people who answered both Survey 2 and 3 only one person said, "No." Therefore, the perception was that they were learning beyond the
original content of the teleconference but the subject of their e-mail messages stayed, for the most part, as determined by the researcher, within the topic of improving teaching.

In addition to the messages listed in Table 27, there was personal e-mail traffic that was sent to the moderator from individuals on the listserv. If it was deemed appropriate, some of this e-mail was forwarded by the moderator to the whole TEACHTEK listserv or they were answered individually and are not included in the e-mail traffic of Table 27.

Among the 77 TEACHTEK subscribers, 34 were identified as males and 18 as females. The others could not be identified because: (a) they did not send an introductory statement that indicated gender, or (b) did not send a message to the listserv with a header with their full name, or (c) did not complete Survey 3 which indicated gender.

Originally, it was proposed in this research to categorize participants of the listserv as experts or novices relative to their knowledge of the Internet as indicated by their e-mail messages, particularly their introductory statements. However, this was not easy to determine from the e-mail of the TEACHTEK participants. However, this was more easily discernible in analyzing the e-mail from the STARNET listserv discussion, which supported the Internet teleconference. STARNET participants had a tendency to indicate their status as experts or novices in their self introduction messages to the listserv. People on TEACHTEK in their self-introductions did not mention their knowledge of the Internet to any great extent.

Expert and novice status was more easily determined from the answers participants gave to Survey 2 Question 3. In Table 28, the thirteen TEACHTEK people who completed Survey 2 and 3 produced the following frequencies in their answers. The mean for this group of thirteen people was 1.769. This indicated that they needed little training on how to connect to and use Internet e-mail.

When the answers to Survey 2 Question 3 of the 13 TEACHTEK participants are compared to the answers of all the participants who answered Survey 2 (see Table 6 below), it found that the need for training by the 13 people on the TEACHTEK listserv was substantially less than the whole population of people answering Survey 2. This makes sense because these
thirteen are people who had sufficient knowledge to be able to subscribe to the listserv. However, being able to use e-mail would not necessarily indicate that people were experts in using the Internet.

Table 28
Perceived Level of Internet Training Needed by Thirteen People Who Answered Survey 2 and Survey 3 as Indicated in Survey 2 Question 3

<table>
<thead>
<tr>
<th>Value Label</th>
<th>Value</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIMITED TRAINING</td>
<td>1</td>
<td>8</td>
<td>61.5</td>
</tr>
<tr>
<td>SOME TRAINING</td>
<td>2</td>
<td>1</td>
<td>7.7</td>
</tr>
<tr>
<td>MODERATE TRAINING</td>
<td>3</td>
<td>3</td>
<td>23.1</td>
</tr>
<tr>
<td>MUCH TRAINING</td>
<td>4</td>
<td>1</td>
<td>7.7</td>
</tr>
<tr>
<td>EXTENSIVE TRAINING</td>
<td>5</td>
<td>0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Total 13 100.0

Table 6
Extent of Training Needed by Participants to Connect to and Use Internet Electronic Mail

<table>
<thead>
<tr>
<th>Institutions Type:</th>
<th>#Participants</th>
<th>Extensive - Much</th>
<th>Limited - Some</th>
<th>Blank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Texas Comm./Tech. Colleges</td>
<td>252</td>
<td>50.0%</td>
<td>25.8%</td>
<td>2.8%</td>
</tr>
<tr>
<td>Comm. Colleges - Outside TX</td>
<td>278</td>
<td>38.8%</td>
<td>32.0%</td>
<td>1.4%</td>
</tr>
<tr>
<td>U.S. Upper Division &amp; Others</td>
<td>94</td>
<td>33.0%</td>
<td>41.5%</td>
<td>1.1%</td>
</tr>
</tbody>
</table>

After the Survey 3 was e-mailed, participants started to unsubscribe to the listserv. Some of them sent e-mail messages to the whole listserv to unsubscribe. The moderator at that point sent e-mail messages to them about
unsubscribing and asked that they answer the Survey 3 if they had not done so already. Some of this unsubscribing activity occurred the third and fourth week of March, which was three weeks after the survey had been sent out and six weeks after the final STARLINK® teleconference on teaching strategies. By April 13, one person on TEACHTEK sent an e-mail message directly to the moderator to inquire if the TEACHTEK listserv was still operating, because the messages had stopped coming. However as late as May 10 one person indicated an interest in subscribing to TEACHTEK. This was still possible to do as the software was still on the computer at the University of North Texas.

Section Five: Thematic Listing of Participants’ Comments about the STARLINK® Listserv Service

Additional information was received from participants of the listserv service from either comments added to their Survey 3 forms or from e-mail messages sent to the researcher. The following are either summations of information from those messages or direct quotes from listserv participants’ comments acquired from these two sources and organized according to theme:

Inspiration to Start Other Listservs

- One of the community colleges who had members on TEACHTEK is establishing their own listserv, "...to connect up people on their campus to discuss cooperative learning among the teachers because TEACHTEK stimulated their interest and they took off."

- "I observed...that TeachTek served as a motivation for several of our faculty to become familiar with ListServs. I think your facilitation was critical. We are starting a NewsGroup on campus for faculty interested in cooperative learning (one of the subjects of the STARLINK® teleconference and the TEACHTEK Listserv) to exchange ideas and concerns in a way that circumvents time constraints. Thought you might find this of interest."
One person from Texas who was on STARNET and TEACHTEK also started a new listserv himself and became the moderator. The listserv is resident in the Department of Classical Studies at the University of Pennsylvania. He said, "I appreciate (the listserv moderator's) efforts and help. I learned a great deal about asking folks for their time and resources."

As of November 1994, the Dallas Director of STARLINK® planned to start a listserv service resident on the Dallas County Community College District computer system.

Moderation of the Listserv Service

"In reply to your thanks for the survey input, you are welcome. This listserv has opened my eyes to the possibilities of communication on the Internet. Your moderation and urging has elicited the participants to provide the useful sharing that in my experience with unmoderated listservs seldom happens. Yet the freedom of communication of an unmoderated listserv where everyone can share with everyone else simultaneously still exists."

"Thanks for all your work. I know I have profited from the programs and more important I hope my students will also."

"...(the moderator) worked really hard at stimulating discussion on 'teachtek,' where I suspect most of the subscribers were first time network list users. I do think it is a good way for viewers to interact after presentations."

"I hope that the network can grow to the point that you don't have to be a "cheerleader" (unless you wish that role) in generating response on the network."
Listserv Participants Seeking Supporting Resources

- One person "borrowed" a workstation to be able to participate on the listserv.

- "I liked being able to ask questions for other faculty who were not Internet users."

- Participants from the listserv also sent personal messages to the researcher/moderator asking additional information, for example, information about Internet resources, information about STARLINK® video tapes, information about how to complete Survey 3 using e-mail and information about unsubscribing.

- "Thanks for all your work and the programs that have changed my approach this semester. I have obtained several of the books related to the programs and have found them worthwhile reading."

STARLINK® Teleconferences

- "Hope you'll continue to address needs of four-year as well as 2-year institutions. We need these kinds of resources to expose our faculty to experts we can't afford to bring in person."

- "I am using the Weinstein lecture on Learning How to Learn as a platform to change our thinking about counseling of students who need learning skills help to survive in a (community) college environment. I am using Weinstein's lecture to generate discussion about learning skills assessment and how we can better teach students learning strategies."

- "I am happy with the teleconference, the idea of using Internet to exchange ideas, and the Internet itself. My only problem was with the level/quality of the exchange during Teachtek. Substantial issues were
not raised, or if they were, were discussed rather superficially.” (Note: Only one person, from an upper division institution made a comment like this.)
CHAPTER V

SUMMARY, DISCUSSION, CONCLUSIONS, IMPLICATIONS,
AND RECOMMENDATIONS FOR FUTURE STUDY

Summary

This STARLINK® telecommunications research dealt specifically with one form of multimodal distance learning: combining teleconferences via satellite (and in some cases fiber optic cable) with an Internet listserv service to provide support for continued learning for faculty development at the community college level. The primary focus of the research was to determine, from self-reports by participants, the helpfulness and appropriateness of a listserv service as a follow-up activity to teleconferences.

The summary of findings which follows is organized according to each research question.

1. What is the association between the following: (a) the number of years of experience with computers, (b) knowing how to use Internet e-mail, (c) having access to the Internet and each of the following factors: (a) believing that a listserv will be helpful for follow-up to teleconferences, (b) choosing to subscribe to a listserv?

There was not a significant association \( (p < .05) \) between the two variables of the number of years of experience with computers and the belief that a listserv follow-up activity would be helpful among the community college personnel. However, there was an association between the number of years of experience with computers and the belief that a listserv follow-up activity would be helpful when upper division faculty were included in the calculation \( (p = .02618) \).

An association \( (p < .05) \) between knowing how to use e-mail and believing that a listserv follow-up activity would be helpful or not was found for faculties at national community colleges (significance at \( p = .00001 \)).
However, there was no significant association among faculty at community colleges in Texas. This may have been because of the positive attitude towards a listserv service on the part of the Texas participants, in spite of their the lack of knowledge of e-mail.

An association was shown to exist between having access and believing that a listserv would be helpful for the national community colleges faculty. For the Texas community college faculty, an association was not shown ($p = .67535$).

The association between the number of years of experience with computers and choosing to subscribe to a listserv was not significant for national community college faculty. This may due to the fact that even though the national community college personnel had more years of experience with computers (86.7 percent had two to six or more years, and 44.4 percent of them had six or more years), only 24.1 percent were interested in signing up for the listserv. However, there was a significant association found between the number of years of experience with computers and choosing to subscribe to a listserv among Texas community college personnel.

There was a significant association between knowing how to use e-mail and choosing to subscribe to a listserv service for both Texas community college faculty and national community college faculty.

There was a significant association between having access to the Internet and choosing to subscribe to a listserv service for both Texas community college faculty and national community college faculty.

2. What is the association between: (a) believing that a listserv will be helpful for follow-up to teleconferences and (b) choosing to subscribe to a listserv?

There was a significant association ($p = .00001$) for both Texas community college faculty and national community college faculty.

3. What changes occur in participants' helpfulness ratings of follow-up activities, if the follow-up activity is a listserv?

There was no significant change in the helpfulness rating of the follow-up activities when the follow-up was a listserv when comparing Survey 2 and Survey 3. However, 8 out of 13 people left Question 9 of Survey 2 blank (indicating possibly that they did not attend a follow-up activity on their
campus or possibly that there was none offered). Five people answered that the follow-up activity on campus was helpful. The mean for Survey 3 was 1.0000 indicating that the listserv was helpful. Therefore, it is difficult to effectively analyze this data. This is one area that needs further research.

4. To what extent does the combination of two-way audio, one way video teleconferences and a listserv satisfy participants’ perceived needs for information and learning than video teleconferences only?

The majority of people on the three listservs, 82.1%, found that the teleconference and the listserv service satisfied their needs more than just viewing the teleconference only would have.

5. To what extent is a listserv supportive of the work of college faculty as indicated by self-reporting?

Eleven people (44%) on the TEACHTEK listserv said that the listserv had facilitated changes in the way they do their work. Fourteen TEACHTEK people (56%) said that the listserv did not facilitate changes. Two others said no changes had occurred “yet.”

However, those people who did indicate changes in their work, listed items that were fairly substantial changes as indicated in Chapter IV. In addition, two participants of the listserv service were inspired to start two listservs themselves for faculty development.

6. For what purposes do participants use a listserv and what aspects of a listserv are most helpful to them?

For the subjects on all the listservs, the ranking of their reasons for accessing the listserv service was: (1) professional development, (2) curiosity, (3) answers to questions, (4) technological support, (5) other.

Participants of TEACHTEK ranked the aspects of the listserv that were most helpful to them as follows: (1) resources of experts, (2) clarification of concepts, (3) learned about Internet, (4) met new colleagues, (5) other, (6) questions answered.

The following were listed as other helpful aspects of the listserv by the listserv participants:

- Reinforced ideas and applications
- “See what others are doing”
- Moderator’s responses.
• As a faculty developer, saw, "...faculty questions answered when asked, in a non-threatening venue off-campus."

7. Does the content of a listserv provide information and learning resources that extend beyond the content of the original teleconference it is designed to support and do participants consider a listserv to provide open learning?

Ninety-two percent (26) of the subjects indicated that the content of the listserv provided information and learning resources that extended beyond the content of the original teleconference. Participants believed there to be some added benefits in learning more about the Internet and how to use it, which went beyond the original content of the teleconferences themselves.

On the TEACHTEK listserv, 72% (18 people) indicated that a listserv provides open learning. Eight percent (2 people) said, "No" and 20% (5) said "Maybe."

8. What are participants' training preferences for learning to use the Internet and what modes have they found to be most helpful?

Given possible alternatives, the listserv participants indicated the following ranking as training preferences for learning to use the Internet. The ranking was: (1) friend/colleague, (2) other, (3) institution's workshop(s), (4) books, (5) listserv, (6) video tape, (7) STARLINK® teleconference on Internet, (8) computer tutorial.

9. What are the helping and hindering forces that facilitate or do not facilitate participants' using listservs after teleconferences?

The helping forces (not ranked) on campus were identified as:

- Easy access to Internet provided by institution
- Institution workshops
- Faculty/friends/colleagues supporting one another
- Local "gurus" willing to help
- Computer consultants
- Institution's network handout
- Time to "play around" to figure out the system
- Books and other media resources (videotapes and computer tutorials)
The hindering forces were:
   Lack of time
   Lack of access to the Internet
   Lack of training

Listserv participants ranked the top four helping forces as follows with one being their top rank: (1) faculty/friend/colleague, (2) other, (3) institution’s workshop(s), (4) books.

10. Are participants' after teleconference goals for continued learning met by using listservs or is some other support needed?

When asked whether their after teleconference goals for continued learning were best met by using the listserv or whether some other supports were needed, 67.9% (19) answered, “Yes” to the listserv service. People indicated through additional comments that they needed more support for continued learning from the following:

- Computer support services
- Colleague discussion groups and interactions with colleagues. - “My campus provided no follow-up. Group discussion/sharing would have been a great response, with the possibility of building shared-interest teams or support groups to promote and sustain dialog about teaching.”
- Books and articles
- Local sources or local “guru.”

11. What are participants' preferences for the configuration of a listserv in regards to experts on the list and methods of access.

Sixty-seven percent of the listserv subjects said it was “very necessary” or “quite necessary” to have experts from the teleconferences on the listserv to answer questions and 28% indicated it was either “necessary” or “somewhat necessary” to have experts. Only one person from all three listservs considered it to be “unnecessary.”

Forty-three percent said that they preferred the listserv as it was, rather than having the service provided through a newsgroup. Some of the subjects (8) who completed Survey 3 did not seem to know what a newsgroup/conference service was, and therefore were unable to compare it
to a listserv service. The mean, median and mode indicated that participants preferred the listserv as it was.

One participant on the TEACHTEK listserv commented about the difficulty of following "threads" of conversation in a listserv format.

12. Once participants experience a listserv, what percent are interested in signing up for another listserv that supports a teleconference?

Ninety-two percent of TEACHTEK members who answered Survey 3 and the three subjects from the other listservs said that they would sign up again for a listserv if STARLINK® provided the service for follow-up to its teleconferences.

