DOCUMENT RESUME

ED 367 325 IR 054 856

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TITLE Global Connections through Electronic Mail Networks.
PUB DATE 7 Nov 93
NOTE 14p.; Paper presented at the Annual Conference of the National Middle School Association (20th, Portland, OR, November 4-7, 1993).
PUB TYPE Viewpoints (Opinion/Position Papers, Essays, etc.) (120) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Computer Assisted Instruction; *Computer Networks; *Curriculum Development; *Electronic Mail; Elementary Secondary Education; Information Dissemination; Information Networks; *Information Technology; Online Systems
IDENTIFIERS Internet

ABSTRACT

This paper provides an overview of electronic mail (e-mail) systems and identifies curricular applications of common systems available to educators. Highlights include an outline of selected e-mail services; a description of hardware and software needed to use e-mail; an introduction to the Internet; a look at how e-mail systems help students; and some curriculum applications, including mathematics, language arts, science, social studies, foreign languages, and desktop publishing. (Contains 12 references.) (JLB)

Global Connections through Electronic Mail Networks

Presented to

National Middle School Conference

Portland, Oregon

by

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November 7, 1993

Introduction

Today's students have a tremendous opportunity to tap into a global information highway that will transform the ways in which information is accessed, retrieved, and then utilized. Neil Postman (1992) asks the question: " What problem does the information solve?" the answer is usually "How to generate, store, and distribute more information, more conveniently, at greater speeds than ever before." This is the elevation of information to a metaphysical status: information as both the means and end of human creativity. In Technopoly, we are driven to fill our lives with the quest to "access" information.

The purpose of this session is to provide an overview of E-mail systems and to identify curricular applications of common systems available to educators. There are many useful classroom applications of E-mail. A major benefit of a computer network in an educational setting, is the access to E-mail systems (Koltnow, 1993).

What does E-mail provide?

- Easy communication - for text, numbers, and graphics.
- Nondisruptive message delivery - a requirement for busy administrators and teachers
- The ability to communicate with many people at once.
- The potential for communication beyond school and district boundaries.

E-mail will give teachers and students their first taste of the true power of information access through shared decisions of ideas and concepts with colleagures from around the globe.

What services are out there?

There are several excellent services that are well suited to K-12 schools. Davis (1993) and Saks (1993) provide excellent survey articles of the available online services. I will outline some of the services that teachers and administrators use in the Cache School District.

America Online
8619 Westwood Center Dr., Nc. 200
Vienna, Virginia 22182-2285
800-827-6364

The cost is a $9.95 monthly fee for five hours of service. Additional on-line time charges of $3.50 per hour are charged any time of the day or night. Five free hours of time is given for start-up of the service.

Compuserve
Membership sales, P.O. Box 20212
Columbus, Ohio 43220
800-848-8199

A flat fee of $8.95 per month is charged for 36 basic services (waived for first month of membership). Many alternate pricing structures are available based upon modem speed and the types of forums and reference services that are accessed.

World Classroom
Global Learning Corporation
P.O. Box 201361
Arlington, Texas 76006
800-866-4452

Approximate costs are $195 per school per year. Some negotiation is possible. This service is designed to integrate electronic classroom activities into the classroom. The curriculum designed for Science, Social Studies, and Language Arts Activities. In addition, there is a Newslink and Guest Speaker program. Previous guest speakers on the sytem have included: an American ship's captain, Air Force information officer, German politicians, a Dutch windmill expert, and Russian educators and scientists. The relevancy and immediacy with which information can be accessed is a stimulating experience.

What hardware and software do I need?

Any IBM or compatible system or Macintosh system with the proper modem will work. I will describe some systems below:

Hardware

-IBM or Compatible, mouse recommended

-Macintosh

-Modem: 1200, 2400, 9600* baud modem

*gradually the services will support a 9600 baud modem

Software**

- Microphone II, Microsoft Works 3.0a, Pro Comm, PFS: First Choice, and many others

** America Online and Compuserve provide the user with software

What about Internet?

