

INTERNET AND FOREIGN- LANGUAGE INSTRUCTION: A REPORT FROM BEHIND THE FRONT LINES

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INTRODUCTION

"So, what is the INTERNET?" asks the innocent neophyte.

"Ah, glad you asked!" comes the reply from someone who would look strangely underdressed without a floppy disk in hand. "Viewed historically, INTERNET grew out of an older network called BITNET (the 'Because It's Time Network'), a cooperative computer network interconnecting some 2,500 academic and research institutions in 32 countries. BITNET was originally based on IBM's RSCS networking protocol, and supported electronic mail, mailing lists, and file transfer. Now merging with CSNET and running the RSCS protocol over TCP/IP protocol (BITNET II), the network is set to be re-dubbed the Computer Research and Education Network (CREN). INTERNET has absorbed, incorporated and 'superseded' BITNET. At the same time, BITNET continues as a network in its own right.

"In terms of the future, it is very likely that INTERNET will merge with and in some ways be itself 'superseded' by NREN, the National Research and Education Network. If approved and funded by the Federal government, this proposed national computer network will be built upon the foundation of the National Science Foundation's backbone network, NSFnet, and will provide high-speed intercon-

nectivity between other national and regional networks."

Lost yet? Wondering who's on First? You are far from alone. This fall I have had the opportunity to spend more than a few hours with a group of foreign-language instructors while directing their training in INTERNET workshop sessions held at the Anderson Language Technology Center (ALTEC) at the University of Colorado in Boulder. After the first workshop, participants—some a little sheepish, others almost defiant in their demeanor—began to ask me the questions I had not stopped to answer. What is TCP/IP protocol? Who is this "DAEMON" guy and why does he keep sending me email? How much will it cost me (or my department) to send email to Russia? By the way, *can I* send email to Russia? What's the difference between FTP'ing and downloading? Who is my host on this machine?

The hard fact is that if you don't know OSI from Remote Access, or the difference between an OPAC and a Listserver, the INTERNET looks like the Wild West of telecommunications. It's huge and way out over there somewhere ("I hear they're adding 2,000 email users per month in Europe"). It's difficult to get to, and full of treasures and resources ("I got the entire library of Star Trek sounds off the Sumex server for free!"). Somebody owns every inch of its fiber optics and phone lines, but system owners have been known to lose track of

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how many users and nodes they have going right now. ("Are you sure you're supposed to be sending email on that account?" The usual answer is: "I don't know.")

There are "maps" to guide you, but sometimes when you get to where the map says you should have gone, either you are someplace else or the thing you are looking for is gone. ("I thought it was available as shareware from nerfzop.inv.con.edu.") Anecdotes circulate about people who have dropped out of sight completely after they discovered the Usenet newsgroup of their dreams (last seen "flaming on 'alt.rec.music.dementia'").

GETTING STARTED ON INTERNET

The INTERNET is a new frontier, and like all pioneers we share certain experiences in learning about it—whether we want to or not.

High on this list is *frustration*. No workshop would be complete, no tutorial fully instructive without at least one technical failure that you wish had not happened. INTERNET technology and services are new and emerging. Many are offered or developed by enthusiastic, young minds who when they are older may accede to the wisdom of careful long-term planning. But for now, there is whiz-bang a'plenty among INTERNET resources. The same pitfalls hold true for your local network—even your own computer, be it blue, red or some shade of pink. If just as you were about to plunge out boldly onto the INTERNET, zip over to the NASA Spacelink server, and check out those satellite images of Earth from space, you discover that your mouse pointer is frozen on your screen (again), this is not bad luck or ineptitude. It is normal. Don't torture yourself with recriminations of "why does this happen to me?" Rest assured that it happens to everyone. Reboot and try it again.

Next on the list is *confusion*. In the beginning, many things happen on networks that we do not understand owing to our unfamiliarity with the technology. Over time, we either develop a better understanding of what's connected to what and why and how, or we stop worrying about it so much and begin to regard this hybrid of computer-telephone-television as a tool with many uses. It is no more necessary to "understand" how a computer network works in order to use it than it is to know how a car is constructed and maintained in order to drive one. And you don't need insurance either.