13. If a listserv is provided for a series of teleconferences, how many of the teleconferences are seen by the listserv participants?

Specific numbers are given in answer to this research question in Chapter IV. The attendance at the teleconferences among participants of the listservs who answered Survey 3, was better than those people who only watched the teleconferences. Nineteen out of 25 (76%) of the TEACHTEK subjects answering Survey 3 saw the last in the series versus a 48.8% attendance rate at the last teleconference for the general group attending the teleconference series (compared to those who saw the first teleconference). Two STARNET listserv participants who completed Survey 3 not only saw the teleconference on the Internet, but also viewed the teleconference the next month on Copyrighted Materials. Therefore, notices about future teleconferences given by the moderator on the listserv and the listserv interactions may have influenced attendance rates by listserv subscribers.

14. How are participants of listservs connected to the Internet?

Among those who completed Survey 3, the primary way that they were connected to the Internet was via their institution's computer network (85.7 percent). Six people had modems at home that allowed them to access the Internet.

15. Is there a significant difference between the responses of male and females to questions regards to listservs?

Among those from the three listservs who answered Survey 3, there were eleven females and seventeen males. The Pearson $\chi^2$ (chi-square) test at the $p < .05$ level was calculated to determine if there was an association
between male or female and their answers to the questions of Survey 3. Only one significant association was found ($p = .026$). Six males indicated they had modems at home and none of the females had modems at home. In a test for independent samples, no significant difference was found between male and female subjects’ responses to the remaining questions ($p < .05$).

Discussion

STARLINK® was originally established to provide teleconferences for faculty development for the community and technical colleges within Texas. Through the years more and more community colleges from outside the state and across North America have subscribed to the teleconferencing service. An all time high of out of state subscribers was achieved during the teleconference series on teaching strategies due to additional national advertising by PBS.

STARLINK® in the past had, for the most part, received high evaluations by participants for its teleconferences with the exception of the follow-up activities after teleconferences, which were handled voluntarily by the college campuses with the support of STARLINK® printed materials.

This STARLINK® case study was designed to investigate the feasibility of listservs as follow-up activities to teleconferences and to determine if they could increase the general quality of the STARLINK® service by providing greater participant satisfaction relative to follow-up activities. Participant satisfaction was determined by participants’ helpfulness ratings of the listserv service in combination with the teleconferences and their level of interest in subscribing to another STARLINK® listserv. Additionally, the study documented the changes that were reported by participants as a result of their participating in the listserv service.

In general, the STARLINK® teleconferences are designed as short term faculty development sessions, in most cases a single teleconference on a particular topic that may or may not be related to the teleconferences before and after it. In this way, they are different from some of the semester long telecourses that were referred to in the Literature Review in Chapter II for teacher training at various levels.
Attendees of the STARLINK® Teaching Strategies teleconferences were offered a new opportunity of participating in a series of three teleconferences, all related to the same subject of improving teaching, presented over a three week period. The teleconference input each week from the series stimulated new discussions on the listserv each time and increased the e-mail traffic on the TEACHTEK listserv, particularly during the week immediately following each of the teleconferences.

The pilot listservs which supported stand alone teleconferences did not have as many subscribers or as much e-mail traffic as TEACHTEK. Various factors contributed to this. The pilot teleconferences had fewer viewers for each teleconference; presented limited topics without, possibly, as widespread appeal as the series on teaching; in one case had some technical problems in the teleconference broadcast resulting in some people leaving the teleconference; were not as widely advertised; and the moderator of the listservs for the teleconferences did not participate as actively on the listservs.

Information was gathered from three survey instruments, from electronic mail traffic and from data produced by the listserv mailserver. These documents were analyzed to determine participants’ reactions to a listserv service as a follow-up activity to teleconferences and for additional information about the helping and hindering forces in using the Internet.

The listserv service was considered by the majority of list members to be helpful as a follow-up activity. They expanded on the helpfulness of the listserv in their comments via e-mail to the moderator, the listserv itself or in their answers to Survey 3.

The main helping forces on campuses for learning to use the Internet included friends or colleagues and workshops. The main hindering forces for learning to use the Internet were lack of access to the Internet via their institution’s computer system and lack of time. Some of the STARLINK® research findings agreed with the work of Suciati and Pusch(1992) who identified the factors that influenced the use of e-mail: ease of access and having no time/place limitations. Access problems were the main influence on STARLINK® participants who completed Survey 2 and time limitations were the number one choice of those who were on the listservs and completed Survey 3.
Basham's (1992) study found the factors that had the greatest importance in adoption and use of computer-mediated communications were (a) administrative support and use, (b) encouragement of local innovators, (c) the provision of access, (d) the expansion of online resources, and (e) providing adequate time to learn how to use online resources and to establish critical mass of users (Basham, 1992, pp. 2509A-2510A). Some of these factors were also identified in the STARLINK® research.

The STARLINK® findings confirmed the results of Anandam (1989), that computer technology and distance education are not being used to their full potential in community colleges and two year institutions. However, the Internet is expanding daily and is increasingly being used not only within academia but also by businesses and by people in their homes through expanding commercial services. This expansion and the expansion of connectivity to the Internet on community/technical/junior college campuses will make this technology increasingly more available and more commonly used by community college personnel in their daily work. Within the space of time that this study was conducted, more Texas community colleges gained connectivity to the Internet. Additionally, the software that is being used by Internet service providers is becoming more user friendly and allows easier access to the Internet by participants.

The STARLINK® study compared the number of participants who actually subscribed to the listserv service and the numbers of participants who potentially could have participated. Fewer participants actually subscribed to the listservs than indicated they would on Survey 2. Twenty-five percent of people from the three institution types planned to subscribe to the TEACHTEK listserv. This would have been about 232 people from the first teaching strategies teleconference. Seventy-one participants actually subscribed to the TEACHTEK listserv. This number did not include the six other people who were connected with the research or with the STARLINK® teleconferences who, in the case of the experts, contributed substantially to the traffic of the listserv.

The STARLINK® results, in terms of the numbers of people subscribing to the service compared to those who had reported having access to Internet e-mail, coincided with some of the results obtained in other studies of
Internet services. Basham (1992), for example, found that fewer than two hundred people (20%) utilized the NAEN service on a regular basis, even though over one thousand people were authorized users.

The number of individual participants sending e-mail messages to the listserv, the number of messages sent to the group, and the types of electronic mail messages were documented and analyzed in Chapter IV. For the most part, the listserv discussions were focused on the content of the teleconferences.

Some subjects were more active participants of the listserv than others. Of the 77 people who were subscribed to TEACHTEK at some time during the Spring of 1994, 48 people (62%) actively participated in the listservs [as opposed to the 29 "lurkers" (38%) who observed the listserv and possibly read the e-mail, but did not send in e-mail]. Basham (1992) found that among the regular users there were only about 25 users (12.5%) who made nearly half of all calls to the system. The STARLINK® participation on the TEACHTEK listserv was slightly better than this. There were 22 people (31%) among the 71 subscribers who sent three or more e-mail messages to the listserv. Of those, 11 subscribers (15.5% of the 71) sent five or more messages to the listserv, which represented 56% of the total messages sent by STARLINK® participants (not experts' messages or moderator's messages). Nine people who answered Survey 3 either sent no messages or sent only one message to the listserv. If a message was sent, it usually was an introductory message. However, these nine "lurkers" apparently derived benefit from the listserv just from reading the messages, as indicated by the results of Survey 3. Only 2 people answering Survey 3 indicated that the listserv was not helpful or helped a little.

As mentioned in the Literature Review, Mason (1989) pointed out the importance of having a significant number of contributions to a computer-mediated service:

The life-blood of a conferencing system is the contributions and interactions of its users. It can integrate with and enhance other teaching media... (pp. 143-4)
The STARLINK® results, in terms of the numbers of people who participated on the listservs, were in agreement with Mason's (1989) other findings:

...for the majority of students...computer conferencing was an interesting but marginal activity. For the committed or 'converted' minority, however, there is little doubt that this medium was an exciting, innovative and satisfying way of participating in distance teaching and learning. (p. 145).

During this STARLINK® study, the moderator/researcher assisted subjects in signing onto and using the listserv service, served as a facilitator of discussions and encouraged contributions related to the topics presented in the teleconferences. These conformed to some of the suggestions of Harris (1993), Romiszowski and de Haas (1991), and Levin, Kim and Riel (1990) for online teaching to encourage a network community to function well.

The moderator/researcher responded in some way to all e-mail traffic on TEACHTEK. This was not the case with the earlier STARNET and LEGALIST pilot listservs. More active participation by the moderator seemed to facilitate more discussion and from participants' comments, seemed to be appreciated by the listserv members.

In voluntarily comparing the TEACHTEK listserv to other listservs on the Internet in which they had participated, the TEACHTEK list members indicated that the TEACHTEK moderator was more active and that they appreciated this aspect of the listserv. This particularly seemed to help those who were novices with listservs. These STARLINK® results agreed with the findings of Lowry, et al. (1994): "Front end technical logistics and support are critically important to the success of an electronic discussion group...People need both initial and on-going technical assistance and encouragement."

Survey 3 was sent by electronic mail and received by either e-mail or via the U.S. postal service. The results indicated that participants in the STARLINK® listservs found the combining of teleconferences and a listserv helpful to them. Most of the data from Survey 3 were obtained from
TEACHTEK members (25 out of 28) as opposed to the two pilot listservs of STARNET and LEGALIST.

It appears that the people who signed up for the listserv service thought before experiencing it, that the listserv would be helpful and therefore were the ones who subscribed to the service. This resulted in there being no significant change in their perceptions of the helpfulness of a listserv on Survey 3 when compared to their earlier answers in Survey 2, which were administered before participants had experienced the listserv service.

In analyzing the frequencies, it was found that among the matched surveys that one person, after experiencing the listserv, changed their helpfulness rating and did not find the listserv helpful. This person was from an upper division institution which was not the primary audience for STARLINK® teleconferences.

However, another person changed their rating of the listserv service by increasing their helpfulness rating. Ninety-two percent of the 28 subjects who completed Survey 3 indicated in answering Question 15 that they would subscribe again for another STARLINK® listserv. This was another indication that the STARLINK® listservs maintained a high helpfulness rating by participants, even after they experienced the reality of being on a listserv, including the potential burden of having their electronic mail boxes filled with messages. These findings are in agreement with other CMC research. Lowry, et al. (1994) found that, "Participants reported enjoying and valuing the electronic discussion group."

The participants indicated that the listserv provided ongoing support for their teaching and stimulated their interest. Forty-four percent of people who answered Survey 3 and were subscribed to the TEACHTEK listserv said that the listserv had facilitated changes in the way they do their work. Those completing Survey 3 appreciated having experts and a moderator on the listservs to answer their questions. As an added bonus, their interest in telecommunications via the Internet was also stimulated and they shared their new knowledge with their colleagues on their campuses.

Those who were subscribed to the listservs found that their greatest hindrance to learning to use the Internet more effectively was lack of time. This was not the case for STARLINK® teleconference participants as a whole,
who indicated in Survey 2 that lack of access was their primary reason for not
learning to use the Internet.

The STARLINK® research indicated that the only significant differences
in the answers of the males and females in Survey 3 was that none of the
females had modems at home. Ugbah (1987) found through an analysis using
MANOVA’s that sex does not have an effect on the uses of computer-
mediated communications. Extensive compilations of CMC research dealing
with gender have also been contributed by Cunningham (1994); Kaplan &
Farrell (1994); and We (1994).

A larger percentage of participants who were on the TEACHTEK listserv
attended the three teleconferences than did all other participants of the
teleconferences. Upcoming teleconferences were announced via the listservs
to remind people of the broadcast times, the names of the experts to appear on
the panels and the subjects to be covered. This, along with participating in
the TEACHTEK listserv may have stimulated interest in attending
teleconferences two and three in the series and therefore may have increased
attendance rates.

All participants in this study were volunteers. The people who
subscribed to the listservs were people who either had knowledge of Internet
e-mail or were willing to explore and learn how to use it. For various
reasons, including: professional development, curiosity, answers to
questions, technological support, and other personal reasons, they were
motivated to subscribe to listservs that were designed to facilitate their
professional development. These motivations may also have contributed to
the higher teleconference attendance rates among listserv participants
compared to other participants.

Another factor in place was TEACHTEK membership by faculty from the
same campuses. This colleague support may also have contributed to higher
attendance rates for the teleconference series.

Three new listservs were started by participants because of the perceived
value in having discussions via the Internet. One of these included the plan
for a STARLINK® listserv service on a server at the Dallas County
Community College District.
Conclusions

The STARLINK® research was a case study of a particular population of faculty primarily from community and two year institutions who attended STARLINK® teleconferences. It was a qualitative study that may not be generalized to the whole population of community college faculty in North America.

This telecommunications research provided a "snapshot" in time of the customers of the STARLINK® teleconferencing service. The data from Survey 2, administered on campuses, provided insight into the feasibility of a listserv service providing follow-up activities for participants. The data gathered included: the number of two year college campuses that subscribe to STARLINK® teleconferences with known connectivity to the Internet, the level of computer and e-mail skills of participants by their own estimation, participants' training needs, preferred modes of training and their level of interest in subscribing to the STARLINK® listserv service during the 1993-1994 season.

After analyzing the data from the first teleconference in the teaching series, it was found that only 37.3% of the 252 participants from Texas community colleges and 47.2% of the 278 of participants from community colleges outside of Texas who completed Survey 2 had access to the Internet via their institution or via modem at the time of the research (January 26, 1994). One result of this lack of accessibility to the Internet was that only twenty-five percent of all participants indicated that they were interested in subscribing to a STARLINK® listserv service as a follow-up activity to teleconferences.

These results indicated that a majority (75%) of STARLINK® customers either are unable to engage in a listserv because of lack of access or skills or are not interested in participating in a listserv as a follow-up activity. Therefore, at this point in time, a listserv service can not be relied upon to provide all customers with follow-up activities.

Schrum (1993) indicated that certain factors interfere with continued learning: "...time, geographical location, commitments, and energy." Of these, the provision of a listserv service can impact the negative effect of
geographical location and time to some extent time. However, energy and commitment to continued learning need to come from community college faculty and administrators.

The study by Anandam (1989) found among fifty, 2-year colleges investigated, computer technology had not been used to its full potential (pp. 28-35). Palmer stated that faculty, staff and students have been slow to realize the value of the resources available through Internet (N. Palmer, personal communication, September 7, 1993). The STARLINK® study confirmed these findings.

With only 4.5% of the total people who attended the first teleconference in the series on teaching strategies subscribing to the listserv service, a listserv can not be considered as the sole means for providing broad based follow-up activities for teleconferences for faculty development at this time.

However, it should be noted that the number of customers who are using the Internet is growing daily as confirmed in the literature search. Calcari (1994) indicated the large number of host computers on the Internet dedicated to educational institutions. If this trend continues, access will no longer be a barrier to participation in a listserv. Commercial services accessible via modem or direct connection to the Internet have greatly increased, allowing faculty to access the Internet from home. These influences could change STARLINK® participants' rates of subscription to a listserv service.

The results of Survey 3 and the analysis of participation on the TEACHTEK listserv indicated that a listserv service has the potential for being an effective means for providing follow-up activities to teleconferences for participants if certain factors are present. Participants must: have access to computers and the Internet, know how to use Internet e-mail, believe that a listserv service has the potential to be beneficial, believe they have enough time to participate, and be motivated to subscribe and participate in the listserv service. Other positive contributing factors are the participation of experts from the teleconference on the listserv and a supportive moderator of the listserv.

