

for free shipping by contacting a member of the **Computers for Learning Partnership**. Contact information is available at www.hhgfaa.org/partnership or by calling (888) 362-7870. The Partnership includes:

- Allied Van Lines
- Atlas Van Lines
- Bekins Van Lines
- Global Van Lines
- Mayflower Transit Incorporated
- North American Van Lines
- United Van Lines
- Wheaton World Wide Moving
- Several small moving companies
- U.S. Department of Defense

More detailed instructions for participating in **Computers for Learning** are provided in a User's Guide available on the website, by calling the toll-free hotline, or by writing to:

Computers for Learning
P.O. Box 44100
Washington, DC 20026-4100

Computers for Learning

www.computers.fed.gov

Toll-free Hotline: (888) 362-7870

Username _____
Password _____

The **Computers for Learning** program represents an important contribution to President Clinton's Education Technology Initiative, which includes making modern computer technology an integral part of every classroom, connecting classrooms to the national information infrastructure, providing teachers with the professional development they need to use new technologies effectively, and encouraging the creation of innovative educational software.



"Millions of dollars in computers will reach the communities that need it the most."

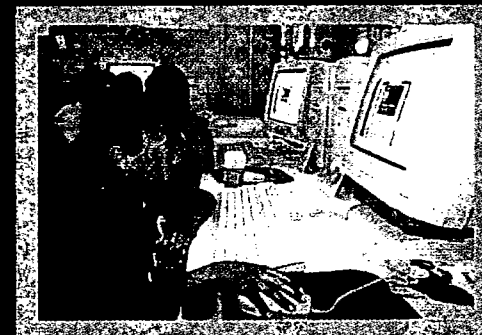
The **Computers for Learning** program was established by Vice President Al Gore. It is funded by the Department of Energy. The agencies that supported the Office of the Vice President in developing the program include: the Office of Management and Budget, the Office of Science and Technology Policy, and the General Services Administration.

The following agencies contributed to the website design: the Department of Agriculture, the Department of Defense, the Department of Energy, the Department of Health and Human Services, the Department of Justice, the Department of Treasury, and the National Aeronautics and Space Administration.

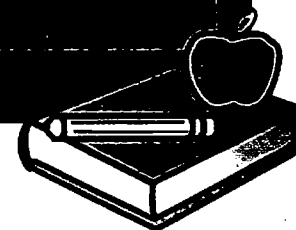
Participation in the **Computers for Learning** program is open to all Federal agencies.



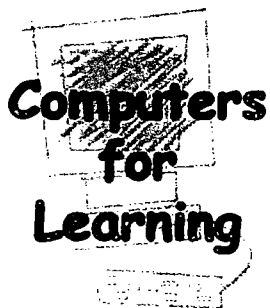
Computers for Learning



"EVERYONE GETS INVOLVED
WITH LEARNING."



www.computers.fed.gov



Empowering America's Children for the 21st Century

Our economy is at a crucial turning point. By the year 2000, an estimated 60 percent of new jobs in America will require advanced technological skills and computer know-how. **Computers for Learning** will place hundreds of thousands of computers in our Nation's classrooms and prepare our children to contribute and compete in the 21st century. It is designed to streamline the transfer of surplus Federal computer equipment to schools and nonprofit educational organizations, giving special consideration to those with the greatest need.

WHO IS ELIGIBLE TO PARTICIPATE?

A school is eligible to receive donations through the **Computers for Learning** program if it is a public, private, parochial, or home school serving pre-kindergarten through grade 12 students. An educational nonprofit is eligible if it is classified as tax-exempt under section 501(c) of the tax code and serves pre-kindergarten through grade 12 students.

Special consideration for computer donations will be given to schools and educational nonprofits in Federal empowerment zones and enterprise communities. Established by law in 1993, empowerment zones and enterprise communities were designed to create self-sustaining, long-term economic development in areas of pervasive poverty and unemployment. You can determine whether your school or educational nonprofit is located within an empowerment zone or enterprise community at the Federal government website www.ezec.gov.

