



# **Logo & Telecommunications**

by

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### **Overview**

For the past eighteen months I have been maintaining a telecommunications bulletin board and electronic mail system that is particularly well suited for use by Logo people. This is because the software they communicate with is a version of Logo. It is familiar and easy to use. This specialized Logo, called LogoExpress was developed by LCSi. It includes primitives needed to write telecommunications programs. It allows the transfer of Logo programs, graphics, or any other type of file, in addition to text messages.

Teachers have been using the system for general communication, sharing of classroom project ideas and Logo tool procedures, and getting technical support. There have been several projects involving the exchange and sharing of student work between schools. Similar LogoExpress bulletin boards are functioning in local school districts where students as well as teachers use them.

### **How a LogoExpress Bulletin Board Works**

The LogoExpress bulletin board, or "Host", which lives in my office in New York City, is a modest MSDOS machine, running a Host program written in LogoExpress. The computer is attached to 1200 / 2400 baud modem with a single, dedicated telephone line. Access is through a local New York City telephone number. There are also local access numbers in Los Angeles and Boston from which calls are automatically forwarded to the New York number. The system is left running 24 hours a day.

People connecting to the Host also use LogoExpress, running on an Apple II or MSDOS computer, as their communications software. They each use a Mailer program which is designed to interact with the Host program. Each Mailer is customized to include a unique user name and password which is recognized by the Host.

Approximately 140 people, mostly teachers, have accounts, although only about half of them have actually logged in. Many people requested accounts with the intention of using them, but for a variety of reasons, never got connected. The majority of users are in the New York area, but occasional calls come from as far away as Europe, Australia and Japan. On a typical busy day, ten to fifteen people make calls to the Host.

There are two ways of communicating: through private mail and on public bulletin boards. Mail is sent to a particular individual by specifying a user name that is known to the Host. Messages intended for public consumption may be posted on a bulletin board. All users have access to them. In either case, the "messages" need not be only text. Any type of file may be communicated.

### **Interacting With LogoExpress**

Many bulletin board systems are "menu driven". After connecting, you find your way around by making selections from menus which are displayed on the screen. LogoExpress has no menus. After connecting you are looking at a blank screen with a flashing cursor, just as you would be with any version of Logo.

There are a few commands which you need to know. **Checkmail** displays your mail if there is any waiting for you. For each message in your mailbox a "header" is printed on the screen. It tells you who the mail is from and when it was sent. If the message is text, it appears on the screen. If it's any other kind of file, it is saved on your disk.

If you want to send mail to someone you may write a message on the screen and then type the command **mailthis "whoever"**, as long as "whoever" is a user name known to the Host. If you have a message or any kind of file on your disk you may send it to someone by typing **mail "filename" "whoever"**.

You may see a list of the postings on the public bulletin board by typing **checkpost**. A numbered list will appear on the screen showing who posted each item, when it was posted and what it is about. **Getpost** followed by a number or list of numbers retrieves the specified item or items. As with private mail, text is displayed on the screen. Other types of files are saved on your disk.

Actually, there may be several public bulletin boards on a LogoExpress Host. This allows postings to be grouped by area of interest or use. The main bulletin board is called "bbs" The New York City Host has a board named "tools", on which people post collections of Logo tool procedures. "Math" is a board where Logo mathematics projects and ideas are exchanged. "People" is a place for users to post an autobiography, and describe their interests and professional activities. Other boards were set up for specific group projects, some of which are described below.

How does one know what boards there are? A posting on the main board, "bbs" lists the names of the other boards. To get to one of them, you "join" it. The command **join "people"** makes "people" the current board so that **checkpost** and **getpost** commands refer to it. **Join "bbs"**

rejoins the main board.

How do these 140 accounts and the various bulletin boards get there? The "Hostmaster" (that's me) puts them there. Along with the Host program there are tools to add and delete users and boards. This is quite simple to do. **Newuser "NinaS "wwxyyz** creates an account for someone with the user name NinaS and a password wwxyyz. The convention in the New York Host is to use a person's first name and last initial as the user name. So I am MichaelT.

The Hostmaster has to communicate with the prospective user about what her user name and password will be. In general, this is done via some means other than LogoExpress.

New boards are created in a similar way. **Newboard "Flowers** creates a bulletin board named Flowers. Initially there are no items posted in it.

### **LogoExpress Compared to Other Bulletin Boards**

LogoExpress differs from most other small local bulletin boards in several significant ways. As I mentioned above, LogoExpress does not present you with a series of menus the way most systems of this type do. The interaction is controlled by giving Logo commands. These commands are the names of Logo procedures that make up the users Mailer program. So, it is necessary to have LogoExpress software with a Mailer program in order to connect to a LogoExpress Host. The Host is not accessible using other communications software.

Many bulletin boards are set up in a way that encourages on-line interaction. After reading your mail, you might type and send a response, then spend time reading some public messages, all while you remain connected to the Host computer.