The STARLINK® listservs did not provide pre-designed curriculum delivery, but rather, "just-in-time" information that was, in general, related
to the content of the teleconferences. The STARLINK® listservs participants indicated in their open-ended answers that the listserv service provided collegial interaction and a sense of a broader college community beyond their own campus. There have been other types of faculty development courses designed to be delivered via e-mail, but it has been found that these types of courses sometimes lack collegial interaction and community (Schrum, 1993). Listservs can provide: "just-in-time" answers to questions, contacts to faculty on other campuses, access to experts, an introduction for some participants to Internet resources, and stimulation for additional actions that facilitate faculty development.

Some STARLINK® participants are unable to stay after a teleconference for follow-up sessions. Listservs allow participants to access the system at any time, according to their convenience, as opposed to a campus based follow-up session at a set point in time.

By providing participants with a listserv service, STARLINK® delivered more alternatives for follow-up activities to its customers. Other sources of interaction with customers have been and will continue to be supplied by the phone bridges, fax, and e-mail during the teleconferences or by follow-up sessions on campuses immediately following teleconferences.

Listserv participants voluntarily give feedback to the teleconference presenters and to those conducting development activities that may effect subsequent teleconferences. A short evaluation form, provided by STARLINK® after every teleconference, elicits participants' feedback, but participants do not usually provide the more extended comments that participants gave on the listserv. Listservs provide not only follow-up activities for participants but also function as a customer satisfaction tool for programmers, similar to a focus group. Listservs facilitate continuous improvement and ultimately benefit future teleconference participants.

Norenberg and Lundblad (1987) present matrices to assist in selecting technologies for instruction. Their choice of medium was based upon: objectives, cost, personnel, users, anticipated use, level of interactivity, legal barriers, and compatibility, and jurisdiction. Using this criteria, the STARLINK® listserv service met the helpfulness objectives of the majority who accessed the service. It was inexpensive to run. Computer conferencing
is the lowest cost of all teleconferencing services (Bacsich, 1987). However, listserv services do not fulfill the needs of teleconference participants who are unable to or not interested in accessing the service. A listserv service is only compatible for those who subscribe to the service.

The time commitment of listserv service providers is minimal, except for the time of the moderator, which varies depending upon the level of involvement.

Listservs provide interactivity between experts and participants which is not readily available except during the limited time devoted to telephone questions during teleconferences.

The percentage of subscribers who actively engage in a listserv can be relatively high, which has a tendency to promote even more interaction. Legal barriers and jurisdiction were not issues in this study, except in relationship to where the listserv software would be located.

The advantages of listservs must be balanced against the costs of establishing and operating the service and the disadvantages of such a service. A listserv software program exists that is free, available by file transfer over the Internet, relatively easy to install and set up, and capable of providing multiple listservs. The main cost of running such a service then becomes the personnel time to support the listserv traffic. This includes the time of a moderator (if there is one), the panel experts, and other personnel, for example, the director or assistant director of the teleconferences. This cost benefit assumes that a computer with direct access to the Internet is already available.

At this point in time, the result of providing a listserv service to STARLINK® participants was a relatively small subscription rate (4.5% TEACHTEK, 10% STARNET), which can partly be attributed to various factors discussed earlier in this chapter. However, the cost of establishing the service was also very low in terms of money and time expended. By providing participants with a listserv service, STARLINK® delivered more alternatives for follow-up activities to its customers. Other sources of interaction with customers have been and will continue to be supplied by the phone bridges, fax, and e-mail during the teleconferences or by follow-up sessions on campuses immediately following teleconferences.
Therefore, the cost/benefit analysis shows a potential for a positive effect with a listserv service for follow-up activities to teleconferences while only making a limited investment of funds. This cost/benefit analysis assumes that a computer system with access to the Internet is available to teleconference producers and that some participants have access to computers and Internet e-mail, are interested in subscribing, and know how to use e-mail. However, if teleconference producers for community college faculty need to purchase hardware, software, and connectivity to the Internet in order to provide a listserv service, the cost/benefit analysis would not justify such a capital outlay unless the number of participants with access to the Internet was significantly greater than the numbers in the STARLINK® study.

Collis & Levin (1993), as noted in Chapter II, suggested that, “For teacher educators, research can suggest increasingly effective strategies for improving teacher training relative to telecommunications use, including strategies for effective inservice, for effective ongoing support, and for stimulation of teacher interest and commitment” (p. 56). For faculty who have access and choose to engage in the activity, a listserv service provides additional interactive opportunities with other faculty and experts, is a means of providing ongoing support and stimulates professors' interest.

Implications

The results of the cost/benefit analysis indicated that, given similar circumstances to the STARLINK® research, teleconferencing services should consider implementing listservs as follow-up activities for teleconferences for North American community college faculty development, even when only one teleconference is provided or a short series of teleconferences is being broadcast because of the potential benefits demonstrated in the STARLINK® research and the relatively low cost of a listserv service.

The main hindering factor to listservs is access, but the number of people with access to Internet e-mail is growing daily. Access will no longer be a barrier to community college faculty, if administrators continue to take the
initiative to provide Internet access for all faculty, including adjunct professors, and if faculty increasingly have Internet access at home.

There appear to be several variables that effect whether a faculty member actually subscribes to a listserv service or not. The STARLINK® study found among national community colleges faculty, an association exists between having access to the Internet and believing that a listserv will be helpful for follow-up to teleconferences. Also, there was a significant association found between already knowing how to use e-mail and choosing to subscribe to a listserv service. The prerequisites for subscribers need to be taken into account when designing this form of faculty development. Once access is gained, and the prerequisite skills are acquired, the motivation to subscribe and time to participate then become limiting factors.

Listservs have the potential for having several thousand subscribers on a single listserv, so it would be possible to provide a follow-up activity to everyone who sees a teleconference. Even though the number of people subscribing to the listservs did not represent a high percentage of all those who saw the teleconferences (4.5% TEACHTEK, 10% STARNET) nevertheless, the listserv service provided additional support and benefits to those who did subscribe. Given the same conditions as the STARLINK® research, unless some influencing factors change, participants would probably subscribe at the same rate of 4.5% to 10%.

It appears from the STARLINK® research that when experts from teleconferences actively participate in a listserv service and the moderator is responsive to participants' needs, the percentages of subscribers who send three or more messages or five or more messages to a listserv is fairly high (31% and 15.5% respectively). As long as the cost of a listserv service remains low, even with relatively low percentages of subscription and a 15-31% message contribution rate, a listserv post-teleconference activity is better than providing no activity at all, which is the case on some campuses. A listserv provides one more alternative for those who are unable to stay for an on-campus post-teleconference activity immediately following teleconferences.

Participants on the STARLINK® listservs indicated that a critical success factor for the listservs was the responsiveness of the moderator. It may have been that the active participation of the moderator and the experts on the
TEACHTEK listserv contributed to the increase in the number of messages by participants when compared with the STARNET and LEGALIST listservs. Torbet (1993) indicated that a critical success factor for the telecomputing component of projects was the frequency of login by the professor, facilitator or expert supporting the listserv, bulletin board, computer conference or e-mail service.

The BESTNET project found that, "Computer conferencing is a viable interactive component of videotaped or live instructional television courses providing individualized attention to student needs and requirements that cannot be obtained using traditional methods of audio and video feedback" (Bellman, Tindimubona & Arias, 1993, p. 241). Therefore, organizers of telecomputing projects need to take into consideration the type and amount of support needed by participants in order to facilitate learning and development. Sufficient moderator support may necessitate increasing teleconference budgets to pay for experts’ or staff’s time.

There is a potential for stimulating other positive effects, such as the generation of other listservs to support faculty on and off campus, and more interactions among faculty on a single campus who are engaged in telecommunications. Listservs or bulletin boards can provide an alternative for community college faculties to voluntarily develop themselves according to their own preferences and their desire for continuous improvement.

Other researchers have found hindering forces to using technology similar to those found in the STARLINK® study. Weir (1987) researched the attitudes and perceptions of Texas community college educators toward the implementation of computers for administrative and instructional purposes. He found that administrative and instructional computing were not widely used in Texas community colleges by faculty and administrators for the following reasons: lack of quality computer training and education, insufficient funding to support such programs, and lack of time or interest in keeping up-to-date with hardware and software changes in the computing industry.

Data gathered by Basham (1992) suggested that a large number of potential users of the Native American Educational Network online service were prevented access to due to: "...lack of training, insufficient on-site
support, and technical difficulties" (p. 2509A). Therefore, once hardware, software and connectivity are available to faculty, maintenance of campus computer facilities and faculty support systems are also very important for administrators to provide in order for faculty to successfully use telecomputing services. Some of the open-ended questions in both Surveys 2 and 3 elicited some responses that implied that not all faculty were happy with their computer systems and the level of local support.

There are still deficits in community college faculties' computer skills according to the faculties own report in the STARLINK® study. Administrators who provide Internet access to faculty without insuring that the faculty have the computer skills to use that access can not expect community college faculty to actively participate in telecommunications. Quality computer training for community college faculty in how to use computers, e-mail and the Internet is needed. Some of this training support can be provided through listservs and bulletin boards.

The results of the surveys in the STARLINK® study indicate the high degree of importance that community college faculty place upon giving and receiving support from colleagues on campus and the high value given to networking with other colleagues on and off campus. Listservs can facilitate these types of communications both within an institution, nationally and internationally. Administrators need to: (a) examine their faculty's needs for training, and (b) identify the human and technological resources available to them. Through these resources, workshops can be developed. The resources can also help to facilitate and encourage peer "just-in-time" training. Preferred mediums of training were examined by this STARLINK® study and could be used in investigating and determining a faculty's specific preferred media for particular types of training.

Video training in telecommunications is difficult to provide on a national basis because of the differences in networks and communications programs on individual community college campuses. Computer training issues are best addressed at the campus level and ideally on an individual basis. STARLINK® participants ranked workshops and colleagues or friends higher than video tapes as preferred modes of training. Training by a colleague or friend was preferred by most participants either as their first
choice or their second choice in the STARLINK® research. Therefore, peer training should be investigated as an alternative to workshops on campuses.

STARLINK® participants may be individuals who are particularly interested in furthering their own development and who have sought to develop their skills in using computers and telecommunications. They may not be representative of the whole population of community college faculties. It is possible that computer skills and knowledge of the Internet could be even lower among the whole population of community college faculties than the results gathered from participants in the STARLINK® study. Therefore, the need for training community college faculty in computer skills may be even greater than implied by the STARLINK® research. Additionally, continuously providing training is important for those who already have skills in using computers and the Internet because technology and online resources are changing daily.

A commitment to quality training will involve more funding, unless programs have been established to encourage more colleague mentoring to provide "just-in-time" training. Incentives need to be in place for such mentoring to occur. Administrators need to provide campus leadership that promotes learning communities not only among students but among faculty.

In the future, listservs or bulletin boards may become more feasible for providing follow-up activities to teleconferences because of increased access and training. However, other factors, such as lack of time, may then become barriers to participation, as indicated by listserv participants in Survey 3. Their responses point out the importance of giving faculty time to develop in their professions, including time to explore the Internet. High quality technical support can also facilitate better utilization of faculties' time.

The high level of satisfaction with the listserv service, as indicated by participants in Survey 3, should be interpreted carefully. Participation in Internet listservs are still a relatively new experience for some people. Therefore, there may have been some halo effect upon the results. People sometimes think more positively towards a new technology or experience just because it is new or they enjoy engaging in a "cutting edge" technology. Later their enthusiasm can wane.
Nevertheless, telecomputing is a potentially powerful medium. The results of a national survey of telecommunications conducted by the Center for Technology in Education at the Bank Street College of Education indicated telecomputing teachers were: "Communicating with other educators, accessing information, and combating professional isolation." They found that these were the "most highly rated incentives for using telecommunications as a professional resource" (Honey & Henríquez, 1993, Executive Summary). The STARLINK® research results, particularly the open comments, also indicated this among the faculty who were on the listservs.

The results of the STARLINK® research indicate that listserv services can provide feedback to teleconference producers and panel experts to facilitate their improving teleconferences. This form of direct two-way interaction with customers, as opposed to having only one-way communications through evaluation sheets, potentially can provide more detailed valuable, and comprehensible feedback that can impact positive change.

Another benefit of a listserv service is that the software is capable of supporting more than one listserv without a great deal of computer memory allocation or additional expense. Additional listservs can be established with the same software to facilitate other work of a teleconferencing service.

The majority (82.1%) of participants who completed Question 4 on Survey 3 indicated that the combination of the teleconferences with the listserv service satisfied their needs as opposed to the teleconference alone. Other forms of video distance learning (satellite, fiber optic cable, video tapes, cable, microwave, video conferencing) could be combined with listservs in the same way as in the STARLINK® study.

Another alternative for establishing a listserv on a teleconferencing site is to ask for listserv or newsgroup space on an already existing Internet server, as was the case for one of the participants of STARNET who started his own listserv on a server in Pennsylvania, even though his college is in Texas. At this point in time, people are still willing to share their computer sites on the Internet for worthwhile projects. Sometimes, it takes a great deal of persistence in order to seek out appropriate, receptive sites.
This study also examined a listserv as a change agent among community college faculty. Forty-four percent of people who answered Survey 3 who were on the TEACHTEK listserv said that the listserv had facilitated changes in the way they do their work. Therefore, listservs that support teleconferences can enhance change as indicated by the self-reports of the STARLINK® listserv participants. Listservs provide focused interactions between participants.

The listservs also may have influenced positively participants' attendance at subsequent teleconferences. It is therefore possible that listservs can act as an encouragement to community college faculty to keep on seeking new knowledge and to continuously improve in their profession.

Participants also appreciated having access to nationally recognized experts in the field of education. This is one of the powerful aspects of distance learning which can help to facilitate positive changes on campuses. Teleconferencing services need to take into consideration the importance of delivering high quality products and support services in all aspects of teleconference productions.

Administrators who establish a climate on their community college campuses that encourages and facilitates faculty exchanges of ideas, and who provide the necessary capital outlay for technology hardware, software, and training to support these exchanges, have the potential to create true "learning institutions." In this way, community/technical/junior college campuses will become places in which not only the students are learning, but the faculty is continuously learning and developing through an open learning, supportive environment. The Basham (1992) study concluded that, "...users of the new technology will define its purpose and usefulness, and leaders must allow for this reinvention of the technology to take place" (p. 2510A).

The listserv subscribers differed from non-subscribers, in some cases, in their accessibility to Internet e-mail and/or in their motivations for self development. At this point in time, because Internet e-mail is not available to all STARLINK® participants, it can not be recommended as the sole source for providing follow-up activities. However, it appears to be an effective
medium for providing post-teleconference support to participants who do subscribe.

Observations of the Listserv Moderator

Below are listed a series of observations of the listserv moderator with suggestions about handling a listserv.

1. It is important to have a listserv system up, operational and tested before participants start to sign on to the system, otherwise the moderator does not know whether subscription problems are caused by the system or the participants' errors. This is particularly true when it is anticipated that novices to listservs will be participating.