WEBSITE AND TOLL-FREE HOTLINE MAKE PARTICIPATION EASY

The **Computers for Learning** website allows schools and educational nonprofits to quickly and easily register to request surplus Federal computer equipment. A technology tutorial is provided that includes examples of how to create an overall plan for addressing computer needs and how to assess the suitability of available computer equipment based upon school or organization needs. The website also includes information on how to find assistance if computers require upgrading and how to contact volunteers with technical computer knowledge. If a school or educational nonprofit does not have the ability to register on the website, it can register by calling the toll-free hotline at (888) 362-7870.

Federal agencies will use the website to donate computers based upon indications of need, including whether a school or educational nonprofit is located within an empowerment zone or enterprise community; its computer-to-student ratio; the number of computers already connected to the Internet; and the percentage of students receiving subsidized lunch assistance.

President Clinton defined the mission of **Computers for Learning** in Executive Order 12999, "Educational Technology: Ensuring Opportunity for All Children in the Next Century," which states his goal— "to ensure that American children have the skills they need to succeed in the information-intensive 21st century."

HOW TO PARTICIPATE

Eligible schools and educational nonprofits can receive surplus Federal computer equipment by following four simple steps:

1. **Register:** Register your school or educational nonprofit on the **Computers for Learning** website located at www.computers.fed.gov. If you do not have access to the Internet, you may designate an individual who does to register on your behalf and act as your official point of contact. This person could be a teacher who has Internet access at home, a member of your PTA, a board member, or any other individual you select. If you cannot find a person to register your school or educational nonprofit on the website, you can register by calling the toll-free hotline at (888) 362-7870.
2. **Receive Notification:** When a Federal agency selects your school or educational nonprofit to receive a computer donation, that agency will notify your official point of contact by e-mail or letter. Because selection is based on need, notification times may vary.
3. **Accept the Donation:** Accept the donation by signing and dating the bottom of the notification and returning it with a letter of acceptance written on your school or organization letterhead and signed by your Principal or Director. Educational nonprofits and home schools may be asked for further proof of eligibility.
4. **Pick up or Ship the Computers:** You can pick up the computers from the donating agency yourself, or contact a member of the **Computers for Learning Partnership** to make arrangements for shipping.

TRANSPORTATION SYSTEMS AND MOVERS OFFER FREE SHIPPING

A number of transportation systems and movers have formed the **Computers for Learning Partnership** to transport donated Federal computers free of charge from Federal agencies to classrooms. The Partnership members are committed to donating their time, resources, and available space to enhance our children's educational opportunities and prepare them for the 21st century. Schools and educational nonprofits can arrange

Computers for Learning

www.computers4ed.gov

Toll-free Hotline: (888) 362-7870

Username **Learning**

Password _____

Technically

THE WHITE HOUSE
OFFICE OF THE VICE PRESIDENT

FOR IMMEDIATE RELEASE
TUESDAY, September 16, 1997

CONTACT: (202) 456-7035

VICE PRESIDENT UNVEILS "U.S. NONPROFIT GATEWAY" WEB NETWORK

WASHINGTON -- Vice President Gore today (9/16) unveiled a new website, the U.S. NonProfit Gateway, a one-stop shopping center for information on how government can empower non-profit groups.

"The NonProfit Gateway opens the door for non-profit groups to more than 300,000 government web pages," said Vice President Gore. "This is a remarkable partnership between the federal government and hundreds of non-profit groups. I know that this site will help empower people with the tools they need to help others."

The NonProfit Gateway home page, www.nonprofit.gov, has links to information on grants, budgets, volunteer opportunities, and agency partnerships. Each of the 15 different departments and agencies has created a local non-profit home page, tailored to its own unique resources. The NonProfit Gateway links them together using a central directory.

The Vice President highlighted several examples of information that can be accessed from the website, including:

- Department of Education -- Partnership for Family Involvement for Education online service. This allows people across the country to share information on family-school-community partnerships.
- Environmental Protection Agency -- "EnviroFacts" service allows people to access maps which display air pollution levels, Superfund clean-up decisions, and the release of more than 650 toxic chemicals by companies.
- Housing and Urban Development and Department of Agriculture -- These departments have teamed up to provide information on the Administration's Empowerment Zone/Enterprise Community initiative.
- Department of Health and Human Services -- "HealthFinder" service provides high-quality consumer health information.
- Department of Labor -- "America's Job Bank" is a service for job seekers and employers that was created in conjunction with the 50 state employment services.