Internet is a global network of networks giving the user the capability to converse and share ideas with other users from anywhere in the world. Over four million individuals are plugged into Internet and that number is increasing by 20% per month. If you need the answer to a question, it can be found somewhere in the world. The Internet is not a central repository of information like a huge public library. Instead it is a way to access global information resources (both electronic and human). The Internet weaves an electronic spider web which connects data, information, and people (Morris, 1993).

Three major Internet tools are: (1) E-mail, (2) Remote Login (telnet), and (3) File Transfer (ftp). The E-mail component allows the user to communicate with other users by sending and receiving information. Private and public messages can be sent on the system. There are many newsgroups that share information and there are no membership fees. For, example, middle school educators and students can access a service through Internet by sending to a Bitnet list server at UIUCVMD <listerv@vmd.cso.uiuc.edu>. Communications can be established with the middle school education community from around the nation and world.

Remote Login allows the user to connect to a network or computer system in some remote

location. Some examples are: Library of Congress, NASA computer (SPACELINK), U.S. Weather service (WEATHER UNDERGROUND), and many research libraries throughout the world. File Transfer allows the user to obtain files from a remote network or computer system. Information such as magazine articles, research, and gaming software is accessible.

How do E-Mail systems help students?

Let's look at what E-mail systems could do to help the student. First, it can potentially develop a higher level of self-confidence.

> Since students cannot see each other as they communicate via computer modem, their usual pre-adolescent concerns about appearance, clothes, social status, and gender are set aside. Whether quiet or strident, the sound of their young voices does not matter. When participating in telecommunications activities, they are all on a level playing field. They are part of a global student body, removed from the isolation of their classroom by "traveling" great distance to acquire information first hand from their peers across the seas. The cultural insight gained through such "travels" enhances students' self-image as citizens of their country and gives them confidence in their ability to be good ambassadors.
> (Rosemary Lee Potter, 1992)

Second, the student will collect and use "real time" information that has been accessed in a simple, direct and relatively inexpensive manner. Whether it be through America Online, Compuserve, or Internet, teachers and students have the electronic key to open up a global network of information resources. These resources include fastbreaking stories from newspapers around the world; up-to-date international political and economic data; educational software that can be brought back to the classroom; libraries of information at major universities; and access to other students, teachers, specialists, legislators, to the Library of Congress, and even the White House (Dyrli, 1993). Is the sky the limit?... NO.

Third, students are discovering the interconnectedness of the world and the learning experiences extend beyond subject boundaries and school walls. In the process of finding, using,

and analyzing information, students are forming meaningful relationships with their contemporaries from around the nation and world, attempting to communicate by asking the questions that will yield relevant information. Students are moving beyond the close confines of the classroom and school building to expand to a more global environment. The computer, modem, and phone line will extend the classroom to any "virtual" location. Paulsen (1987) defined the"virtual school" by stating:

> A virtual school is an information system able to handle all the tasks of a school without the basis of an existing physical school. A virtual school will thus not exist as a physical building containing classrooms, offices, teachers, staff and students. Nevertheless, it may be thought of as real, since it can assume all the responsibilities of an ordinary (physical) school.

An alternative definition of the virtual school concept is that it is an extension of the traditional school, a notion that teachers, as orchestrators of instruction, now have the technological tools to extend the classroom to any "outside" environment, whether literally outside the physical school boundaries or through electronic extensions.

Curriculum Applications

I will describe an exercise that recently was experienced by students at Spring Creek Middle School, Providence, Utah and Mountain Crest High School, Hyrum, Utah. Our students have been communicating issues and idea with students in Russia. A recent episode in Russian current events will be illustrated in the following section.

Russian Scenario or "Habituation can be deadly in the classroom."

Nancy Johnson (October 28, 1993) named the 3R's that schools need to teach students in order for them to be successful in the 21st Century. They are;

- Find, use, analyze, and present information
- Communicate effectively with each other
- Form meaningful and work relationships with each other

Let's apply these 3R's in a recently completed exercise. We need to give learners a mosaic of opportunities by teaching them to think in different ways, asking different kinds of questions, and applying what they know in different ways. E-mail systems can bring together all of these elements together to create building blocks in the critical thinking process. Consider the following scenario which applies to the current situation in the Russian Republic and the events which led up to the ill-fated coup.