2. Having an automatically sent welcome message that greeted participants when they signed-on worked well (See Appendix 7). This message asked participants to send an e-mail message to the listserv to introduce themselves to the listserv and pointed out that, because they were on the listserv, they would also receive a copy of their own message. Otherwise, people who are not used to listservs, think their messages are being bounced back and not received. The introductory messages by participants helped initiate "threads" of discussions.

3. The welcome message also gave participants a Listserv Guide (see Appendix 7) that included information about unsubscribing to the listserv, temporary unsubscribe information, how to request a list of participants on the listserv, how to request a list of all the listservs available on the University of North Texas server, and how to sign onto the other STARLINK® listservs established earlier. It also made clear the difference between sending messages to the mail server (MAISER) and sending messages to the listserv.

4. It facilitated discussion to have the moderator send response messages to all the participants' introductory messages, that were sent out to the whole listserv. These messages commented about what the participants had said and asked further questions of the individual or the listserv. This helped participants know that the system was working and that their message had been received.
5. Moderators of listservs need to check the listserv traffic often to provide assistance. Participants indicated they appreciated having a responsive moderator.

6. In some cases, the moderator and others on the listserv need to provide information about either the system or information in general about the Internet to facilitate members' participation.

7. Moderators need to have extreme patience, particularly with novices learning to sign on and use the system. Sometimes participants' problems were only resolved after several e-mail message exchanges, in some cases over a couple of days.

8. Moderators, at times, need to assist members in being sensitive to other members' feelings. The intent of text can easily be misinterpreted. A friendly tone helps.

9. It is helpful if the moderator is knowledgeable in the fields that are being discussed on the listserv to better facilitate discussions.

10. It is quite helpful to have experts from the teleconferences be available on the listservs to answer participants' questions. However, one participant objected to the concept of having "experts," and preferred instead to have everyone considered as equally qualified to participate in the open forum.

11. In order to have experts on a listserv to provide follow-up to a teleconference, it is wise to ask if this service can be provided by the experts at the time they are asked to serve on the panel of the teleconference, as part of the combined service they are providing. These experts should be paid extra if they support a listserv service.

12. It takes time to effectively moderate a listserv. A moderator should anticipate a daily commitment to the project.

Recommendations For Future Study

Some participants of the STARLINK® listservs indicated that they appreciated having both follow-up activities on campuses as well as having the listservs. It may be that combined treatments for faculty development is the most satisfactory system. This approach would provide faculty with
alternatives that suit their needs, interests, time schedules and learning styles. With the STARLINK® case study as a background, it would be possible to run a more controlled experimental study to determine what treatment combination would most satisfy teleconference participants, for example: teleconference and on campus follow-up activity; teleconference and listserv; teleconference, campus follow-up session and national listserv; or teleconference, campus follow-up session, national listserv and local listserv. Gauges of success of a treatment combination could be customer satisfaction surveys, participation rates, and teleconference attendance rates of participants.

The University of Maine System is using computer conferencing to support distance learning and expects to achieve with it the side benefit of computer literacy for their students (MacBrayne, 1993). An investigation could be conducted to determine the effect upon faculty computer literacy if computer conferencing is used to support distance learning.

A study could be conducted to compare on-campus post-teleconference activities to a listserv post-teleconference activity. Data could be collected and analyzed, such as: percentages of participants speaking, types of exchanges, and the levels of participation by the facilitators.

A study of the effect of an active participating moderator of a listserv and a non-active moderator upon the volume of e-mail traffic on a listserv would also be beneficial.

Lever (1993) reported that among the 700 community and two year institutions who responded to the survey, 12% were using computer conferencing, 11% electronic mail, and 8% electronic bulletin board service for distance education specifically for students (p. xviii). One area worth investigating is whether, as Internet services are incorporated into professors' instructional designs for classes, if professors utilize Internet services, such as listservs, for their own professional development.

Steinfield (1984) found that how e-mail was used was a function of having a well developed e-mail infrastructure. The degree of access to computers and interactions with relevant co-workers were found to explain the variance in use. Also important was both a positive orientation to the system and having communication needs not supplied by other media. More
detailed analysis of why community college faculty use or do not use e-mail would be beneficial for identifying other ways to facilitate more teleconference participants subscribing to a listserv service.

NASA's (1994) electronic component of their telecommunications project and the Mind Extension University (1993) distribute information on the Internet in various formats. A study could be conducted at the community college level to determine the benefits to faculty of providing other Internet resources such as gopher, ftp, world-wide web or a bulletin board service as support to teleconferences to determine which combinations are most beneficial to participants.

Exploration is needed in the area of faculty development at community colleges. How much training and what combinations of media for faculty training are being used with what levels of success? How much training is provided in the use of computers and what media and personnel are used for delivery? What tools of evaluation can be developed and used to judge the success of faculty development? Research should to be carried out nationally, but also at the local level, to deal effectively with the needs of faculty for training and development.

Increasingly, courses are being offered entirely via the Internet for college credit, college degrees, K-12 teacher development and continuing education. More exploration needs to be done in the area of using listservs or newsgroups as single delivery systems for faculty development at the community college level.

Other research could be done to identify college campuses in which faculty members are learning from their colleagues and what factors were in place on those campuses that encouraged faculty and staff to do this type of sharing of knowledge, particularly about technology.
STARLINK® SURVEY

In order to facilitate your continued learning about "Emerging Technologies" and other topics presented in our teleconferences, we would appreciate your responses to the following questions concerning possible support systems and alternate sources of information:

1. Using the scale below, please rate the current effectiveness of the following media and resources for supporting your professional needs.

<table>
<thead>
<tr>
<th>NOT EFFECTIVE</th>
<th>MODERATELY EFFECTIVE</th>
<th>EXTREMELY EFFECTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Colleagues on & off campus ___ Interest groups ___ Teleconferences ___
Non-credit workshops ___ Classes for credit ___ Conferences ___
Newsletters ___ Books ___ Periodicals/Newspapers ___
Video tapes ___ Audio tapes ___ Computer aided instruction ___
Computer network conferences/bulletin boards ___ Others (name) ___

2. How effective do you think it would be for you to use a computer network to interact with other participants and experts after teleconferences?

<table>
<thead>
<tr>
<th>NOT EFFECTIVE</th>
<th>MODERATELY EFFECTIVE</th>
<th>EXTREMELY EFFECTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

3. Do you have easy access to a computer and modem for using Internet, the backbone network for the Texas Higher Education Network (THENET) for computers? Please circle.

YES NO

4. To what extent would you need training on how to connect to and use Internet?

<table>
<thead>
<tr>
<th>LIMITED TRAINING</th>
<th>EXTENSIVE TRAINING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

5. If you need help with using a computer network, how would you prefer to be trained? (Rate from 1-6, with 1 being your first choice.)

On-campus workshop _____ Computer assisted training (DOS or Macintosh?) _____
Teleconference _____ Video tape _____ Workbook _____ Audio tape _____
Other? _____

6. How could we best improve the follow-up to this and other teleconferences to more nearly fit your needs?

Your College: ____________________

STARLINK - Survey 1
April 13, 1993

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APPENDIX 2

TEXAS COMMUNITY/TECHNICAL/JUNIOR COLLEGES, COMMUNITY COLLEGE DISTRICTS OR COMMUNITY COLLEGE SYSTEMS WITH ACCESS TO INTERNET VIA THE GATEWAY THENET
Texas Community/Technical/Junior Colleges, Community College Districts
or Community College Systems With Access to Internet Via the Gateway
THENET as of August 12, 1994

Alamo Community College District
Amarillo College
Austin Community College
Blinn College
Brazosport College
Clarendon College
Collin County Community College
Cooke County College
Dallas County Community College District
Del Mar College
El Paso Community College District
Grayson County College
Howard College at Big Spring
Kilgore College
Lamar Institute of Technology
Midland College
McLennan Community College
Navarro College
Northeast Texas Community College
North Harris Montgomery College District
Odessa College
Panola College
South Plains College
Tarrant County Junior College District
Temple Junior College
Texas State Technical College System
Texas Southmost College
Victoria College
Wharton County Junior College
APPENDIX 3

STARLINK® SURVEY TWO
STARLINK® SURVEY

In order to facilitate your continued learning about the Internet after this teleconference, we are establishing a listserv to provide follow-up support. If you have access to the Internet either through your institution's computer network or via modem, you can use e-mail (electronic mail) to sign-on and participate in the listserv. We would appreciate your responses to the following questions concerning your interests in this listserv.

1. **How long have you used a computer?** Please circle one.
   - 1) 0—1 YRS.
   - 2) 2—5 YRS.
   - 3) 6 OR MORE YRS.

2. **Do you know how to use Internet e-mail (electronic mail)?** Please circle one.
   - 1) YES
   - 2) NO

3. **To what extent would you need more training on how to connect to and use Internet email?**
   - LIMITED
   - EXTENSIVE

4. **Put a number after each of the following to indicate how helpful they would be for learning to use e-mail.** Use the scale.
   - NOT HELPFUL
   - VERY HELPFUL
   - 1 2 3 4 5
   - 4) WORKSHOP
   - 5) FRIEND
   - 6) LISTSERV
   - 7) COMPUTER TUTORIAL
   - 8) TELECONFERENCE
   - 9) VIDEOTAPE
   - 10) BOOKS
   - 11) OTHER?

5. **Do you have access to Internet e-mail via your institution's computer network or by modem?** Please circle at least one.
   - 1) YES, ACCESS TO INTERNET VIA MY INSTITUTION'S COMPUTER NETWORK.
   - 2) YES, ACCESS TO INTERNET VIA MODEM.
   - 3) NO, I HAVE NO ACCESS TO INTERNET E-MAIL.

6. **What prevents you from using Internet resources and listservs?** Circle the one that hinders you the most.
   - 1) NO ACCESS
   - 2) NO TRAINING
   - 3) NO TIME
   - 4) UNCOMFORTABLE
   - 5) DON'T NEED TO KNOW
   - 6) NO SUPPORT
   - 7) OTHER?

7. Using the scale below, how helpful do you think it would be for you to access the STARLINK® listserv, called "STARNET", via e-mail to interact with other participants and experts after this teleconference? This list will be operating for at least three weeks after the teleconference. Depending upon the participants' interest, it may be extended beyond that time.

   NOT HELPFUL
   MODERATELY HELPFUL
   EXTREMELY HELPFUL
   1 2 3 4 5

8. **Do you plan on signing up for the STARNET listserv?** (If yes, please see the STARNET Listserv Information Sheet.)
   - PLEASE CIRCLE ONE
     - 1) YES
     - 2) NO

9. **Were the follow-up activities after this teleconference helpful to you?** If not, why not?
   - PLEASE CIRCLE ONE
     - 1) YES
     - 2) NO

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STARLINK® — Survey 2

Your Name: ___________________________ Your College: ___________________________

November 3, 1993

Your E-mail Address: ___________________ © 1993 LINDA H. ALEXANDER
STARLINK® SURVEY

In order to facilitate your continued learning about copyright after this teleconference, we are establishing a listserv to provide follow-up support. If you have access to Internet through your college's computer network or via modem, you can use e-mail (electronic mail) to sign-on and participate in this listserv. We would appreciate your responses to the following questions concerning your interest in the listserv. FILLING OUT THIS SURVEY IS VOLUNTARY.

1. How long have you used a computer? Please circle one.
   1) 0—1 YRS.  2) 2—5 YRS.  3) 6 OR MORE YRS.

2. Do you know how to use Internet e-mail (electronic mail)? Please circle one.
   1) YES  2) NO

3. To what extent would you need more training on how to connect to and use Internet e-mail?
   LIMITED TRAINING  EXTENSIVE TRAINING
   1  2  3  4  5

4. Put a number after each of the following to indicate how helpful they would be for learning to use Internet. Use the scale.
   NOT HELPFUL  VERY HELPFUL
   1  2  3  4  5

   4) WORKSHOP  5) FRIEND  6) LISTSERV  7) COMPUTER TUTORIAL
   8) TELECONFERENCE  9) VIDEOTAPE  10) BOOKS  11) OTHER?

5. Do you have access to Internet e-mail via your institution's computer network or by modem? Please circle one.
   1) YES, ACCESS TO INTERNET VIA MY INSTITUTION'S COMPUTER NETWORK.
   2) YES, ACCESS TO INTERNET VIA MODEM.
   3) NO, I HAVE NO ACCESS TO INTERNET E-MAIL.

6. What prevents you from using Internet resources and listservs? Circle the one that hinders you the most.
   1) NO ACCESS  2) NO TRAINING  3) NO TIME  4) UNCOMFORTABLE
   5) DON'T NEED TO KNOW  6) NO SUPPORT  7) OTHER?

7. Using the scale below, how helpful do you think it would be for you to access the STARLINK® listserv, called "LEGALIST", via e-mail to interact with other participants and experts after this teleconference? This list will be operating for at least three weeks after the teleconference. Depending upon interest, it may be extended beyond that time.
   NOT HELPFUL  MODERATELY HELPFUL  EXTREMELY HELPFUL
   1  2  3  4  5

8. Do you plan on signing up for the LEGALIST listserv? (If yes, please see the LEGALIST Listserv Information Sheet.)
   PLEASE CIRCLE ONE.  1) YES  2) NO

9. Were the follow-up activities after this teleconference helpful to you? If not, why not?
   PLEASE CIRCLE ONE.  1) YES  2) NO

Your Name: ____________________  Last 4 digits of Social Security #: __ __ __ __
Your College: ___________  Your E-mail Address: __________________

STARLINK® - Survey 2
December 2, 1993
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STARLINK® SURVEY

In order to facilitate your continued learning about teaching strategies after this teleconference, we are establishing a listserv to provide follow-up support. If you have access to Internet through your college's computer network or via modem, you can use e-mail (electronic mail) to sign-on and participate in this listserv. We would appreciate your responses to the following questions concerning your interest in the listserv. FILLING OUT THIS SURVEY IS VOLUNTARY.

1. How long have you used a computer? Please circle one.
   1) 0—1 YRS. 
   2) 2—5 YRS. 
   3) 6 OR MORE YRS.

2. Do you know how to use Internet e-mail (electronic mail)? Please circle one.
   1) YES 
   2) NO

3. To what extent would you need more training on how to connect to and use Internet e-mail?
   LIMITED TRAINING
   1 2 3 4 5

4. Put a number after each of the following to indicate how helpful they would be for learning to use Internet. Use the scale.
   NOT HELPFUL VERY HELPFUL
   1 2 3 4 5
   4) WORKSHOP 5) FRIEND 6) LISTSERV 7) COMPUTER TUTORIAL
   8) TELECONFERENCE 9) VIDEOTAPE 10) BOOKS 11) OTHER?

5. Do you have access to Internet e-mail via your institution's computer network or by modem? Please circle one.
   1) YES, ACCESS TO INTERNET VIA MY INSTITUTION'S COMPUTER NETWORK.
   2) YES, ACCESS TO INTERNET VIA MODEM.
   3) NO, I HAVE NO ACCESS TO INTERNET E-MAIL.

6. What prevents you from using Internet resources and listservs? Circle the one that hinders you the most.
   1) NO ACCESS 2) NO TRAINING 3) NO TIME 4) UNCOMFORTABLE
   5) DON'T NEED TO KNOW 6) NO SUPPORT 7) OTHER?