The NonProfit Gateway network was created during the past 12 months by an inter-agency task force chaired by Doris Matsui, Deputy Director of the White House Office of Public Liaison, and by local teams in each of the 15 participating agencies. Local non-profit liaison officers, previously appointed by President Clinton and Vice President Gore, played key roles in the inter-agency task force and local teams.

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Reinvention Impact Center Initiative

MEMORANDUM

To: Department and Agency Heads
FR: Bob Stone
RE: Reinvention Impact Centers Meeting of August 4, 1997
DT: 07/28/97

Enclosed are briefing materials for the meeting with the Vice President, scheduled for this Monday, August 4, tentatively from 4:30 pm to 5:30 pm in the Vice President's ceremonial office at the Old Executive Office Building.

We have included a copy of the agenda and each agency's one-page reinvention goals. Please come prepared to discuss your agency's goals. The meeting will focus on the future of the Reinvention Impact Center Initiative.

I look forward to seeing you on Thursday. If you have any questions please feel free to call Kelly Paisley at 632-0399.

Please Review By
Noon Thursday and
Send Comments to me.

PAUL

The Vice President's Meeting With
The National Performance Review's
REINVENTION IMPACT CENTERS

August 4, 1997

AGENDA

1. Introduction of Participants
2. Discussion of the Importance of the Reinvention Impact Center Initiative
by the Vice President
3. Opportunity for Participants to Discuss their Commitments with the Vice President
4. Questions and Answers about the Reinvention Impact Center Initiative
5. Next Steps in the Reinvention Impact Center Initiative



**Reinvention Impact
Center Agencies:
Proposed Goals for 2000**

August 4, 1997

***Reinvention Impact
Centers Initiative***

August 4, 1997

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HHS REINVENTION IMPACT CENTERS

ADMINISTRATION FOR CHILDREN AND FAMILIES

BENEFICIARY CLUSTER

"HIGH IMPACT" 4-YEAR GOALS FOR NPR

STATEMENT OF COMMITMENT: The Administration for Children and Families is committed to working with staff and stakeholders in the successful achievement of these goals. These goals are central to the ACF Strategic Plan. Yearly targets will be included in the ACF annual performance plan, and accomplishments will be tracked through the ACF report card "Achieving Success." The successful attainment of these goals requires continued commitment to an on-going process of partnering with States and communities to set goals and targets, to measure progress, and to achieve collaboration.

DELIVER GREAT SERVICE:

- Increase self-sufficiency for low-income families by moving one and one-quarter million welfare recipients into new employment within the first two years of welfare reform.
- Increase parent's financial support for their children by increasing the amount of total child support collections to \$20.8 billion by October 2000, an increase of 75 % over FY 1996.
- By October 2000, increase the number of children who are adopted from the public foster care system to 30,000. This represents a 50 % increase over the 1997 baseline and does not include nonadoption permanent placements, such as guardianship and kinship care.
- By October 2000, ACF will streamline 30 separate grant programs into a single comprehensive system of electronic processing and transfers to benefit grantees by more timely and efficient grants processing, more accurate data, less down time and enabling quicker start-up. This improvement will also overcome the Year 2000 programming flaw embedded in current grants programs.

**Reinvention Impact Centers
United States Department of Agriculture
Animal and Plant Health Inspection Service
Goals for the Year 2000**

Improving Customer Service in the Airports

Millions of travelers pass through our airports daily. Our overall goal is a timely, seamless, integral process that will ensure the best passenger clearance time while preventing the introduction of harmful pests and diseases of animals and plants.

- **In partnership with the airline industry, advance information will be obtained on international air passengers through the use of the Advance Passenger Information System (APHS) to expedite the overall processing of passengers with no loss in enforcement. (Joint - Customs, INS, APHS)**
- **Most international air passengers will be cleared through the inspection process in 30 minutes or less, while enforcement and regulatory processes will be improved. (Joint - Customs, INS, APHS)**

Improving Customer Service on the Land Border

The number of travelers/crossers at our land border Ports-of Entry is at an all time high. In fiscal year 1996, over 400 million aliens and United States citizens entered the U.S. through our land borders and even more are anticipated this year. Due to the high volume of traffic and increased enforcement efforts, border travelers have been, on occasion, subjected to long lines and longer processing times.