Farther down on the list is *inertia*. Many people do not understand how they can get their computer hooked up to the INTERNET, and if you ask a technician, you may come to believe that it cannot be done at all, or at least not in your lifetime. If you are an instructor at a medium or large university or college, the chances are quite good that your institution can provide you with some kind of access to the INTERNET. The catch is that you don't want just any access, but rather the one that is the best, fastest and most versatile. *Sapere aude*. Pick up the phone and tell your computing people you want TCP/IP INTERNET connectivity. The words alone may cause doors to open, and be sure to write and let me know if they do. It doesn't matter whether that machine on your desk is a Macintosh, IBM, or a clone. Be prepared to settle for less at the start and to persist. Remember: Bureaucracy got its start on paper, but has been perfected on computers.

Finally, there is the issue of *time*. Many people wonder where they will find the time to become familiar with computers, networking, INTERNET and the like when they do not have enough time now to do the things they really need to do. I sometimes think that teachers can never solve the problem of too little time in their lives because

Lab Notes

they are unwilling to give up learning. Each time I come across a new INTERNET resource, I am provided with an opportunity to monitor the condition of my learning curve. Estimates of how long it will take to learn or master this or that operation are notoriously inaccurate, as are claims that once you learn to do it "on the computer," you will be able to save a great deal of time.

My experience indicates that computers and network technology enable me to do things differently, to learn in new ways, to see old things in new ways. My time is not utilized in the same way when I look up a reference on an INTERNET on-line public access catalog (that's an OPAC) as it is when I walk across campus to look up a book in the card catalog, and indeed network technology can eliminate some kinds of drudgery. A watchword: Take the time, and expect it to take time.

INTERNET PROCESS

I have already described the history of INTERNET briefly, and from that description it should be evident that the INTERNET is in fact only a step or a stage in a succession of ever larger and more complex networking schemes. For this reason, we can regard the INTERNET as an unfolding and expanding *process*, and describe the INTERNET in terms of three essentials it *provides*. (This also helps excuse the messy way that INTERNET resources sometimes move around, or disappear and then reappear without a clue.)

1. INTERNET provides users with access to a series of interconnected networks that includes local area, regional, national and international networks of other users. The wires and fiber optics, modems and terminals of all descriptions that make up INTERNET are physical linkages between people that carry a wide variety of messages, information, tools, and references.
2. INTERNET provides a **protocol**, a set of standards and procedures that enables exchanges and communication between similar and dissimilar systems. This protocol, called TCP/IP (or Transmission Control /INTERNET Protocol) is a monument to electronic diplomacy. The TCP part monitors and ensures that the data, be it your email message or new version of Disinfectant, gets from you, the client/user to a mailserver—much like your local post office—and from there through a gateway to another mailserver that receives mail and data for the intended recipient. The IP part receives the data from TCP, breaks it up into "packets"—increments of data that can be comfortably handled by a network—and directs the packets to their destination network within INTERNET. TCP/IP is the foundation of the "smart super highway system" created by the INTERNET.
3. INTERNET is an **idea**, a concept designed to promote communication and data exchange, and to provide a metaphorical environment in which people and resources mingle in an atmosphere of democracy and egalitarianism, discovery and adventure. The distance and location of the users need no longer be hindrances to the quality of communication, nor the demographic particulars of the participants. INTERNET is not an electronic panacea for education or for solving social problems. Rather, INTERNET shows us new ways to conceive of what information is, how it is acquired, how it is distributed, and how it can be used. This kind of connection is not a substitute or a replacement for live, in-person contact, and since we are at the beginning of this experiment, we will have to wait to see how well the

"INTERNET alternative" compliments other means of communication and information exchange.

It is clear that INTERNET technology tends to "democratize" information by increasing access to it geometrically. Once some sample of an institution's information resources becomes available on-line, other information resources tend to follow along rapidly and/or steadily. The INTERNET suite of tools is powerful and versatile, and can help us acquire, compile, manipulate and study graphic images as well as text. Sound and the aural dimension are not far behind, so that if we peek over the wall of 1993's technological limits, the potentiality of inexpensive, interactive, multi-media, global telecommunication is detectable in the reality of the INTERNET today.

While some INTERNET tools and resources have immediate and clear applications to foreign-language teaching, others only suggest ways they might be used in our curricula and classrooms. In either case, if I manage to pique your interest or help demystify the mystical along the way, so much the better.