7. Using the scale below, how helpful do you think it would be for you to access the STARLINK® listserv, called "TEACHTEK", via e-mail to interact with other participants and experts after this teleconference? This list will be operating for at least three weeks after the teleconference. Depending upon interest, it may be extended beyond that time.
   NOT HELPFUL MODERATELY HELPFUL EXTREMELY HELPFUL
   1 2 3 4 5

8. Do you plan on signing up for the TEACHTEK listserv? (If yes, please see the TEACHTEK Listserv Information Sheet.)
   PLEASE CIRCLE ONE. 
   1) YES 2) NO

9. Were the follow-up activities after this teleconference helpful to you? If not, why not? Please circle one.
   1) YES 2) NO

Your Name: Last 4 digits of Social Security #: 
Your College: Your E-mail Address: 

STARLINK® — Survey 2
January 26, 1994 © 1993 LINDA H. ALEXANDER
APPENDIX 4

INSTRUCTIONS TO SURVEY ADMINISTRATORS
Instructions for STARLINK® Survey Administrator

1. Before handing out the STARLINK® Survey
   - Please say:
     "We would appreciate your filling out this survey which only takes about 3 minutes. Information about the survey is at the top of the page. Please be sure to fill in the whole survey including the bottom of the page with your name, the last four digits of your social security number, the name of the college, and your e-mail address if you have one. When the surveys are compiled, your name will be removed and a number given to it so your answers will be completely anonymous. Your participation in filling out this survey is completely voluntary. If you choose to participate in the listserv mentioned in the survey, you can withdraw from it at any time."

2. Next
   - Hand respondents the surveys and pencils.

3. If a respondent has questions about the directions:
   - Clarify them.

4. If a respondent has questions about an item:
   - Say:
     "Just answer according to how you interpret the question."

5. When the respondents turn in the surveys:
   - Check each survey as it is handed in to make sure that the participant’s name, the first four digits of their social security number, the college’s name and their e-mail address are at the bottom.
   - Say:
     "Thank you. We appreciate your help," or something similar.
APPENDIX 5

LISTSERV INFORMATION SHEET
TEACHTEK Listserv Information Sheet

You are invited to join a special listserv following this teleconference. This listserv is called TEACHTEK and has been setup specifically to provide a forum for discussions following the three-part STARLINK® series: I Taught It But They Didn’t Learn It Teleconferences. In this way, we hope to provide clarification and support for your continued learning about developing teaching strategies for today's classroom to keep students learning. You are welcome to ask questions of the other teleconference participants who have signed onto the listserv and to provide input to help others on the list. In order to sign up and subscribe to this listserv, please send the following e-mail message via the Internet:

To: MAISER@cecs.unt.edu
Subject: (Leave blank)

(In the body text type: )
SUBSCRIBE TEACHTEK (Leave a space between subscribe and TEACHTEK)

Send the message. You should then receive a welcome message from the mailserver (MAISER) at the the College of Education at the University of North Texas. If you have problems, send an e-mail message to Linda Alexander at the following e-mail address: lalexand@tenet.edu

The welcome message will give you instructions about sending messages to the list, as well as other information. After you subscribe and receive the welcome message, you then can send e-mail messages to be posted to the TEACHTEK listserv group:

To: TEACHTEK@cecs.unt.edu
Subject: e.g. Introducing myself
(In the body text type your message to be sent out to everyone on the list)

Send the message. The message will then be automatically sent to all the participants who have signed up for the TEACHTEK listserv, including yourself. Please send messages to be posted on the TEACHTEK listserv to the TEACHTEK address.

Please remember to send subscribe and unsubscribe e-mail only to MAISER (the mailserver on the computer). You may unsubscribe from this listserv at any time. The welcome message will give you the unsubscribe procedure.

Please also note: MAISER can only receive messages that are sent via the Internet. MAISER can not receive messages from BITNET* addresses.

* Note: This was later found to not be the case, because some participants did subscribe to TEACHTEK with BITNET e-mail addresses.

TEACHTEK - Listserv Information © 1994 Linda H. Alexander
January 26, 1994
APPENDIX 6

STARLINK® SURVEY THREE
TEACHTEKers:
In order to know how helpful it has been for you to have the services of
this TEACHTEK listserv for follow-up to the STARLINK teleconference series: *I
Taught It But They Didn*t Learn It*, we would really appreciate your answering the
following short-answer questions.

You can use the reply command to send the survey back by e-mail or you may want to
download the survey as a file to your computer and answer the
questions off-line and then e-mail the survey back to:

Linda Alexander at: lalexand@tenet.edu.

If you are having problems sending back the survey by e-mail or
downloading and/or uploading the file, you can request a hard copy of this
survey from Linda Alexander that will be mailed to you directly by U.S.
post. Just send an e-mail message to Linda requesting the survey form.
Be sure to include your *snail mail address*, so she will know where to
send it! You will be sent a blank survey and a stamped, addressed
envelope for returning the survey.

! *Please Note: Do not send your replies to the whole TEACHTEK listserv!

Send them to Linda! - the listserv developer at: lalexand@tenet.edu.

We hope to be able to serve you better in the future, so your responses
are very important!!

Any extra comments that you have, would also be appreciated.

Note: Your responses will be completely anonymous. Your e-mail address
and name will be removed from the survey and heading. All responses will
remain confidential. Filling out this survey is voluntary, but we would
appreciate your feedback! The questions can be quickly answered.
1. Did you fill out the STARLINK Survey about computers, e-mail and listservs that was administered right after the teleconference? Please put an X on one:

   (1) Yes
   (2) No

2. Was this TEACHTEK listserv helpful to you as a follow-up activity for the teleconference? Please put an X on one:

   (1) Extremely helpful
   (2) Helped quite a bit
   (3) Moderately helpful
   (4) Helped a little
   (5) Not helpful

3. What aspects of the TEACHTEK LISTSERV were MOST HELPFUL to you as follow-up to the STARLINK teleconference? Rank from 1-6 with 1 being the MOST HELPFUL ASPECT:

   (1) Resources of experts
   (2) Clarification of concepts
   (3) Met new colleagues
   (4) Questions answered
   (5) Learned about Internet
   (6) Other

4. Did accessing this TEACHTEK listserv, after viewing the STARLINK teleconferences, satisfy your needs more than just viewing the teleconferences only would have? Please mark an X by *one item* below:

   (1) Yes, the teleconferences & listserv satisfied my needs.
   (2) No, the teleconferences alone were sufficient.
   (3) No, the teleconferences and listserv did not meet my needs.

5. Has the TEACHTEK listserv facilitated CHANGES in the way you do your work? Please mark one.

   (1) No
   (2) Yes. If yes, please state what has changed.

6. Has using this listserv, specifically established for community college personnel, been particularly SUPPORTIVE of your COLLEGE TEACHING? Please choose *one*:

   (1) Very supportive
   (2) Quite supportive
   (3) Supportive
   (4) Somewhat supportive
   (5) Not very supportive

7. For what purposes did you access the listserv? Rank from 1-5 with 1 being your primary purpose:

   (12) Professional development
   (13) Technological support
   (14) Answers to questions
   (15) Curiosity
   (16) Other

------------------------------------------
8. Did the content of the listserv provide learning resources that extended beyond the original content of the teleconference? Choose one.
   (1) ___ Yes
   (2) ___ No

9. Has accessing this TEACHTEK listserv been helpful in learning how to explore other services on the Internet? Mark *one* with an X.
   (1) ___ Extremely helpful
   (2) ___ Helped quite a bit
   (3) ___ Moderately helpful
   (4) ___ Helped a little
   (5) ___ Not helpful

10. How helpful have the following been in your LEARNING TO USE the INTERNET? Put an X on one choice for *each* of the following:

    Institution's Workshop(s):
    (1) ___ very helpful    (2) ___ quite helpful    (3) ___ helpful
    (4) ___ somewhat helpful    (5) ___ not helpful
    (6) never experienced

    Faculty / Colleague / Friend:
    (1) ___ very helpful    (2) ___ quite helpful    (3) ___ helpful
    (4) ___ somewhat helpful    (5) ___ not helpful
    (6) never experienced

    TEACHTEK Listserv
    (1) ___ very helpful    (2) ___ quite helpful    (3) ___ helpful
    (4) ___ somewhat helpful    (5) ___ not helpful

    Computer tutorial:
    (1) ___ very helpful    (2) ___ quite helpful    (3) ___ helpful
    (4) ___ somewhat helpful    (5) ___ not helpful
    (6) never experienced

    The STARLINK teleconference on Internet (Nov. 3, 1993):
    (1) ___ very helpful    (2) ___ quite helpful    (3) ___ helpful
    (4) ___ somewhat helpful    (5) ___ not helpful
    (7) not seen

    Video tape(s):
    (1) ___ very helpful    (2) ___ quite helpful    (3) ___ helpful
    (4) ___ somewhat helpful    (5) ___ not helpful
    (6) never experienced
Books:
(1) very helpful  (2) quite helpful  (3) helpful
(4) somewhat helpful  (5) not helpful
(6) never experienced

Other
(1) very helpful  (2) quite helpful  (3) helpful
(4) somewhat helpful  (5) not helpful

11. What hinders or has hindered your learning to use the Internet more effectively? Mark *one* with an X that has HINDERED YOU THE MOST.
(1) Lack of access to a computer or network
(2) Lack of training
(3) Lack of time
(4) Feeling uncomfortable about using computers
(5) No real need to know Internet for work
(6) College does not give staff support
(7) Other

12. Do you think that using a listserv allows *open learning* in which participants have more control over: when they learn, how often they learn, how long they learn and what they learn? Mark one.
(1) Yes
(2) No
(3) Maybe, explain

13. Were your after teleconference goals for continued learning best met by using the TEACHTEK listserv or was some other support needed? Please mark one.
(1) Yes, the listserv met my needs for support after the teleconferences.
(2) No, I needed more help from:

14. How necessary do you think it is to have EXPERTS from the TELECONFERENCES on the listserv to answer questions? Please mark *one* with an X.
(1) Not necessary  (2) Somewhat necessary  (3) Necessary
(4) Quite necessary  (5) Very necessary

15. Would you sign up again for a listserv if STARLINK provided this service for follow-up to its teleconferences? Please mark one with an X.
(1) Yes
(2) No. If no, why not?
16. Would you prefer to have STARLINK listservs provided through an Internet news group/conference service instead of via your e-mail box? Please mark one with an X.
   (1) ___ Yes
   (2) ___ No
   (3) ___ Do not know.

17. Please mark an X next to all the STARLINK Teleconferences that you have seen (live or on video tape):
   (1) ___ The Global Connection: Internet in the Classroom (Nov. 3, 1993)
   (2) ___ Educational Use of Copyrighted Material: Infringement or Fair Use? (Dec. 2, 1993)
   (3) ___ I Taught It But They Didn't Learn It - Program 1: Getting Beyond the Yes But (Jan. 26, 1994)
   (4) ___ I Taught It But They Didn't Learn It - Program 2: Sharpening Your Teaching Skills (Feb. 2, 1994)
   (5) ___ I Taught It But They Didn't Learn It - Program 3: Student Learning Strategies (Feb. 9, 1994)

18. How are you connected to the Internet? Please mark with an X *all* that apply:
   (1) ___ My institution's network.
   (2) ___ Modem in office connected to commercial service.
   (3) ___ Modem at home connected to my institution's network.
   (4) ___ Modem at home connected to a commercial service.

Your College/University: ________________________________
Listserv Name: (3) TEACHTEK
LAST 4 digits of your Social Security Number: __ __ __ __
Today's Date: (mm/dd)___/___
(Please Mark with X) (1) ___ Female (2) ___ Male
Your E-mail address: ________________________________

Please feel free to add any other comments!
Many thanks, you have been a great help! Please send your filled out survey to Linda Alexander at lalexand@tenet.edu
Cheers :)
Linda H. Alexander
lalexand@tenet.edu
STARLINK Survey 3-3 TEACHTEK
Copyright© Linda H. Alexander
APPENDIX 7

AUTOMATIC LISTSERV WELCOME MESSAGE AND LISTSERV GUIDE VIA INTERNET
Dear STARLINK Participants,

Welcome to TEACHTEK!! You have been added to the listserv distribution list called TEACHTEK - a discussion list for community college faculty who participated in all or any of the STARLINK Teleconference Series on teaching techniques: I Taught It But They Didn't Learn It - A Workshop on Teaching Strategies produced January 26, February 2, and February 9, 1994.

We hope you will enjoy participating in this Internet listserv. Participation in this list is completely voluntary. E-mail your questions, comments or answers concerning teaching strategies and watch your e-mailbox for replies.

Two other STARLINK listservs are currently in progress called STARNET and LEGALIST. STARNET was started immediately following the November 3, 1993 STARLINK Teleconference that presented information about using the Internet to support community and technical colleges. LEGALIST supports the subject of educational use of copyrighted material from the teleconference held December 2, 1993. See the instructions below if you are interested in participating in these STARLINK listservs.

TEACHTEK, LEGALIST and STARNET are part of a pilot study to determine if this type of support is helpful to community and technical college faculty as follow-up to STARLINK teleconferences. We will be posting some questions in a couple of weeks to receive your feedback as to how helpful this listserv has been for you. Your comments and suggestions are welcome to improve the system.

These listservs are being developed by Linda Alexander with the support of the Department of Technology and Cognition in the College of Education at the University of North Texas. If you have questions, please send an e-mail message to Linda at: lalexand@tenet.edu

To unsubscribe to this listserv, which can be done at any time, send an e-mail message to the mail server at:

MAISER@cecs.unt.edu with no subject listed and with the following message in the body text:

UNSUBSCRIBE TEACHTEK

Please note that this command must NOT be sent to the list address but to the mail server address: MAISER@cecs.unt.edu

I am including below your TEACHTEK Guide. Please save a copy of it for your reference later.
Welcome to the listserv! Please do not forget to send an e-mail message introducing yourself to the listserv at: TEACHTEK@cecs.unt.edu

Virtually,

Linda Alexander
lalexand@tenet.edu

---

TEACHTEK GUIDE

This guide lists some of the most commonly asked questions about using TEACHTEK. They deal with the following topics:

1) Subscribing to the TEACHTEK listserv.
2) Format for messages to the list.
3) Where to send messages (i.e. difference between MAISER@cecs.unt.edu and TEACHTEK@cecs.unt.edu).
4) Stopping mail temporarily.
5) To unsubscribe from the listserv.
6) Getting a list of subscribers.
7) Getting a list of all the STARLINK Teleconference listservs.
8) Replying to TEACHTEK vs replying privately.
9) Request for Help.
10) Subscribing to the STARNET and LEGALIST listservs.

Save this guide for future reference!

1) HOW DO I SUBSCRIBE TO THE TEACHTEK LISTSERV?

Send an e-mail message to:
MAISER@cecs.unt.edu
Leave the subject heading blank and put the following message in the body text:

SUBSCRIBE TEACHTEK

Leave a space between subscribe and teachtek. You can also use just SUB TEACHTEK.

2) IS THERE A PREFERRED FORMAT TO USE FOR MESSAGES SENT TO THE LIST?

Yes. Please ALWAYS put your name and e-mail address at the end of every posting. (It is important that people be able to contact you privately if they wish, and some mail systems do not identify the writer anywhere in the header.)
Also, if you are replying to the posting of someone else, use an appropriate subject heading and briefly quote or summarize that posting before you offer your reply. This will make your message clearer and help to avoid confusion. You can indicate the message you are replying to by using a < before each line. Some e-mail software will do this for you automatically.