- **Dedicated Commuter Lanes (DCLs) have been established to facilitate the processing of pre-approved, frequent border travelers. The DCLs are lanes dedicated to travelers who have passed rigorous background checks that qualify them for expedited entry and minimal inspection. The Federal Inspection Services will establish five additional DCLs along the United States/Mexico border and double the number of pre-enrolled DCL participants to reduce their waiting times by at least 70 percent. (Joint - Customs, INS, APHS)**

**Reinvention Impact Centers
United States Department of Agriculture
Animal and Plant Health Inspection Service
Goals for the Year 2000**

Improving Customer Service for Cargo Entering the U.S.

With the increasing amount of foreign cargo entering through U.S. ports, there is a need to improve both the clearance time and the safeguards of the cargo. This can be accomplished through a risk assessment approach where cargo that is determined to be low risk will be released after minimal clearance time and higher risk cargo will be safeguarded as appropriate.

Ninety-five percent of high volume, low risk cargo will be released without inspection. The remaining five percent will be examined as a way of monitoring the pest risk. Clearance and monitoring of low risk cargo will replace inspection as the way to safeguard against foreign pests and diseases. This will free up resources to focus inspections on higher risk cargo. This system will be in place in every major port of entry by the year 2000.

Improving Services Through Effective Federal Partnership with the Federal Aviation Administration and the Department of Defense

Approximately 2200 civilian aircraft and 3000 military aircraft report collision with wildlife in the U.S. every year. These strikes can result in loss of human life and significant economic damage to aircraft -- approximately \$200 million annually. Because the number of these wildlife strikes to aircraft are on the rise, APHIS' Wildlife Services (WS) Program is partnering with the Federal Aviation Administration (FAA) and the Department of Defense (DOD) to address this serious problem.

Increase airline passenger safety and lessen economic losses by reducing wildlife-aircraft collisions by 75 percent at airports where the WS program provides assistance. Expanded partnership between WS, the FAA and the U.S. military will allow for greater leveraging of resources, to provide a safer environment for the flying public and military personnel both domestically and internationally.

Bureau of Land Management NPR Goals for 2000

Goal 1: An integrated nationwide outdoor recreation information system will give all Americans quick and easy electronic access to information about recreation on federal lands, recreation use permits, and reservations.

Goal 2: Improve service to the public land users by providing one-stop shopping for information, permits, and other frequently requested over-the-counter products and services at Forest Service and Bureau of Land Management facilities.

REINVENTION IMPACT CENTERS
U.S. Customs Service
Goals for the Year 2000

Improving Customer Service in the Airports

Millions of travelers pass through our airports daily. Our overall goal is a timely, seamless, integral process that will ensure the best passenger clearance time while preventing fraudulent entries.

- In partnership with the airline industry, advance biographical information will be obtained on 80% of international air passengers through the use of the Advance Passenger Information System (APIS), expediting passengers processing and enhancing enforcement. *(Joint - Customs, INS, APHIS)*
- Most international air passengers will be cleared through the inspection process in 30 minutes or less, while improving enforcement and regulatory processes.
(Joint - Customs, INS, APHIS)

Improving Customer Service on the Land Border

The numbers of travelers/crossers at our land border Ports-of-Entry is at an all time high. In FY96, over 400 million aliens and United States citizens entered the U.S. through our land borders and even more are anticipated for FY97. Due to the high volume of traffic and increased enforcement efforts, border travelers have been, on occasion, subjected to long lines and longer processing times.

- Most travelers will be processed in 20 minutes or less at any location along the northern land borders, except at peak traffic times and weekends. *(Joint - Customs, INS, APHIS)*
- On the southern land borders, the Federal Inspection Services will establish five additional Dedicated Commuter Lanes (DCLs) for pre-approved, frequent border travelers who have passed rigorous background checks that qualify them for expedited entry and minimal inspection. This and other border processing initiatives will result in the majority of travelers being processed in 30 minutes except on weekends and peak traffic times, effectively freeing up additional resources to reduce the illegal movement of people and prohibited goods into the United States. *(Joint - Customs, INS, APHIS)*

Enforcement - Narcotics Smuggling

Customs will pursue a multi-pronged strategy to disrupt drug smuggling through interdiction, intelligence gathering/dissemination and investigation.