This mode of interaction is possible with the LogoExpress Host, but it is designed to facilitate and encourage off-line reading and writing. Connect time is used only for sending and receiving. For example, if you type **checkmail**, your computer will dial the Host, get your mail and disconnect. Then you may take your time reading your mail and writing responses. Then you would connect again, send mail and disconnect.

It is possible to stay connected. This is generally a good idea when you need to do several things; send a few messages, or retrieve postings from several bulletin boards, for example. To do so, you type **login** to connect and **hangup** when you are finished. However, the Host will disconnect you automatically if you don't send or receive anything for about four minutes.

This mode of operation has two advantages. First, telephone charges are lower. This is particularly important if the call is not local. Second, it prevents the Host's single telephone line from being tied up. Experience with the New York Host shows that approximately 70% of calls are a minute or less and 95% are under five minutes.

LogoExpress Hosts have their limitations. Having only one incoming telephone line limits the number of users. So far this has not been a problem. It is rare to encounter a busy Host, in part

because of the brief connect times of most calls. As use increases busy signals will become more common. We don't yet know the volume of users and calls that can be accommodated.

A more profound problem is the isolation of LogoExpress Hosts. They are not connected to each other or to other networks such as Internet. Programs could be written to enable LogoExpress Hosts to exchange information with each other. This would allow a user of one Host to send mail to someone with an account on another Host. However, such transfers have not yet been done. Also, such a scheme rapidly becomes cumbersome as the number of Hosts involved increases.

Another solution is more promising. Randy Sargent at the Massachusetts Institute of Technology is developing a LogoExpress Host for a Unix computer. From the point of view of a user logging in, it will look like any other LogoExpress Host even though the hardware and software are totally different from existing Hosts. This system will allow multiple incoming phone lines. Most important, it will allow worldwide connectedness through Internet.

### **What's Being Telecommunicated?**

The significance of a bulletin board lies, of course, in what it is used for. Who communicates and what do they communicate? On the New York LogoExpress Host there is a great deal of individual mail. Almost all of this is text, rather than Logo programs or other files. Why do people use electronic mail rather than make a telephone call or write a letter? Well, using email, is letter writing. The difference is that email is faster and costs less.

Compared to conventional telephone calls, email avoids extended games of "telephone tag" and overcomes the timing problems involved in communicating across many time zones. Teachers are often unavailable for a good part of the day when they are with their classes, but they can check their email during a break or from home.

The ability to send Logo programs as well as text messages adds a unique dimension to email. I recently received a message from Carol Goodman, a teacher in Los Angeles, asking for advice on writing a Logo program to check whether a number has double digits, like 2001 or 1123. After reading the message, and with LogoExpress still running, I wrote a couple of procedures, checked to see that they worked, wrote a note to Carol and sent this all back to her.

### **News and Information**

One function of the New York LogoExpress Host is to provide news and information to the Logo Community. We have a New York Logo Users Group that meets bi-monthly. We post announcements of meetings and agendas on the main bulletin board (bbs).

Nancy Sulla, who runs a LogoExpress Host in her own school district near New York, posted an invitation to people to connect to her Host.

Philip Locker, a junior high school student who wrote a LogoWriter file handling utility called

"Logo Commander" posted a message announcing its availability. He invited people to send for it by mail or download it from the Host. A board called "Command" was set up to hold the 18 files that comprise the program.

The other postings on bbs are guides to getting around the system. There is an alphabetical list of everyone who has an account on the Host and a description of each of the public bulletin boards.

## **Forum**

The Forum board was set up as a place for general discussions among teachers. Postings have ranged over a number of topics including a discussion about creating recursive snowflake patterns in Logo and how to initiate and maintain projects of this sort in classrooms. Logo programs were posted as well.

The exchange initially involved two teachers who posted six messages during December, 1990. A third individual added two more postings the following June. This might seem like a low level of involvement - only three people. However, we don't know how many people read the messages or downloaded the programs or started similar projects in their own classes. The Host only keeps track of who logs in and when, not what they do while connected, so there's no way of knowing. Experience with other bulletin boards where such records are kept indicates that there are generally many more people reading messages than posting them.

## **The Weather Project**

Carol Goodman's students in Los Angeles, and Eadie Adamson's students in New York City kept track of temperature and other weather information from January through March of this year. The fourth and fifth graders used LogoWriter to keep diaries and draw graphs. These were then exchanged via LogoExpress. The students did not have their own mailboxes on the Host. Communication was achieved using the two teachers' accounts.

The original intention (never realized) was to have a third teacher from St. Paul, Minnesota involved in the project. With three way communication, each teacher would have needed to send mail twice. Instead, a board was set up for the project where everyone could post their work for everyone else to see. This was a "private" board for use by those involved in the project. The name of the board was not made public.