3) WHAT IS THE DIFFERENCE BETWEEN MAISER@cecs.unt.edu AND TEACHTEK@cecs.unt.edu? HOW DO I KNOW WHICH ADDRESS TO USE?

MAISER@cecs.unt.edu is a computer program; TEACHTEK@cecs.unt.edu is a file.

TEACHTEK@cecs.unt.edu should be used ONLY for messages that you wish to send to all TEACHTEK subscribers.

Commands such as SUBSCRIBE, and UNSUBSCRIBE etc. should be sent to MAISER@cecs.unt.edu.

If you have a question about your subscription that you want a human being to read, send it to the list owner, Linda Alexander:
laalexand@tenet.edu

4) I AM GOING ON VACATION FOR SEVERAL WEEKS. CAN I STOP MAIL WHILE I AM AWAY, OR DO I HAVE TO UNSUBSCRIBE?

You can stop mail temporarily by sending the following message to: MAISER@cecs.unt.edu

SET TEACHTEK NOMAIL.

When you want mail to start arriving again, send the following message to the same address: SET TEACHTEK MAIL.

Note: BE SURE TO SEND THIS MESSAGE TO MAISER, NOT TO TEACHTEK!

5) HOW DO I UNSUBSCRIBE TO TEACHTEK?

To unsubscribe send the following message to MAISER@cecs.unt.edu

UNSUBSCRIBE TEACHTEK (with a space between).
You can also use just UNSUB TEACHTEK or SIGNOFF TEACHTEK. Remember, you are free to unsubscribe at any time.

6) HOW CAN I GET A LIST OF SUBSCRIBERS TO TEACHTEK?

To get a current list of TEACHTEK subscribers, send the following message to MAISER@cecs.unt.edu

ENUMERATE TEACHTEK

In a minute or two, you will get back a mail message with the list of subscribers.
7) HOW CAN I GET A LIST OF ALL THE LISTS AVAILABLE FOR STARLINK TELECONFERENCES?
Send the message to MAISER@cecs.unt.edu:
LIST

8) WHEN SHOULD I REPLY TO TEACHTEK RATHER THAN PRIVATELY?
You should send replies to TEACHTEK when the contents are likely to be interesting to a number of subscribers. Comments directed to a particular person should be sent privately, directly to the e-mail address of the person, NOT to TEACHTEK.

9) HOW CAN I GET THE MAISER HELP FILE?
Send the message to MAISER@cecs.unt.edu:
HELP

10) HOW CAN I SUBSCRIBE TO THE STARNET LISTSERV THAT DISCUSSES USING THE INTERNET AND/OR THE LEGALIST LISTSERV THAT DISCUSSES EDUCATIONAL USE OF COPYRIGHTED MATERIALS?
Send an e-mail message to:
MAISER@cecs.unt.edu
Leave the subject heading blank and put the following message in the body text:
SUBSCRIBE STARNET
or
SUBSCRIBE LEGALIST
Leave a space between subscribe and starnet or legalist. You can also use just SUB STARNET
or
SUB LEGALIST.

Hope you enjoy the listserv TEACHTEK! Please send an e-mail message now to the listserv at: TEACHTEK@cecs.unt.edu to introduce yourself to everyone else on the list.

Linda H. Alexander :) 
PhD. Candidate - University of North Texas
lalexand@tenet.edu
LIST OF TEXAS COMMUNITY/TECHNICAL/JUNIOR COLLEGES
ELIGIBLE TO SEE ALL STARLINK® TELECONFERENCES
List of Texas Community/Technical/Junior Colleges Eligable to Receive the STARLINK® Teleconferences

Key:
* = At least one person completed Survey 2
L = Had at least one person on LEGALIST Listserv
S = Had at least one person on STARNET Listserv
T = Had at least one person on TEACHTEK Listserv
Codes Assigned Used in Coding Survey 2 and Survey 3

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062  Weatherford College*
063  Wharton Junior College  S
APPENDIX 9

LIST OF TWO YEAR INSTITUTIONS OUTSIDE THE STATE OF TEXAS AND HIGHER EDUCATION INSTITUTIONS THAT AWARD ASSOCIATE DEGREES AS WELL AS HIGHER DEGREES THAT PAID FEES TO VIEW THE STARLINK® SERIES: I TAUGHT IT BUT THEY DIDN'T LEARN IT
List of Two Year Institutions Outside the State of Texas and Higher Education Institutions That Award Associate Degrees as Well as Higher Degrees That Paid Fees to View the STARLINK® Teleconference Series: I Taught It But They Didn’t Learn It

Key:
* = At least one person completed Survey 2
L = Had at least one person on LEGALIST Listserv
S = Had at least one person on STARNET Listserv
T = Had at least one person on TEACHTEK Listserv

Codes Assigned Used in Coding Survey 2 and Survey 3

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122 Devry Institute of Technology - Ohio*
123 Dickinson State University - North Dakota*
124 East Tennessee State University - Tennessee L T
125 Erie Community College - City Campus - New York
126 Fairmont State College - West Virginia
127 Florida Community College at Jacksonville - Florida*
128 Gaston College - North Carolina*
129 Green River Community College - Washington
130 Greenville Technical College - South Carolina* T
131 Hinds Community College - Mississippi
132 Howard Community College - Maryland*
133 Hutchinson Community College - Kansas*
134 Indian Hills Community College - Iowa
135 Indiana Vocational Technical College/Wabash Valley - Indiana
136 Jackson Community College - Michigan
137 Jackson State Community College - Tennessee*
138 Jefferson Community College - New York
139 John A. Logan College - Illinois*
140 Johnson County Community College* - Kansas
141 Joliet Junior College - Joliet, Illinois* T
142 Kalamazoo Valley Community College - Michigan
143 Kansas City Kansas Community College - Kansas*
144 King's College - Pennsylvania
145 Lakeshore Technical College - Wisconsin
146 Lane Comm College/Lane Education Service District - Oregon L
147 Louisiana Tech University - Louisiana* T
148 Lyndon State College - Vermont
149 Macomb Community College - Michigan
150 Maple Woods Community College - Missouri*
151 Maricopa County Community College - Glendale - Arizona*
Marygrove College - Michigan

Medicine Hat College - Canada

Mercer County Community College - New Jersey*

Mesa Community College - Arizona

Metropolitan Community College - Missouri

Metropolitan Community College - Omaha - Nebraska

Michigan Dade Community College - Florida*

Michigan Technological University - Michigan* T

Mohawk College - Hamilton, Ontario, Canada S

Monroe County Community College - Michigan

Montgomery County Community College - Pennsylvania

Multnomah School of the Bible - Seminary - Oregon

New Hampshire Technical College - Nashua - New Hampshire

New Mexico State University - New Mexico

Niagara Community College - New York

North Arkansas Community College - Arkansas

North Idaho College - Idaho

Northwestern Michigan College - Michigan* T

Northwestern State University - Louisiana

Palm Beach Community College - Florida*

Paradise Valley Community College - Arizona*

Pennsylvania College of Technology - Pennsylvania*

Pennsylvania Valley Community College - Pennsylvania*

Pittsburg State University - Kansas

Purdue University - Calumet - Indiana T

Reading Area Community College - Pennsylvania

Riverside Community College - California

Rochester Institute of Technology - New York* T
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<td>Vincennes University - Indiana</td>
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216 University of Hawaii - Leeward Community College - Hawaii
217 Mott Community College
218 Anson Community College - Polkton, North Carolina
219 Mohawk College - Ontario, Canada
220 Hillsborough Community College - Tampa, Florida
119 Dallas Baptist University - Texas*
162 Midwestern State University - Texas
190 St. Philip's College - Texas*
APPENDIX 10

LIST OF INSTITUTIONS AWARDING DEGREES ONLY BEYOND THE ASSOCIATE DEGREE AND OTHER SITES THAT PAID FEES TO VIEW THE STARLINK® TELECONFERENCE SERIES:

I TAUGHT IT BUT THEY DIDN'T LEARN IT
List of Institutions Awarding Degrees Only Beyond the Associate Degree and Other Sites That Paid Fees to View the STARLINK® Teleconference Series: I Taught It But They Didn’t Learn It

Key:
* = At least one person completed Survey 2
L = Had at least one person on LEGALIST Listserv
S = Had at least one person on STARNET Listserv
T = Had at least one person on TEACHTEK Listserv

Codes Assigned Used in Coding Survey 2 and Survey 3

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</table>
312    Sam Houston State University - Texas*
319    University of North Texas - Texas T
324    University of Central Texas - Texas S
325    (Southern Methodist University - Copyright only) L

Other Sites Participating in STARLINK® Series:
401    Auraria Media Center - Colorado
402    Center Grove Community School Corporation - Indiana
403    Mandaree Public Schools - North Dakota
404    Suny/Health Science Center - Brooklyn, New York
APPENDIX 11

EXAMPLES OF E-MAIL MESSAGES SENT BY MODERATOR
Examples of E-mail Messages Sent By Moderator

Note: The following message was sent to all STARNET and LEGALIST listserv members as well as some participants who completed Survey 2 for the November and December 1993 STARLINK® teleconferences and indicated their e-mail addresses.

From lalexand@tenet.edu Wed Jan 26 13:11:58 1994
Date: Wed, 26 Jan 1994 12:45:18 -0600 (CST)
From: Linda Hackney Alexander <lalexand@tenet.edu>
To:
Subject: STARLINK® Tele. & New Listserv

I thought you might be interested in this -
ANNOUNCEMENT!! ANNOUNCEMENT!! ANNOUNCEMENT!!
STARLINK® Presents:

I TAUGHT IT BUT THEY DIDN'T LEARN IT

A Three-Part VIDEOCONFERENCE on developing teaching strategies for today's classroom to keep students learning. This series is designed to provide professional development for new and experienced faculty from all disciplines in Higher Education, but particularly for faculty at the Community College level.

Presented via Satellite - Starting Today: January 26, and subsequent Wednesdays, February 2 and February 9, 1994 2-3:30 P.M. CST

* SPECIAL ADDED SERVICE Listserv:TEACHTEK, a new INTERNET listserv especially created to provide follow-up and networking with other participants and experts from this new STARLINK® Teleconference Series.

See below for sign up instructions for the TEACHTEK listserv. This is a free service.

STARLINK® THREE PART SERIES:
Program I - * Beyond the Yes, But....* - Fundamental principles and examples for honing teaching skills. Jan. 26, 1994 2-3:30 P.M. CST
With the Expert Panel:

* Dr. Thomas Angelo - Director of the Academic Development Center, Boston College

* Dr. Zelda Gamson - Prof. & Dir. of New England Resource Center for Higher Education, University of Massachusetts

* Dr. Susanne Roueche - Director of the National Institute for Staff & Organizational Development, Austin, Texas

* Dr. John Roueche - Prof. & Dir. of the Community College Leadership Program, University of Texas

Program 2 - * Sharpening Your Teaching Skills * - 14 Research-based principles for improving higher learning. Feb. 2, 1994 2-3:30 P.M. CST

Program 3 - * Student Learning Strategies * - Student learning styles. Feb. 9, 1994 2-3:30 P.M. CST

With the added expertise of:

Dr. Claire E. Weinstein - Professor of Education, University of Texas

For information about getting the downlink and your nearest site, contact STARLINK®:

E-mail STARLINK® Director, Henry Hartman:
hfh8619.rlc1@pcmail.dcccd.edu
(That's RLC and the number one)

SnailMail:

STARLINK®
Att. Henry Hartman
R. Jan LeCroy Center
9596 Walnut Street
Dallas, TX 75243-2199
TEACHTEK Listserv Information

You are invited to join a special listserv called TEACHTEK, which has been set up specifically to provide a forum for discussions following the STARLINK® Teleconference Series: I Taught It But They Didn’t Learn It. In this way, we hope to provide more support for your learning new techniques for teaching and for sharing your experience with others. You are welcome to ask questions of the other teleconference participants from throughout Texas, the U.S. and Canada and to provide input to help others.

In order to sign up and subscribe to the listserv, please send the following e-mail message via the Internet:

To: MAISER@cecs.unt.edu
Subject: (Leave blank)

(In the body text type: )

SUBSCRIBE TEACHTEK (Leave a space between subscribe and TEACHTEK)

Send the message.

Your should then receive a welcome message from the mailserver (MAISER) at the College of Education at the University of North Texas. If you have problems, send an e-mail message to Linda Alexander at the following e-mail address: lalexand@tenet.edu

The welcome message will give you instructions about sending messages to the list, as well as other information. After you subscribe and receive the welcome message, you then can send e-mail messages to be posted to the TEACHTEK listserv group:

To: TEACHTEK@cecs.unt.edu
Subject: e.g. Introducing myself

(In the body text, type your message to be sent out to everyone on the list)

Send the message. The message will then be automatically sent to all the participants who have signed up for the TEACHTEK listserv, including yourself.
Please remember to send subscribe and unsubscribe e-mail only to MAISER (the mailserver on the computer). Send messages to be posted on the TEACHTEK listserv to the TEACHTEK address.

Please also note: MAISER can only receive messages that are sent via the Internet. This includes commercial services like CompuServe, Prodigy and America Online, in case you subscribe to these at your home. MAISER cannot receive messages from BITNET addresses.

We look forward to hearing from you on the Internet!

Linda Alexander
lalexand@tenet.edu

TEACHTEK - Listserv Information 1994 Linda H. Alexander

January 26, 1994

Note: E-mail response from STARLINK® past participant.

Date: Thu, 27 Jan 1994 10:37:46 -0800 (PST)
From: E.S.
To: Linda Hackney Alexander <lalexand@tenet.edu>
Subject: Re: STARLINK® Tele & Listserv

Thanks for the info. I won't be able to attend, as I'm teaching then.

E.S.
Note: Moderator encouraging participation in Teleconferences via video tape and TEACHTEK Listserv. Sent to STARNET Listserv.

From lalexand@Joyce-Perkins.tenet.edu Thu Jan 27 14:08:10 1994
Date: Thu, 27 Jan 1994 12:57:21 -0600 (CST)
From: Linda Hackney Alexander <lalexand@Joyce-Perkins.tenet.edu>
Reply to: starnet@cecs.unt.edu
To: Starlink Starnet list
Subject: Re: STARLINK® Tele & Listserv

E.S.

Usually all the downlink sites record the teleconferences on video tape. You may be able to view the tape at a time convenient for you. It was a very interesting program and will have follow-on sessions next Wednesday Feb. 2 and Wednesday Feb. 9 from 2-3:30 CST. Again, you could most likely see them by video after the teleconference and still therefore sign on to the listserv TEACHTEK and participate. Hope to hear more from you soon. This series is a great help to all teachers teaching undergraduates. We will have the nationally known experts from the programs on the TEACHTEK listserv.

Cheers :)
Linda Alexander
lalexand@tenet.edu

Note: Examples of Email messages by moderator to TEACHTEK Listserv to facilitate conversation.