- Increase the number of narcotics seizures in the commercial cargo environment achieved through the use of technology and prior information, and increase the number of arrests for narcotics.

Build on our partnerships with businesses and carriers to deter smuggling through commercial cargo on the Southwest border.

- The Business Anti-Smuggling Coalition (BASC) is a business-led, Customs supported alliance under which corporate participants set self-imposed business standards that significantly deter narcotics traffickers. The ultimate objective of the BASC is to eliminate the use of legitimate business shipments by narcotics traffickers to smuggle illicit drugs. 85 primary importers on the Southwest border are currently enrolled; Customs plans to increase Southwest border participation to 300 primary importers.
- The Land Border Carrier Initiative Program (LBCIP) was developed to address the threat of drug smuggling along the Southwest border, and to enlist the support of the land border carriers in the war on drugs. The LBCIP provides carriers with a means to improve their own cargo terminal and conveyance security as well as to enhance their awareness of drug smuggling, and to encourage carriers to recognize and report suspected illegal activities to U.S. Customs. 835 carriers currently participate in the LBCIP; Customs plans to expand the number of agreements with participating carriers to 1500.

Enforcement - Community Level Solutions

The United States faces the continued threat of narcotics smuggling, the malaise of drug abuse and the related crimes it inflicts on American society. Customs has achieved successful results at the community level through the use of Strategic Problem Solving (SPS), a creative, multi-functional approach that endeavors to prevent or reduce enforcement violations in addition to enhancing detection and apprehension of "willful violators." One example of a SPS project involved the prevalence of the powerful "date rape" drug, Rohypnal, in Texas high schools. A multi-disciplinary team from Customs, DEA and FDA worked together to close a loophole that permitted importers to bring in prescription quantities of the drug from Mexico. Within weeks of the closing of this loophole, Texas public health officials reported that the price of Rohypnal doubled and its availability in Texas high schools significantly diminished.

- Provide community-level solutions by employing Strategic Problem Solving (SPS) at the local level with other Federal, state and local governments, carriers and manufacturers. Nationwide, the number of SPS team projects will increase from the current 85 to 200; and the overall effectiveness of the SPS program will increase by 20%.

Facilitating Importation of U.S. Goods into Foreign Countries

World trade is expected to continue its rapid growth. By the year 2000, it is anticipated that \$2.6 trillion dollars in merchandise will be imported into and exported from the United States. With

this increase in trade volume, its importance to our economy will continue to grow. As world trade grows, Customs must work with its export community to promote modern harmonized customs procedures throughout the world for the benefit of U.S. exporters.

- Ease the importation of U.S. goods into foreign countries by: working with the World Customs Organization to gain acceptance of the International Customs Guidelines proposed by the International Chamber of Commerce; serving as a technical consultant to other federal agencies (U.S. Trade Representative, Commerce, State) on issues involving import clearance procedures and impediments in foreign countries; and working with foreign customs administrations to address import processing and trade facilitation through training and advisory assistance.

ENVIRONMENTAL PROTECTION AGENCY REINVENTION GOALS FOR 2000

At EPA, a commitment to setting tough standards for protecting public health and the environment is bolstered by a reinvention agenda aimed at increasing flexibility and cutting unnecessary costs -- benefits not always associated with conventional environmental regulatory programs. The following goals represent what EPA believes can be achieved in the future through innovative approaches taken today.

- **Widespread cleanup and reuse of contaminated industrial facilities:** By the year 2000, 300 communities will have Brownfield pilot projects to rapidly return hazardous waste sites to productive use -- triple the number of projects today.