## **Workshop**

During the summer of 1990 the St. Paul Public Schools conducted two weeks of intensive Logo workshops. Overlapping with these workshops was a three week workshop at the University of Hartford. LogoExpress was available at both sites. Rather than set up accounts for each of the 130 participants, two group accounts, STPAUL and HARTFORD were created on the New York Host along with a board called "Workshop". Over forty messages were exchanged. Many teachers made arrangements to keep up long distance contacts and work on collaborative projects during the school year. There was a great deal of communication between the staff of a

Spanish immersion program in St. Paul and a group of teachers from Venezuela who were in the Hartford workshop.

In spite of good intentions, contacts were generally not maintained after the summer since most of the workshop participants did not have LogoExpress or modems in their own schools.

## **Pennies**

One evening, my eight year old son decided he wanted to make a "penny graph". What he had in mind was getting a handful of coins from his penny jar and grouping them by date. Then he'd make a graph showing how many were from each year. This seemed pretty tedious to me, but as we were doing it I thought of some interesting questions that might be explored if we accumulated very large amounts of data. What kind of distribution do you expect? Are pennies from some years exceptionally common or rare? Where do the billions of pennies made each year end up?

The drudgery of counting large numbers of pennies could be avoided if many people connected to the LogoExpress Host each counted a handful of pennies and we put all the data together. I was not confident that anyone would be interested in this project, so rather than initiate it with a public message, I first sent mail to six or eight teachers who were active on the Host, asking if they'd care to work on such a project. There was sufficient positive response to encourage me to go public and set up a board called "pennies". Over a period of two months there were 30 postings including several programs to calculate penny counts and draw histograms. In the end, nearly 14,000 pennies were tallied. The overall distribution was not surprising. The highest yearly totals tended to be from more recent years. But the totals for each year also tended to follow the variations in the numbers of pennies produced each year.

In some cases, students involved in this project were counting pennies that were being accumulated as part of charitable or fund raising efforts. One group figured that they could increase the amount of money raised by picking out coins with rare dates and selling them to a coin dealer.

## **Other LogoExpress Hosts**

The LogoExpress Host I have been describing is unusual in that it serves teachers from many schools and districts, some of them far from New York. Most Hosts are based in school districts and serve the teachers and students in the local community. In fact, LogoExpress is best suited to this scale of operation.

District based LogoExpress Hosts are often used by students as well as by teachers. In Scarsdale, New York there are more student logins than teacher logins. This district has modems installed in classrooms, facilitating student use. Boards have been set up on which teachers post challenging problems and students post responses. These boards are targeted to a particular grade and subject, "math.five" or "science.four".

In Mahwah, New Jersey there is a "bookreviews" board on which students post book reviews and read those left by other students. The Mahwah Host has also been used to ease the transition from junior high school to high school. Eighth graders post questions that are answered by students from the high school.

In St. Paul, Minnesota John Olson, a science teacher, retrieved daily logs of a recent dog sled trip across Antarctica from another electronic bulletin board and reposted them on the LogoExpress Host for students and teachers to read. The adventure was of particular local interest because a member of the team was from St. Paul.

In Montréal communication was established between students at St. George's School and a class of both physically handicapped and non-handicapped students at the Mackay Centre. The goal was to allow the children to develop relationships in the absence of visual indications of handicaps. After several months of electronic exchanges, students visited each other at their schools. St. George's School teacher Susan van Gelder felt that exchanges via telecommunications encouraged a level of understanding between these students that would not have been achieved by simply exchanging visits.

## **Summary**

My experiences with LogoExpress have helped me clarify what I find valuable about using telecommunications, especially in educational environments. I also have a better sense of what impedes a more widespread use of this technology.

Some educators do not use telecommunications because they do not see its value, either as a means of communications for themselves or as a vehicle for educational projects. But even when people are interested in using telecommunications they have a hard time getting started. The magnitude of the problem is indicated by the large number of people who have requested accounts on the New York LogoExpress Host but never used them, and the many teachers who were very involved in the Hartford - St.Paul workshop exchange, but never got connected later.

Some of the obstacles are technical. Between the hardware, software, modem and telephone system there are many things that can go wrong. A more profound problem is the lack of telephone access in schools. This has nothing to do with telecommunications. Most school systems do not want students and teachers to be in touch with the outside world.

LogoExpress is being used in a variety of ways. The activities that have been developed point to some general features that make for a good telecommunications project. These include comparing data over a distance, as in the weather project, and collecting large amounts of data such as the date distribution of many pennies. LogoExpress is also the ideal vehicle for sharing Logo programs.

A number of people make very regular use of the system for private mail. Partly we do this when schedules or time zone differences make it difficult to connect by voice telephone. But there is

also a different quality to written communication that we find, at times, welcome.

Some of the projects described, the exchanges between schools in Montréal and between junior high school and high school students in New Jersey, gave students real reasons to communicate in writing. At a time when there is increasing emphasis on visual images and "multimedia," telecommunications may be providing some balance by emphasizing written communication.