ELECTRONIC MAIL, BULLETIN BOARDS AND NEWSGROUPS

The root motivation behind networking of any kind is the desire to communicate. For that reason, I recommend that newcomers to INTERNET use and become familiar with electronic mail first. If you are a Macintosh user and have access to TCP/IP connectivity, you won't need to slug your way through a series of non-intuitive arcane commands to send or read a message. Eudora, a "freeware product" (that means it doesn't cost you any money to use it on a continuing basis), transforms your Macintosh desktop into a miniature electronic push-button post office, complete with a convenient word-processing application. POPMAIL and

NUPOP bring much of the same ease to the PC user, and are every bit as fast.

Electronic mail enables individuals to send text to each other written in a formal or an informal style. Messages are not composed "live" but rather off-line—a boon for stage fright sufferers—and can be delivered in a matter of minutes, even between continents. And you're saving trees, too. These communications are direct—from my mail queue to your mail queue.

Messages can be one-to-one or one-to-many; sociologists, take note. Three-way correspondence is not unusual on electronic mail. Email can serve to reduce or eliminate many of the social, organizational and interpersonal barriers that tend to impede the stream of communication between individuals. Differences in age, gender, ethnicity, and social status are attenuated. This in turn can effect learning in subtle and beneficial ways.

What about using email to foster "electronic pen-pals" for our foreign-language students, another kind of one-to-one communication? In an example of how email connections can be applied to foreign language teaching, students in a UC Boulder Business German class have been exchanging resumes with German students. Each group first transmits resumes in their native language to serve as models for the others. They then compose a resume in the target language, transmit it, and the native speakers critique and explain their comments. Boulder Philosophy students polled French university students (in French) about their political values using email questionnaires and were surprised to find out that their cosmopolitan respondents were apathetic about politics, registering considerably less interest and involvement than a control group of American students. Exchanges based on the traditional belief that "just using the language will help" may not hold

the attention of today's young adult students. Their sophistication seems to require that the content of the messages be "authentic," related to their major, or at least somewhere up from vapid.

One-to-one email is a technology with educational uses. It is not a substitute or a replacement for live, in-person contact, nor for intelligent pedagogy. Our students' ability to think will overreach their capability for self-expression repeatedly and variously as they progress along the continuum of adult foreign language competence. Email, because it is not a real-time medium, provides students with the opportunity, resources and privacy to compose and refine a message in the target language. Sending the message off is effortless, and delivery is very prompt and convenient. The speed of email delivery is an unmistakable attraction for students raised in an instantaneous world, just as much as the ability to choose their own pace for writing is a welcome relief.

The one-to-many modes of communication include listservers and network newsgroups. A listserver, a.k.a. "bulletin board," is part email queue and part xerox machine, usually with a referee or moderator keeping an eye on things. When you send a message to the moderator, it is duplicated and re-sent to the other subscribers. IALL maintains a listserver for language laboratory directors to conduct professional discussions (*see page 71 of this issue for subscription information*). Posting a message on a bulletin board is like calling a group of colleagues and asking each of them the same question—except you only pose the question once and you are free to read or ignore the answers when they arrive in your queue. Listserving used to require the power and storage capacity of a large computer. The arrival of the Eudora email utility makes it possible for you to maintain a bulletin board using your own Mac with ease (*see*

Suggested Resources at the end of this article). PC users can do this as well, but they will have to work a little harder.

Network newsgroups are a kind of variation on this theme of one message being read by many. Both rely on email to accumulate messages for later dissemination. They differ in that a bulletin board system sends the mail to your queue, while newsgroup followers read submissions as they collect in a central queue on a remote computer. Questions and answers are stored up serially in the newsgroup queue. You connect to the newsgroup via the network, and then browse through the offerings. You are free to post an answer that will be read by all, or to reply directly to an individual contributor.

Hundreds and hundreds of newsgroups have sprung up in the last five years, and postings accumulate at a rate exceeding several megabytes per day. It is physically impossible for one person to read all of this at a sitting, or even several sittings. Happily, there are utilities for the Mac and the PC which will allow you to select a subset of newsgroups which you would like to follow. As you round Page 100 of the published listing of net newsgroups, it is difficult not to be impressed by the staggering diversity of themes and topics out there. New newsgroups appear continuously, and the less popular ones wane and fade away. It's like CB Radio for the computer era, and you never know what you might hear.

"Netiquette" requires that contributors remain civil and demonstrate good taste and decorum in their submissions, but when tempers flare and an argument breaks out, you may find yourself privy to "flaming" (from a respectable distance, of course). These silent verbal battles via email can consume many hours and pages. More than one unfortunate newsgroup has succumbed altogether to their ravages when

disenchanted participants decided to take their conversation elsewhere; i.e., to another newsgroup.