Abandoned industrial properties often lie dormant, a drag on the health and economy of surrounding neighborhoods, while pristine rural areas are developed into industrial lands. To break this cycle of degradation, the Brownfields Initiative empowers states, communities and other stakeholders to work together to prevent, clean up and sustainably reuse these formerly contaminated properties, returning health and economic well-being to these largely urban areas while helping preserve our remaining open spaces and reverse the process of urban sprawl. In addition to clarifying cleanup liability provisions and promoting tax incentives for redeveloping abandoned and under-used industrial sites, EPA will expand its efforts to create public/private partnerships among all levels of government and the private sector to leverage our ability to rejuvenate blighted areas and provide the foundation for neighborhood revitalization, job creation, and restoration of hope at the community level.

- **Safe, clean drinking water for all Americans:** By the year 2000, 88 percent of the population (a 7-percent increase from 1994) served by community water systems will receive drinking water meeting all health-based requirements. By 2005, 95 percent will achieve this level of protection.

Across the country, 240 million Americans rely on community water systems for their drinking water. To help ensure their protection against microbial and other contaminants, EPA will adopt a more risk-based approach to setting drinking water standards, simplify monitoring requirements, and encourage voluntary treatment methods to reduce risks not manageable through conventional drinking water treatment methods.

- **Streamlined environmental reporting and greater public access to environmental information:** By the year 2000, businesses will be able to report electronically to EPA; real-time information about environmental conditions will be available to residents of the nation's 85 largest metropolitan areas; and citizens throughout the nation will have access to the latest trends regarding air, water, drinking water and other environmental conditions through the newly launched Center for Environmental Information and Statistics.

Reliable information about the environment forms the foundation for all environmental decisions -- by families, businesses, communities, states and EPA. One-stop environmental reporting for industry offers the potential to save money while increasing public access to information. Easy access to information about local conditions will expand citizen involvement in decisions about their communities and give people tools to protect their families. Increased information exchange between scientists, public health officials, businesses, citizens and all levels of government will foster greater knowledge about the environment and what can be done to protect it.

- **Greater awareness of children's environmental health concerns among the public:** By the year 2000, 50% of new parents will be able to describe one child protective action they have taken related to environmental hazards.

Children today face significant and unique environmental health threats because they are often more heavily exposed and more vulnerable than adults to toxins in the environment. On April 21, 1997, President Clinton signed an Executive Order to reduce environmental health and safety risks to children. EPA -- in partnership with health care providers, schools, parents, children and all relevant organizations -- will increase attention to children's environmental health effects in regulatory decisions and will improve public access to reliable information.

**FEDERAL AVIATION ADMINISTRATION
NPR GOALS AND COMMITMENTS
FY 1998-FY 2000**

DELIVERING GREAT SERVICE

Improve aviation security by installing 54 certified explosives detection systems, 17 other checked baggage screening units, and up to 489 trace explosives detection devices by June 1998.

By year 2000, reduce the number of flight delays attributable to the air traffic management system by 20 percent from the 1994 levels by modernizing air traffic control equipment and facilities and by enhancing procedures and processes.

Make aviation safety information immediately accessible on the Internet, eliminating the 2-week time period it previously took to respond to requests for such information.

FOSTERING PARTNERSHIPS

Expand voluntary aviation security airport consortia from 41 in 1996 to 270 by the year 2000. The consortia are partnerships among aviation industry, local law enforcement, and Federal Government at the Nation's commercial airports. They improve the security of the flying public by conducting vulnerability assessments and developing action plans that address security concerns.

Expedite the development and availability of the new Global Positioning System (GPS) (satellite navigation) approaches at general aviation and commercial airports by working jointly with state aviation agencies. This will result in a safer and more efficient National Airspace System (NAS) and will save NAS users hundreds of millions of dollars annually due to more precise routings, fuel savings, and increased airport efficiency. FAA will develop 500 GPS approaches per year, thereby, allowing safer approaches to these airports (target is 4,100).

INTERNAL REINVENTION

Convert a total of 128 FAA Level I towers to contract towers for a cost reduction of approximately 50 percent per tower. To date, 85 FAA Level I towers have been converted, 25 will be converted in FY-97, and 18 are scheduled for conversion in FY-98.

Reduce total time (by 50 percent) and cost (by 20 percent) of acquiring and fielding equipment through acquisition reform.