How does the student find, use, analyze, and present information? Traditionally the middle school student would go to the library media center and find a newspaper that may have a piece of information on the topic, look over Time magazine to find any background information that may apply to the events that took place prior to the coup, and perhaps access a print or electronic version of an encyclopedia for background information about the country. In essence, the student is finding, using, and analyzing third party stuff. What can telecommunications do to help the student find information? Please refer to Figure 1. Today's student can access information from a myriad of online resources. Each of the previously mentioned services will yield information: America Online, Compuserve, World Classroom and Internet. Using online systems gives the

student, first person, "real time" information collected in a simple, direct and relatively inexpensive manner.

Other Curricular applications

Electronic mail applications span the curriculum. Additional applications cover many curricular areas (Wishnietksy (1991) and Martinelli-Zaun (1993)).

Mathematics

Some new elements of the NCTM Standards emphasize statistics, data collection and analysis, and probability. Students in schools in different parts of the country could research the cost of items in their community and then compile and report the results. How much is a loaf of bread, six pack of Coke, half-gallon of milk (convert to liters) and a dozen eggs in Logan, Utah; Steubenville, Ohio; and Troitsk, Russia? Varied charts and graphs can then be produced. Data can be used to depict the popularity of issues and leaders. Recently the results of a poll was presented to students in Providence, Utah by some Muscovite students. It stated that the citizens of Moscow favored Yeltsin by 56%, Rutskoe 15%, Khazbulativ 4%, none of them 20% and don't know 5%. How popular is Boris Yeltsin in Providence?, or Bill Clinton in Moscow?

Language Arts

Pen pal systems are established and treat a variety of issues and relevant topics of the day. Students from around the world ask and receive answers to questions that are generated by the inquisitive minds of middle school students. Why was there a revolt in Russia? How many tulips are produced in the Netherlands and shipped to the U.S. each year? How do you feel about the oil spill off the northern coast of England? These and many other questions pique the interest of students on a daily basis.

Science

Weather is a subject that seems to be of interest of young and old alike. When all else fails, bring up the topic of weather in a conversation. Statistical concepts are most easily learned when

climatological data are used to teach them. Also, the topic of environmental science is very often a catalyst that can be used to spark international conversation. What about the ozone layer?

Social Studies

Through electronic dialog and then analysis, students will discover similarities and contrasts between historical events in the regions of the world and how these events have impacted the development of countries, as well as current foreign policy. Compare and contrast the American Revolution of 1776 with the Bolshevik Revolution of 1917, the Hungarian Revolution of 1956, and the Russian Coup of 1991 and 1993.

Foreign Language

What a better way to learn a foreign language than to be taught from a native speaker? Students are now working with students in Russia to learn the basic conversational elements of the language. In addition, cultural diversity can be studied through the development of travelogues of different countries.

Desk Top Publishing - (integrating subjects across the curriculum)

Information collected can be shared and discussed via E-mail, compiled and then desk top published as a book. Students love to bring home the finished product. One such project could include the following components:

Famous People

Students research famous people from their area and collect information for purposes of identifying individuals who would be willing to share and answer questions posed by students from around the world. A list of names could be compiled and students could then identify, contact, and then assemble the information, thus creating a living biography of famous folks representing various regions of the globe.

Historical Perspectives

Information is collected on historical events that shaped the development of the area in which they live. Text and graphics can be combined to produce a history book which will expand in size as students compile, digest and then publish updated versions. With textbook companies we wait for the new edition which may take years to produce. Student "new editions" may be publised on a weekly basis.

Class Novel

Students wove combinations of characters and landmarks from their community to generate an historical novel.

A Week in the Life of...

A journal for the week is presented which details the activities that took place at the middle school, or at home.

Travel Brochure

Students put together a travel brochure which briefly describes interesting sites, local weather, holidays etc. Services such as Compuserve provide software that allow graphic images to be downloaded and then pasted into document.