From lalexand@tenet.edu Fri Jan 28 17:21:16 1994
Date: Fri, 28 Jan 1994 16:56:23 -0600 (CST)
From: Linda Hackney Alexander <lalexand@tenet.edu>
To: TEACHTEK@cecs.unt.edu
Subject: Hello to All

Welcome to all of you on the TEACHTEK listserv! Please send us an e-mail introducing yourself to the other participants. If you sent an introductory message to TEACHTEK earlier, please send it again, as our computer had a little glitch in its get-along and was not sending out messages. Just sent your message to: TEACHTEK@cecs.unt.edu
We look forward to learning more about you, the work that you do, and also of course your reactions to the STARLINK® teleconference on teaching techniques.

Cheers :)  
Linda Alexander  
lalexand@tenet.edu

From lalexand@Joyce-Perkins.tenet.edu Mon Jan 31 10:50:06 1994  
Date: Mon, 31 Jan 1994 08:36:20 -0600 (CST)  
From: Linda Hackney Alexander <lalexand@Joyce-Perkins.tenet.edu>  
Reply to: teachtek@cecs.unt.edu  
To: Starlink Teachtek <teachtek@cecs.unt.edu>  
Subject: Re:STARLINK® Examples

S-  
Welcome to TEACHTEK. Yes, more examples of applications would be helpful. Henry Hartman, the director of the STARLINK® teleconferences, is on this listserv so I am sure he will be taking note of our comments in regards to the two following teleconferences that will be held this coming Wednesday, Feb. 2 and next Wednesday, Feb. 9. These will be expanding on what we have seen so far. Also, Tom Angelo, the main presenter of the Seven Principles for Good Practice in Undergraduate Education, is on this listserv. I am sure he can give us some good examples.

Even more to the point, let's get a discussion going here about examples that support the 7 Principles. The first one Tom presented in the program was-- Use Active Learning Techniques. In the hand out (AAHE Bulletin page 8) it says that active learning is encouraged in classes that use STRUCTURED EXERCISES, CHALLENGING DISCUSSIONS, TEAM PROJECTS AND PEER CRITIQUES. Who can give us some specific examples of how they have used these approaches in their own classroom?

Cheers :)  
Linda Alexander  
lalexand@tenet.edu
Note: Moderator's welcome to new subscriber who had given an introduction and asked for information.

Date: Tue, 1 Feb 1994 15:26:00 -0600 (CST)
From: Linda Hackney Alexander <lalexand@gaston.tenet.edu>
Reply to: teachtek@cecs.unt.edu
To: Starlink Teachtek <teachtek@cecs.unt.edu>
Subject: Re: Introducing KU

K-
Welcome to the TEACHTEK listserv! We hope that you will continue to receive more helpful information from the teleconference series and from the participants on this listserv. Does anyone have some suggestions for K. to help him get away from a lecture approach, given the fact that he has fairly large classes?

Cheers :)
Linda Alexander
lalexand@tenet.edu

---

Note: Moderator giving information about e-mail.

Date: Tue, 1 Feb 1994 15:30:41 -0600 (CST)
From: Linda Hackney Alexander <lalexand@gaston.tenet.edu>
Reply to: teachtek@cecs.unt.edu
To: Starlink Teachtek <teachtek@cecs.unt.edu>
Subject: Re: Maybe I goofed!

K-
No you did not goof. Your return e-mail address came in the header of the e-mail. We recommend, for courtesy reasons, that you put your name and e-mail address at the end of your message, mainly because sometimes, when you get long "threads" of conversations on a listserv (i.e. several people adding on to a message,) sometimes the author of a particular statement is not clear. Also, some e-mail systems may not have headers that can be easily read to figure out who sent the message. Sometimes e-mail addresses give little clue as to who sent them. So including your name and e-mail at the end, facilitates communications. Thanks for reading over the welcome message! It is a bit long but has some helpful information.

Cheers :) 
Linda Alexander
Note: The below message was bounced back with incorrect e-mail addresses. Some STARLINK® participants did not know their correct e-mail and therefore were unable to receive messages like this sent out by the moderator.

Date: Tue, 1 Feb 1994 16:28:30 -0600 (CST)
From: Linda Hackney Alexander <lalexand@tenet.edu>
Subject: STARLINK® Listserv/Teleconference
To:

C., M. G., and M. R.,

We were pleased that you were able to attend last week*s STARLINK® Teleconference on Teaching Techniques and hope that you will be able to attend tomorrow*s teleconference that is the second in the series and will be broadcast at 2:00 P.M. Central time. I do not believe that you have signed onto the TEACHTEK listserv, yet. We would like to have you join us, as well as any other of your colleagues who are participating in the STARLINK® Teleconferences. To sign onto the listserv is very simple. Send an e-mail message to the mailserver at University. of North Texas:

MAISER@cecs.unt.edu

Leave the Subject blank

In the body text type in:

SUBSCRIBE TEACHTEK (with a space between the words).

Send the message and in a short period of time, you should receive the welcome message asking you to send the TEACHTEK listserv a message introducing yourself to the listserv. That message gets sent to:
TEACHTEK@cecs.unt.edu

We look forward to hearing from you!

Cheers :) 
Linda Alexander
lalexand@tenet.edu
Note: Moderator's message to TEACHTEK about next STARLINK® teleconference in the series.

From lalexand@gaston.tenet.edu Wed Feb 2 11:44:42 1994
Date: Wed, 2 Feb 1994 10:36:16 -0600 (CST)
From: Linda Hackney Alexander <lalexand@gaston.tenet.edu>
To: StarlinkTEACHTEK list <teachtek@cecs.unt.edu>
Subject: STARLINK® TELE.TODAY

TEACHTEKers -
Remember that the next program in the STARLINK® series: I TAUGHT IT BUT THEY DIDN'T LEARN IT will be presented TODAY, WEDNESDAY FEBRUARY 2 from 2:00 to 3:30 p.m. Central Time. Dr. Tom Angelo and Dr. Suanne Roueche (the wife of Dr. John Roueche who appeared in last week's program) will be providing us with more input about teaching techniques. There will be activities that illustrate Dr. Angelo's Teacher's Dozen: 14 Research-Based Principles for Improving Higher Learning in the Classroom. Both Dr. Angelo and Dr. Roueche will be in the Dallas studios to answer any questions you may have during the teleconference, so feel free to call into the studios by the telephone number provided on the tv screen.

Remember also that if by some chance you are unable to attend today's live broadcast, you should be able to view it by videotape, as most of the sites videotape the teleconference as they receive the downlink from the satellite.

Also, we are looking forward to more people signing onto the listserv today. Encourage your colleagues to join in our discussion here on the TEACHTEK listserv. The sign on instructions will be included in your packet handout as before.

PLEASE NOTE: If you did not fill out the survey in the handout called: STARLINK® SURVEY( about your use of the Internet)last week, please fill it out today after the teleconference. This will help me to help you better.

Thanks for all your help!

Cheers and looking forward to the teleconference with you TODAY!
Linda Alexander
Note: Message from a participant of TEACHTEK

From edu Fri Feb 4 14:15:57 1994
Date: Fri, 04 Feb 1994 12:51:23 EST
From: edu
Reply to: teachtek@cecs.unt.edu
To: Starlink Teachtek <teachtek@cecs.unt.edu>
Subject: RE: Re: 2nd. STARLINK® Teleconference

I enjoyed the 2nd conference very much. With some effort - I gave them a copy of Tom Angelo's e-mail message that it was good to talk to each other - and we did! Perhaps it will grow into a discussion group or groups. I feel like I, with your help, have planted some seeds.

NC

Note: Moderator's response to a message sent by a TEACHTEK participant whose e-mail message could be interpreted as a very negative comment.

From lalexand@gaston.tenet.edu Fri Feb 11 22:01:59 1994
Date: Fri, 11 Feb 1994 17:34:39 -0600 (CST)
From: Linda Hackney Alexander <lalexand@gaston.tenet.edu>
Reply to: teachtek@cecs.unt.edu
To: Starlink Teachtek <teachtek@cecs.unt.edu>
Subject: Re: Learning styles vs. developmental levels

...Also, to all, please take care in your choice of words when using the Internet. One increasingly used convention is to use symbols after a statement to help carry the tone of your message e.g.:)
[happy face], :
[sad face] :0 [surprise] ;) [wink] (to show you are kidding).
Or invent your own. Have fun with it!

Cheers and I hope it is warming up where you are as it has finally done in Dallas---great sunny day it was---what a Friday!

Linda Alexander
lalexand@tenet.edu
Note: Moderator's invitation to a teleconference participant who completed Survey 2.

From lalexand@tenet.edu Tue Feb 22 14:34:27 1994
Date: Fri, 18 Feb 1994 13:43:21 -0600 (CST)
From: Linda Hackney Alexander <lalexand@tenet.edu>
To: 
Subject: STARLINK® listserv

M -

I received your STARLINK® survey form from the Feb. 2
STARLINK® Teleconference on Teaching Techniques (the second in
the series). You indicated an interest in signing onto the TEACHTEK
listserv, but I do not see your e-mail address currently on the list. To
sign on all you have to do is send an e-mail message to:

MAISER@cecs.unt.edu

Leave the subject blank and type the message in the body text:

SUBSCRIBE TEACHTEK (leave a space between the two words)

You should shortly receive back the welcome message with
information about sending an introductory message about yourself to
the listserv at:
TEACHTEK@cecs.unt.edu

We look forward to hearing from you!

Cheers :)

Linda Alexander
lalexand@tenet.edu
Note: Moderator's e-mail message to STARLINK® teleconference participants who completed Survey 2 who were all from the same institution. This would mean that participants would see that others on their campus might be subscribing to the listserv.

From lalexand@tenet.edu Wed Feb 2 12:33:27 1994
Date: Wed, 2 Feb 1994 12:02:33 -0600 (CST)
From: Linda Hackney Alexander <lalexand@tenet.edu>
To: 
Subject: STARLINK® Teleconfer. & Listserv

G, M, I and V,

We were pleased that you were able to attend last week’s STARLINK® Teleconference on Teaching Techniques and hope that you will be able to attend today’s teleconference that is the second in the series and will be broadcast at 2:00 P.M. Central time. If you are unable to view the teleconference live today, Austin Community should have a videotape of the teleconference that you could watch at a more convenient time. Both Dr. Angelo and Dr. Suanne Roueche (the wife of Dr. John Roueche who was on last week’s teleconference) will be presenting more ideas for teaching techniques in the undergraduate classroom. I do not believe that you have signed onto the TEACHTEK listserv, yet. We would like to have you join us, as well as any other of your colleagues who are participating in the STARLINK® Teleconferences. To sign onto the listserv is very simple.

Send an e-mail message to the mailserver at University. of North Texas:

MAISER@cecs.unt.edu
Leave the Subject blank
In the body text type in:

SUBSCRIBE TEACHTEK (with a space between the words).

Send the message and in a short period of time, you should receive the welcome message asking you to send the TEACHTEK listserv a
message introducing yourself to the listserv. That message gets sent to:
TEACHTEK@cecs.unt.edu
We look forward to hearing from you!
Cheers :)  
Linda Alexander

Note: Moderator's announcement of the third teleconference in the series on teaching strategies.

From lalexand@gaston.tenet.edu Wed Feb 9 10:25:12 1994
Date: Wed, 9 Feb 1994 08:47:19 -0600 (CST)
From: Linda Hackney Alexander <lalexand@gaston.tenet.edu>
Reply to: starnet@cecs.unt.edu
To: Starlink Starnet list <teachtek@cecs.unt.edu>
Subject: STARLINK® Teleconference 3

TODAY'S SPECIAL EVENT  !!!

STARLINK® Teleconference: I Taught It But They Didn't Learn It
PROGRAM III: STUDENT LEARNING STRATEGIES

Join us for the final in this fine series on improving your teaching through facilitating your students' learning strategies. The live video teleconference will be held:
Today, Wednesday February 9 at 2:00 -3:30 PM Central Standard Time.

We look forward to hearing from you either during the program via telephone or afterwards via the TEACHTEK listserv. We enjoy having you involved in our very lively and informative forum!

Cheers to you all :)  
Linda Alexander
lalexand@tenet.edu

Note: Moderator's e-mail message to TEACHTEK to encourage completion of Survey 3 sent via e-mail eight days earlier.

From lalexand@gaston.tenet.edu Thu Mar 10 07:37:56 1994
From: Linda Hackney Alexander <lalexand@gaston.tenet.edu>
Reply to: teachtek@cecs.unt.edu
To: Starlink Teachtek <teachtek@cecs.unt.edu>
Subject: TEACHTEK Survey - Copy

TEACHTEKers -

So far I have received about 15 replies to the TEACHTEK survey that I sent out earlier. We really want to hear from the rest of you as well! The survey does not take much time to fill out as you just use the REPLY function on your e-mail software and fill in X's or numbers. A couple of people have requested hard copies of the survey which I have sent off with self-addressed stamped envelopes enclosed. I will be happy to send hard copies of the survey to anyone who sends me their snail mail address.

I am adding below another copy of the survey. I would really appreciate your filling this out and sending it back to me at:

lalexand@tenet.edu

Thanks and Cheers to You All :) 
Linda Alexander 
laalexand@tenet.edu

Note: Moderator's e-mail message sent to all participants who sent back a completed Survey 3.

From lalexand@tenet.edu Wed Mar 2 17:26:34 1994
Date: Wed, 2 Mar 1994 12:29:31 -0600 (CST)
From: Linda Hackney Alexander <lalexand@tenet.edu>
To: 
Subject: Re: IMPORTANT TEACHTEK Survey

M.
Thank you very much for filling out and sending me the TEACHTEK survey. I appreciate having your input. Thank you for participating in the TEACHTEK listserv!

Cheers :) 
Linda Alexander 
laalexand@tenet.edu
Note: Moderator’s follow-up letter to participants two weeks after sending out Survey 3 to all listserv members who had not returned their completed survey.

From: lalexand@tenet.edu Tue Mar 15 23:06:28 1994
Date: Tue, 15 Mar 1994 22:59:57 -0600 (CST)
From: Linda Hackney Alexander <lalexand@tenet.edu>
To:
Subject: Your survey

K-

I have received the survey that you filled out at the January 26 STARLINK® teleconference on teaching techniques. I do not believe that I have received your filled in copy of the second survey that I sent out via the Internet. I would really appreciate your filling it out for me. I would like to have your input. All you do is fill in the blanks with X's or with numbers so it does not take very long to fill out.

I am appending it here in case you do not have a copy.

Cheers and thanks :)  
Linda Alexander
lalexand@tenet.edu

Note: Moderator’s e-mail message to a TEACHTEK listserv member who wanted to unsubscribe to the listserv and sent the message to the wrong address.

Date: Thu, 24 Mar 1994 08:37:49 -0600 (CST)
From: Linda Hackney Alexander <lalexand@tenet.edu>
To:
Subject: Re: unsubscribe

P.-

In order to unsubscribe to the TEACHTEK listserv, you need to send to the mailserver rather than to the list. Send your message to:

MAISER@cecs.unt.edu
In the body text type:
UNSUBSCRIBE TEACHTEK

I do not think that you have sent back a filled in survey for TEACHTEK. I would really appreciate hearing your feedback. You can use the REPLY function on your e-mail service and just fill in the survey with either numbers or X's. It takes very little time to fill it out. If you have problems with it, I can send you a hard copy if you send me your snail mail address. Here is another copy of the survey below.