Develop and adopt a streamlined human resource management system that will eliminate outdated, cumbersome administrative procedures, improve delivery of services, hold down costs, and give FAA the management flexibility it needs to meet the dynamic human resource requirements of the 21st century. Major goals are to: (1) Reduce time required to establish positions by 90 percent by cutting the number of position descriptions (PD) by 50 percent and increasing the use of standardized PD's; (2) Reduce time to advertise positions by more than 80 percent by making vacancy announcements available through Internet and an automated telephone and fax system; and (3) Automate personnel processes including benefits election and recruitment and staffing by the year 2000 that will provide greater accuracy of information, quicker decisionmaking, and increased efficiency and cost effectiveness.

Financial Management Service Four-Year Goals

(to be achieved by the summer of 2000)

Support an all-electronic payments and collections environment in which the Federal government will operate at lower costs with improved customer service by:

Increasing the percentage of Federal payments that are made electronically from 54 percent to 77 percent.

Increasing from two to 50 the number of states in which Federal benefit agencies have the capability to deliver electronic payments to recipients without bank accounts.

Helping states administer Food Stamp, Child Support, and other Federal programs by providing the capability to offer payments electronically to recipients on one plastic card.

Ensuring that clients of Federal benefit agencies receive their payments on time and in the right amount 99.999 percent of the time.

Ensuring that major electronic collections mechanisms and networks are in place by the year 2000 to support an all electronic revenue collection system.

Increase the collection of delinquent debt owed the federal government by over \$14 billion, and increase the number of states participating in the Treasury Offset Program to collect delinquent child support payment debts by over 500%(from 8 to 50).

Support good government and increased confidence in financial integrity by fully implementing the provisions of the Government Management Reform Act of 1994, and taking necessary steps to support an unqualified/"clean" audit opinion on the FY 2001 Consolidated Financial Statements of the Federal Government.

By 2000, all CFO Agencies will have implemented transaction based Standard General Ledgers.

By 2000, all CFO Agencies will have implemented FASAB Standards.

Food and Consumer Service

4-Year Goals

Mission

The mission of the Food and Consumer Service (FCS) is to provide children and needy families access to a more healthful diet through its food assistance programs and comprehensive nutrition education efforts. FCS programs work both individually and in concert with one another. Taken together, these programs provide a nutrition safety net for low-income Americans.

Our success rests directly on the success of our partners. State and local agencies administer FCS nutrition assistance programs through a Federal-State-local partnership. We work closely with our partners to establish priorities, provide technical assistance and deliver program services and benefits.

Delivering Great Service

- ◆ Local school districts will serve healthy meals to America's children. Healthy meals must meet both the RDAs and the *Dietary Guidelines for Americans* for total fat (30% of calories) and saturated fat (10% of calories). School districts will:
 - reduce the average percent of calories from total fat in school lunches from 38% in 1993 to 35% in 1998 and to 30% in 2000;
 - reduce the average percent of calories from saturated fat in school lunches from 15% in 1993 to 13% in 1998 and to 10% in 2000;
 - reduce the average percent of calories from total fat in school breakfasts from 31% in 1993 to *Dietary Guidelines* goal of 30% in 1998;
 - reduce the average percent of calories from saturated fat in school breakfasts from 14% in 1993 to 12% in 1998 and to 10% in 2000, and
 - serve lunches that provide 1/3 of the RDA for calories, and key nutrients.
- ◆ State welfare agencies will dramatically expand the use of EBT, Electronic Benefit Transfer (debit cards), to deliver Food Stamp benefits.
 - The number of States issuing benefits by EBT will increase from 22 in 1997 to 42 in 2000.
 - The percent of benefits issued by EBT will increase from 20% in 1997 to 65% in 2000.
- ◆ State public health agencies and local Special Supplemental Nutrition Program for Women, Infants and Children (WIC) programs will further WIC's demonstrated success. Together, we will:
 - increase the incidence of breastfeeding among WIC mothers by 10% (27,500), from 33% (275,000) in 1994 to 36% (302,500) in 2000;
 - ensure that critical early childhood immunization rates for WIC children are no less than 90% in 2000;
 - increase the number of States issuing benefits by EBT from 1 in 1997 to 7 in 2000; and,
 - reduce monthly food costs per WIC participant (adjusted for inflation) by 10 % in 2000 through administrative efficiencies.