Newsgroups provide a forum for speakers of foreign languages as well. A recent look at the soc.culture groups turned up ongoing exchanges in Esperanto, French, German, Italian, Spanish, Polish and Portuguese. At present, INTERNET transmissions are limited to the Roman alphabet. However, a new "rich text" format including all the diacritical markings in the European languages is in the offing, along with a global graphics protocol which will permit communication in a greater variety of written forms such as Cyrillic and the Asian-Oriental languages, as well as in mathematical symbols, icons, graphs and pictures.

INTERNET RELAY CHAT AND TELNET

Lest the discussion of electronic mail leave you with the misimpression that the INTERNET is dominated by serial exchanges of textual messages, let us turn to another trick we owe to the TCP/IP protocol: IRC or INTERNET Relay Chat. This is an idea whose time has arrived in Europe and whose popularity is growing in the United States. IRC allows two or more participants to exchange messages by computer in very nearly real-time.

Essentially, the IRC user interface is a split screen. On one part of it, you compose your message—usually a sentence or two—which is relayed with only momentary delays to the other participants. A few moments later, their responses appear in another part of your screen. You have the option of "publishing" your session under a name or title, and providing the curious with a few words about the nature of your chat. You can decide if you want to allow others to "eavesdrop," invite them to join

the conversation, or you can keep the entire exchange out of public view.

You will find that on any given day there are several chats going on the INTERNET in the major languages of Europe. The "chatters" appear to be mainly university students, and IRC has much to offer them. It is an inexpensive, interactive means of getting to know people all over the world. It allows for private, semi-private and open communications according to individual preferences. It requires no special software or special privileges to use. The split-screen dialog interface affords the user a few moments to compose an answer that can be edited even after it has been relayed to the other participants.

I demonstrated IRC for the first time in a workshop for public school teachers about a year ago. A few in the audience spoke German, so I scanned the IRC session list that afternoon, found a discussion going on among three college-aged native Germans, and announced myself with, "Greetings from Boulder, Colorado" *auf deutsch*. A fairly long pause ensued, and then one wrote back to greet me and asked how the weather was in Boulder. After exchanging a few more preliminaries, I explained that I was sitting in an auditorium on campus with a large group of teachers who were eagerly taking in their first demonstration of an IRC chat.

One of them asked, "How many are there in the group?" I replied, "About 25." He asked, "Are they all standing there looking over your shoulder?" I said, "Certainly not. We are projecting this 'conversation' onto a screen about 12 meters across at the front of the room so that everyone can see it." After another long pause, a message appeared on my screen from the IRC system informing me that the three German participants had logged out of the session without another word. I had committed an intercontinental *faux pas*.

Undaunted but wiser, I went on to join in on other conversations, and found that many IRC sessions are carried on a number of servers. Wherever you may log in, you will see many of the same conversations on your menu regardless of where you and they are in the world. Others are local, and so far I have not found a single comprehensive listing of who is chatting with whom. So, it pays to look around at IRC session lists on various servers.

By the way, how do you do look around at other computers on the INTERNET?

If nominations were open for the all-purpose INTERNET tool competition, TELNET would win keyboards down. TELNET is in fact an excerpt from the TCP/IP protocol and acts as a master key that will get you through most any INTERNET door open to the general public. If you do not have the special privileges customarily afforded to registered users—like a password and a coded logon—your status is referred to as “anonymous.” You do of course have a “name” and that is the INTERNET address on your mail queue back on your home machine. In a remote environment, however, you are not a member of the club. It’s a little like leaving home without your American Express card. You can get by, and you are bound to have a few adventures.

Once “inside” a remote computer, what you can do and see is determined by the folks who own the machine. Most devices on the INTERNET will be agreeable to “hosting” you to some extent if they have that capability. Generally, this will include providing you with information about the name, location, and owners of the device, and a description of the resources and services available to you as an anonymous user. Some good advice for TELNET explorers is to remember that if you are anonymous, you are holding a ticket for the cheap seats.