Cheers and Have a GREAT Day :)  
Linda Alexander  
lalexand@tenet.edu
APPENDIX 12

DATA ENTRY CODES FOR SURVEY 1, SURVEY 2, AND SURVEY 3
### Categories of Starlink® Survey 1-1 - April 13, 1993

<table>
<thead>
<tr>
<th>Columns</th>
<th>Variable</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Q1)</td>
<td>Colleagues on &amp; off campus</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Interest groups</td>
<td>Enter:</td>
</tr>
<tr>
<td>3</td>
<td>Teleconferences</td>
<td>1 = Not effective</td>
</tr>
<tr>
<td>4</td>
<td>Non-credit workshops</td>
<td>2 = Somewhat effective</td>
</tr>
<tr>
<td>5</td>
<td>Classes for credit</td>
<td>3 = Moderately Effective</td>
</tr>
<tr>
<td>6</td>
<td>Conferences</td>
<td>4 = Quite Effective</td>
</tr>
<tr>
<td>7</td>
<td>Newsletters</td>
<td>5 = Extremely Effective</td>
</tr>
<tr>
<td>8</td>
<td>Books</td>
<td>0 = Blank</td>
</tr>
<tr>
<td>9</td>
<td>Periodicals/Newspapers</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Video Tapes</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Audio Tapes</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Computer aided instruction</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Computer bulletin boards</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>15 (Q2)</td>
<td>Computer network Effectiveness</td>
<td>Enter:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 = Not effective</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = Somewhat effective</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 = Moderately Effective</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 = Quite Effective</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 = Extremely Effective</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 = Blank</td>
</tr>
<tr>
<td>Columns</td>
<td>Variable</td>
<td>Code</td>
</tr>
<tr>
<td>---------</td>
<td>-----------------------------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>16 (Q 3)</td>
<td>Access to Internet</td>
<td>1 = Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 = Blank</td>
</tr>
<tr>
<td>17 (Q 4)</td>
<td>Level of Training Needed</td>
<td>1 = Limited training</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = Some training</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 = Moderate training</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 = Much training</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 = Extensive training</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 = Blank</td>
</tr>
<tr>
<td>18 (Q 5)</td>
<td>Training: On-campus workshop</td>
<td>Enter Rank 1-6 or 0(none)</td>
</tr>
<tr>
<td>19</td>
<td>Training: Computer Assisted</td>
<td>Enter Rank 1-6 or 0(none)</td>
</tr>
<tr>
<td>20</td>
<td>Training: Teleconference</td>
<td>Enter Rank 1-6 or 0(none)</td>
</tr>
<tr>
<td>21</td>
<td>Training: Videotape</td>
<td>Enter Rank 1-6 or 0(none)</td>
</tr>
<tr>
<td>22</td>
<td>Training: Workbook</td>
<td>Enter Rank 1-6 or 0(none)</td>
</tr>
<tr>
<td>23</td>
<td>Training: Audiotape</td>
<td>Enter Rank 1-6 or 0(none)</td>
</tr>
<tr>
<td>24</td>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>25-27</td>
<td>College Code</td>
<td>Enter 3 digit college #</td>
</tr>
<tr>
<td>28-29</td>
<td>Survey Code</td>
<td>Enter 1-1</td>
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DATA ENTRY

CATEGORIES OF STARLINK® SURVEY 2-3 - January 26, 1994

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<thead>
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<th>Columns</th>
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<tbody>
<tr>
<td>1 (Q 1)</td>
<td>Computer Experience</td>
<td>1 = 0-1 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = 2-5 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 = 6 or more years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 = Blank</td>
</tr>
<tr>
<td>2 (Q 2)</td>
<td>E-mail Knowledge</td>
<td>1 = yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = no</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 = Blank</td>
</tr>
<tr>
<td>3 (Q 3)</td>
<td>Level of Training Needed</td>
<td>1 = Limited training</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = Some training</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 = Moderate training</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 = Much training</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 = Extensive training</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 = Blank</td>
</tr>
<tr>
<td>4 (Q 4)</td>
<td>Workshop Helpfulness</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Friend Helpfulness</td>
<td>1 = Not helpful</td>
</tr>
<tr>
<td>6</td>
<td>Listserv Helpfulness</td>
<td>2 = Somewhat helpful</td>
</tr>
<tr>
<td>7</td>
<td>Computer Tutor Helpfulness</td>
<td>3 = Helpful</td>
</tr>
<tr>
<td>8</td>
<td>Teleconference Helpfulness</td>
<td>4 = Quite Helpful</td>
</tr>
<tr>
<td>9</td>
<td>Videotape Helpfulness</td>
<td>5 = Very Helpful</td>
</tr>
<tr>
<td>10</td>
<td>Books Helpfulness</td>
<td>0 = Blank</td>
</tr>
<tr>
<td>11</td>
<td>Other Helpfulness</td>
<td></td>
</tr>
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</table>

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I Taught It But They Didn’t Learn It: Beyond the Yes, But...
<table>
<thead>
<tr>
<th>Columns</th>
<th>Variable</th>
<th>Code</th>
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</thead>
<tbody>
<tr>
<td>12 (Q 5)</td>
<td>Access to Internet</td>
<td>1 = Yes, via institution's network</td>
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<tr>
<td></td>
<td></td>
<td>2 = Yes, via modem</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 = No, I have no access</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 = Blank</td>
</tr>
<tr>
<td>13 (Q 6)</td>
<td>Hinderances to Internet Use</td>
<td>1 = No access</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = No training</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 = No time</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 = Uncomfortable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 = Don't need to know</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 = No support</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7 = Other</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8 = Not Applicable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 = Blank</td>
</tr>
<tr>
<td>14 (Q 7)</td>
<td>Helpfulness: Specific Listserv</td>
<td>1 = Not helpful</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = Somewhat helpful</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 = Moderately helpful</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 = Very helpful</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 = Extremely helpful</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 = Blank</td>
</tr>
<tr>
<td>Columns</td>
<td>Variable</td>
<td>Code</td>
</tr>
<tr>
<td>---------</td>
<td>---------------------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>15 (Q 8)</td>
<td>Will sign up for Listserv</td>
<td>1 = Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 = Blank</td>
</tr>
<tr>
<td>16 (Q 9)</td>
<td>Follow-up Activities Helpful</td>
<td>1 = Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 = Blank</td>
</tr>
<tr>
<td>17-20</td>
<td>Last four digits of Soc.Sec.#</td>
<td>Enter four-digit number</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0000 = Missing data</td>
</tr>
<tr>
<td>21-23</td>
<td>College Code</td>
<td>Enter 3 digit college #</td>
</tr>
<tr>
<td>24-25</td>
<td>Survey Code</td>
<td>Enter 2-3 = (Jan 26 1994)</td>
</tr>
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</table>

26 to End Email Address
## DATA ENTRY

### CATEGORIES OF LISTSERV SURVEY 3-1, 3-2, 3-3

<table>
<thead>
<tr>
<th>Columns</th>
<th>Variable</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Q1)</td>
<td>Teleconference Survey Completed</td>
<td>1 = Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 = Blank</td>
</tr>
<tr>
<td>2 (Q2)</td>
<td>Helpfulness of Listserv</td>
<td>1 = Extremely helpful</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = Helped quite a bit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 = Moderately helpful</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 = Helped a little</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 = Not helpful</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 = Blank</td>
</tr>
<tr>
<td>3 (Q3)</td>
<td>Helpful Aspect: (1) Experts</td>
<td>Enter Rank 1-6 or 0 (none)</td>
</tr>
<tr>
<td>4</td>
<td>Helpful Aspect: (2) Clarify</td>
<td>Enter Rank 1-6 or 0 (none)</td>
</tr>
<tr>
<td>5</td>
<td>Helpful Aspect: (3) Colleagues</td>
<td>Enter Rank 1-6 or 0 (none)</td>
</tr>
<tr>
<td>6</td>
<td>Helpful Aspect: (4) Questions</td>
<td>Enter Rank 1-6 or 0 (none)</td>
</tr>
<tr>
<td>7</td>
<td>Helpful Aspect: (5) Learn Net</td>
<td>Enter Rank 1-6 or 0 (none)</td>
</tr>
<tr>
<td>8</td>
<td>Helpful Aspect: (6) Other</td>
<td>Enter Rank 1-6 or 0 (none)</td>
</tr>
<tr>
<td>9 (Q4)</td>
<td>Listserv better than Tele Only</td>
<td>1 = Yes, tele &amp; list satisfied</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = No, tele alone sufficient</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 = No, tele &amp; list did not help</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 = Other</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 = Blank</td>
</tr>
</tbody>
</table>
10 (Q5) List facilitated change in work
1 = No
2 = Yes
0 = Blank

11 (Q6) Listserv supportive of teaching
1 = Very supportive
2 = Quite supportive
3 = Supportive
4 = Somewhat supportive
5 = Not very supportive
6 = Not applicable
0 = Blank

12 (Q 7) Purposes: Prof. Development
Enter Rank 1-5 or 0 (none)

13 Purposes: Tech. Support
Enter Rank 1-5 or 0 (none)

14 Purposes: Answers to Questions
Enter Rank 1-5 or 0 (none)

15 Purposes: Curiosity
Enter Rank 1-5 or 0 (none)

16 Purposes: Other
Enter Rank 1-5 or 0 (none)

17 (Q 8) Learn Resources Beyond Content
1 = Yes
2 = No
0 = Blank

18 (Q 9) List helped learn Internet Resour
1 = Extremely helpful
2 = Helped quite a bit
3 = Moderately helpful
4 = Helped a little
5 = Not helpful
6 = Not applicable
0 = Blank
<table>
<thead>
<tr>
<th></th>
<th>Institution's Workshop Helpfulness</th>
<th>0 = Blank</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>Faculty/Friend Helpfulness</td>
<td>1 = Very helpful</td>
</tr>
<tr>
<td>21</td>
<td>Listserv Helpfulness</td>
<td>2 = Quite helpful</td>
</tr>
<tr>
<td>22</td>
<td>Computer Tutorial Helpfulness</td>
<td>3 = Helpful</td>
</tr>
<tr>
<td>23</td>
<td>STARLINK Tele. Helpfulness</td>
<td>4 = Somewhat helpful</td>
</tr>
<tr>
<td>24</td>
<td>Video tape Helpfulness</td>
<td>5 = Not helpful</td>
</tr>
<tr>
<td>25</td>
<td>Books Helpfulness</td>
<td>6 = Never experienced</td>
</tr>
<tr>
<td>26</td>
<td>Other Helpfulness</td>
<td>7 = Not seen</td>
</tr>
<tr>
<td>27</td>
<td>(Q11) Hindrances to Using Internet</td>
<td>1 = Lack access to computer/network</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = Lack training</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 = Lack of time</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 = Uncomfortable @ computer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 = No need to know Internet</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 = No staff support</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7 = Other</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 = Blank</td>
</tr>
<tr>
<td>28</td>
<td>(Q12) Listserv allows Open Learning</td>
<td>1 = Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 = Maybe</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 = Blank</td>
</tr>
<tr>
<td>29</td>
<td>(Q13) After Tele Goals met by listserv</td>
<td>1 = Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = No</td>
</tr>
<tr>
<td></td>
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</tr>
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</table>

STARLINK® - Data Entry
Survey 3: Listservs:
STARNET (3-1), LEGALIST (3-2), TEACHTEK (3-3)
<table>
<thead>
<tr>
<th>Question</th>
<th>Description</th>
<th>Options</th>
</tr>
</thead>
</table>
| 30 (Q14) | Necessity of Experts               | 1 = Not necessary  
|          |                                    | 2 = Somewhat necessary  
|          |                                    | 3 = Necessary  
|          |                                    | 4 = Quite necessary  
|          |                                    | 5 = Very necessary  
|          |                                    | 0 = Blank  |
| 31 (Q15) | Sign-up for Listserv again         | 1 = Yes  
|          |                                    | 2 = No  
|          |                                    | 0 = Blank  |
| 32 (Q16) | Prefer News Group/Conference       | 1 = Yes  
|          |                                    | 2 = No  
|          |                                    | 3 = Do not know  
|          |                                    | 0 = Blank  |
| 33 (Q17) | (1) The Global Connection          | 1 = (X) Yes, seen  
|          |                                    | 2 = (blank) Not seen  |
| 34       | (2) Educational Use Copyright      | 1 = (X) Yes, seen  
|          |                                    | 2 = (blank) Not seen  |
| 35       | (3) Getting Beyond the Yes But     | 1 = (X) Yes, seen  
|          |                                    | 2 = (blank) Not seen  |
| 36       | (4) Sharpening Your Teaching       | 1 = (X) Yes, seen  
|          |                                    | 2 = (blank) Not seen  |
| 37       | (5) Student Learning Strategies    | 1 = (X) Yes, seen  
|          |                                    | 2 = (blank) Not seen  |
38 (Q 18) (1) Institution's Network  
1 = (X) Yes  
2 = (blank) No  

39 (2) Modem in Office  
1 = (X) Yes  
2 = (blank) No  

40 (3) Modem at Home to Instit.  
1 = (X) Yes  
2 = (blank) No  

41 (4) Modem at Home - Commercial  
1 = (X) Yes  
2 = (blank) No  

42-44 (Info) College Code  
Enter 3 digit college #  
1 = STAKNET  
2 = LEGALIST  
3 = TEACHTEK  

45 Listserv Name  
1 = STARNET  
2 = LEGALIST  
3 = TEACHTEK  

46-49 Last four digits of Soc. Sec. #  
Enter four-digit number  
0000 = Missing data  

50-53 Date  
Enter 4-digit # mm/dd  

54 Gender  
1 = Female  
2 = Male  

55-56 Survey Code  
Enter 3-1 = (STARNET)  
Enter 3-2 = (LEGALIST)  
Enter 3-3 = (TEACHTEK)  

57-End E-mail address  
Enter letters/numbers  

STARLINK® - Data Entry  
Survey 3: Listservs:  
STARNET (3-1), LEGALIST (3-2), TEACHTEK (3-3)  
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APPENDIX 13

STARLINK® TELECONFERENCE EVALUATION FORM
STARLINK TELECONFERENCE EVALUATION
Teaching Strategies "I Taught It, But They Didn't Learn It"
Program I - "Beyond the "Yes, But..."
Wednesday, January 26, 1994

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Slightly Disagree</th>
<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

(For items 1 through 3 below, refer to the above scale and circle a response.)

1. I received sufficient advance notice of the teleconference.  1  2  3  4  5  6

2. Teleconference objectives were clearly stated and were addressed with effective program elements, (presentations, panel discussion, interviews, pre-taped segments, etc.).  1  2  3  4  5  6

3. Overall, this teleconference was worthwhile.  1  2  3  4  5  6

4. There was a local program at this site that accompanied the teleconference. (Check one) ———Yes ———No

5. My current position is: (circle one)  a b c d e f
   a. Technical/vocational faculty
   b. Arts and Sciences faculty
   c. Administrator or professional staff
   d. Classified staff
   e. Other

6. What did you like most about the teleconference?

7. In a few words, how could this teleconference have been designed and produced so that it would be more useful to you in your teaching/job? (Please write in the space below.)

Write other comments on the reverse side of this form.

PLEASE GIVE THE COMPLETED FORM TO THE SITE MODERATOR. THANK YOU
REFERENCES


Steinert-Threlkeld, T. (1993, July 10). In a class by oneself: SMU offers videotaped engineering courses by mail. *The Dallas Morning News*, pp. 1 F & 11 F.