Desktop publishing applications are endless, only limited by the creativity of students and teachers.

Some Concluding Thoughts

A new textbook is emerging. How is the textbook changing and what will it become? What teaching challenges and learning opportunities can we expect with the change? And how will we pay for it? These and many other questions arise. E-mail access and desktop publishing by school systems will change the way in which information is collected, analyzed, and delivered to the learner. Information will no longer simply be collected by the textbook publisher and their team of writers, organized and then printed in the form of the traditional textbook. Tomorrow's textbook (next week, maybe now) will be developed by students, teachers, parents, and administrators. Each school site will build, through electronic means, instructional materials to meet the needs of the learner. Telecommunications systems will connect a world community of learners. We are in store for some creative times. Educational communities of students, teachers, parents, administrators, and businesses will work together to devise new relevant systems of learning. These systems will expand beyond the physical limitations of the school building. In other words, welcome to the virtual school.

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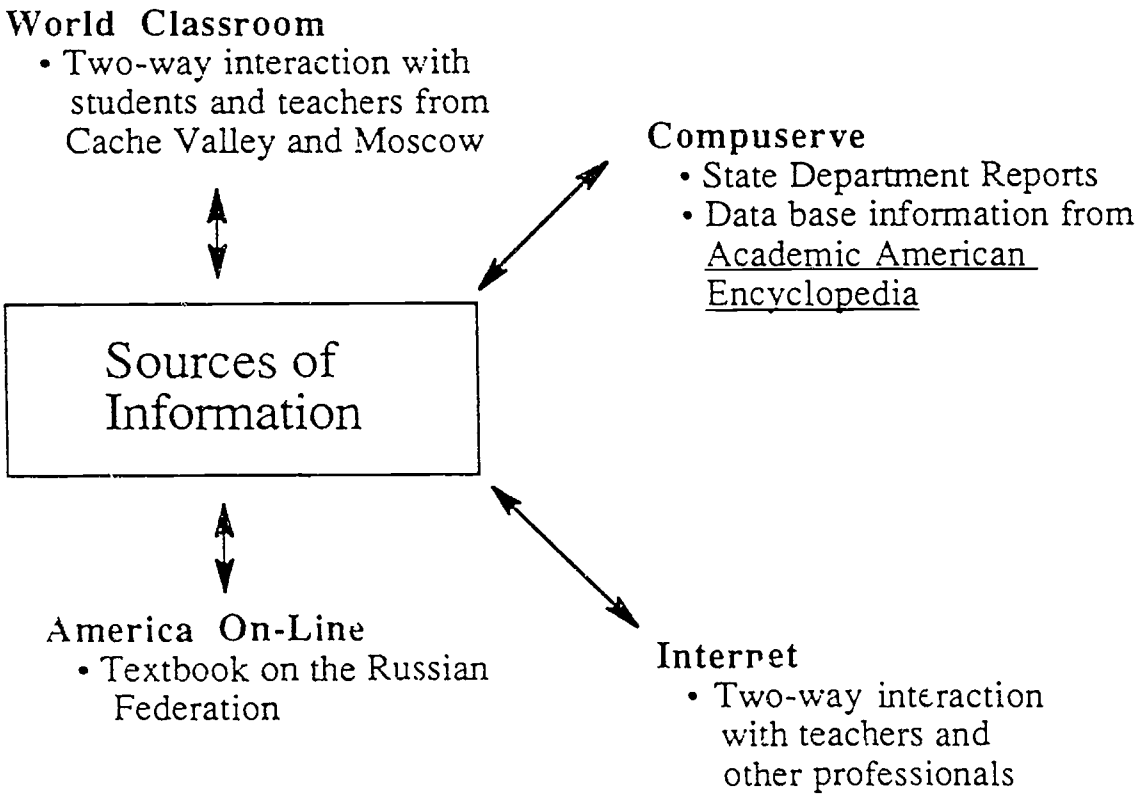

Figure 1. Student information access on the topic: "The Russian Coup."