Nevertheless, TELNET will get you into electronic mail, on-line public access catalogs, IRC, listservers, newsgroup servers and many other INTERNET resources. You can use TELNET to activate FTP (that’s the INTERNET File Transfer Protocol) and move files from a remote computer back to yours and vice-versa. The kind of access TELNET affords—its user interface or “front end”—proves at times to be not very user-friendly. Developers of interfaces have a habit of assuming that you know enough UNIX, for example, to be able to ask the remote computer for help in figuring out what the next step is in using a resource. (This is one of the meanings of “hacking.”) If you can’t hack your way through a resource, you may find yourself stuck, adrift and anonymous inside a Large System. It happens all the time.

To make the going smoother, at the far end, many INTERNET resources have adopted some kind of multiple-choice menu system. At the near end, software developers have come up with “point ‘n click” or push-button utilities for your microcomputer that reduce or eliminate the need for hacking.

One such INTERNET utility is IRCLE for Macintosh. IRCLE provides a more intuitive and simplified front end for users of IRC, and it draws on the windowing capability of the Mac graphic interface to allow you to follow along or participate in several chats simultaneously. Think of it like changing seats at a party to join another conversation that catches your interest. Teachers can use IRCLE’s multiplexing capability to monitor several chats among small groups of students simultaneously, and provide advice and direction.

BEYOND MESSAGING

I almost forgot to mention that, no, there is no unit fee charged by INTERNET to you

or your department for email. INTERNET advocates a "peer architecture"—all devices have an equal status—and this discourages the practice of us charging each other for services. Yes, you can send email to Russia, provided that the recipient has an INTERNET or BITNET address.

How can you find out someone's email address in another city, another state, or another country? For that matter, if new resources appear on the INTERNET and existing resources sometimes change addresses or even go away without notice, how do you find out where things are?

Ah, glad you asked. And that is the subject for another article about Archies, Gopher, Hytelnet, INTERNET cruises, Netfind, and other INTERNET "navigational tools."

(Note: "Internet: Part 2" will appear in the next issue of the Journal.)

SUGGESTED RESOURCES

BOOKS

The Whole INTERNET User's Guide and Catalog, Ed Kroll, Sebastopol, CA: O'Reilly and Associates, 1992. (See review this issue in the "Network Update" column.)

Zen and the Art of INTERNET, Brenden P. Kehoe, 1992 (First Edition). *Zen* is available via anonymous FTP at ftp.cs.widener.edu.

The INTERNET Resource Guide, Washington, DC: National Science Foundation, 1992. *The Resource Guide* is available via anonymous FTP at ftpghost.nwnet.net.

MACINTOSH SOFTWARE UTILITIES

Merit's Cruise Version 2.0 is available via anonymous FTP at cruise2feedback@merit.edu.

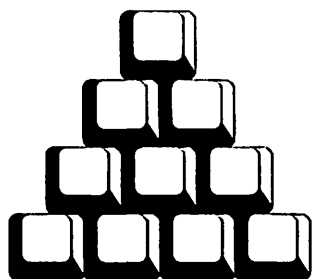
Eudora 1.2.2, Turbogopher 1.0.5, and IRCLE Version 1.0. are available from the Mac-info Archives via anonymous FTP at sumex-aim.stanford.edu.

IBM PLATFORM SOFTWARE UTILITIES

POPMAIL 3.0 (supports Ethernet) is available via anonymous FTP at boombox.micro.umn.edu.

NUPOP 1.0.3 (supports Ethernet and dial-up access) is available via anonymous FTP at casbah.acns.nwu.edu.

Except for *The Whole Internet Guide*, these books and software resources are available gratis.



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Software Videos Books

INFORMATION

Athelstan publishes the information-rich *Athelstan Newsletter on Technology and Language Learning* and the *Technology and Language Learning Yearbook*.

SOFTWARE

Athelstan distributes a wide variety of language software for Apple Macintosh, Apple II and MS-DOS computers. Titles include the *Storyboard*, *Capmaster*, *Choicemaster* series (in different languages), *Micro-Concord*, *ADAM & EVE*, *IDI Author*, *Culturgrams* and *Versatext*.

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Athelstan has an extensive selection of books on different aspects of technology and second language learning. We publish a variety of books and booklets including: *Teaching Languages with Computers*, by Martha Pennington (\$12.50); *How to Set Up a Computer Lab*, by Elizabeth Hanson-Smith (\$4.95), and *CALL Papers and Reports*, edited by Mary-Louise Craven et al (\$14.95). Purchase orders accepted. Shipping and handling within the United States \$1.75. Call for more information (619) 689-1757 or fax (619) 689-9270.

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