Internal Reinvention

- ◆ We will improve the efficiency of our commodity programs by replacing cumbersome paper ordering and inventory systems with a customer friendly, automated, paperless system. The Agency will increase the number of State distributing agents using the Electronic Data Interchange from 23 in 1997 to 150 in 2000, representing 80% of total food distribution.

FDA REINVENTION GOALS

FDA's proposed reinvention goals represent critical elements of the Agency's broad strategy for the 21st Century. Each of the goals requires a blend of reinvention, responsiveness to our 'customers' (The American public), and partnering with key stakeholders in order to produce meaningful results. Achievement of these goals assumes continuity of current budget proposals and projections contained in the President's FY 98 budget.

More Efficient Drug Development

By the year 2002, reinvent the drug development and review process in collaboration with industry, and as a result, reduce the time required to deliver important new drugs to the American Public by as much as one year, as well as the expense of doing so.* A central strategy to achieve this goal will be to have in place an automated application filing process by the year 2002.

- * Contingent upon reauthorization of an enhanced PDUFA beyond FY 97. Currently, intensive negotiations are underway with Congress to determine the scope and funding of future PDUFA activities. The results of these deliberations will help to determine what is a reasonable Year 2000 goal to target in term of time frame reductions.

Better Medical Product Information

In accordance with legislative mandate, 75% of all consumers receiving new drug prescriptions will be given more useful and readable information about their product by the year 2000. Usefulness is defined in terms of: scientific accuracy; unbiased content and tone; specificity and comprehensiveness; and timeliness. Based on national surveys conducted by FDA, the percentage of people who received useful information on new drug prescriptions was only 32% in 1992. To achieve the 75% goal, FDA will partner with industry, health care providers and the consumer. Simultaneously, FDA will revise and make more readable prescription drug and OTC labels. The impact of these information and labeling initiatives will be to improve the accurate use of medications and reduce risks associated with medication misadventures.

Stronger Food Quality Assurance

By the year 2000, assure improved quality of the American food supply, through a collaborative system encompassing government and private sector stakeholders.* In the seafood industry, two thirds of the processors will be operating under HACCP (Hazard Assessment Critical Control Points) quality control systems. HACCP is a newly instituted, industry-based monitoring system, and represents one element in the President's multi-strategy food safety initiative. FDA will be working closely with USDA, EPA and the Centers for Disease Control to implement this initiative.

- * Assumes funding of the Food Safety Initiative through the year 2000.

Faster Access to Important New Medical Devices

By the year 2000, reduce the review time for important medical devices by 30%.(Important medical devices are those products that present a major clinical benefit or pose a significant risk to patients). This will be accomplished by reinventing the screening and review process for product applications. The impact of this goal is that millions of Americans will have faster access to safe and effective medical devices. FDA is reinventing the medical device review process and redefining the concepts of high risk and high impact products. The new definition will be applied to establish a baseline to measure review time for important medical devices.

5 up health page 510

THE FOOD SAFETY AND INSPECTION SERVICE: FOUR-YEAR GOALS

The Food Safety and Inspection Service (FSIS) provides service to consumers by regulating the meat, poultry, and egg product industries to ensure that products in interstate commerce are safe, wholesome, and accurately labeled. The following three strategic goals highlight fundamental Agency activities in its public health mission.

1. Improve food safety by establishing a science-based system of preventative process control for all meat and poultry products and by reducing pathogens on raw product.

The Agency's Pathogen Reduction/Hazard Analysis and Critical Control Point (HACCP) Systems regulation requires plants to adopt this system of process controls to prevent chemical, physical, and biological food safety hazards. Specific regulatory requirements for plants for sanitation and microbiological testing are now in place. Anticipated outcomes of the regulation include:

- Development of a better understanding of *E. coli* O157:H7 and other foodborne pathogens by developing baseline data and by collaborating on research and other regulatory and non-regulatory approaches.
- Reduction in the prevalence of foodborne pathogens in meat and poultry products.
- By 1998, 80% of all Federally inspected meat and poultry products will be produced under a HACCP system; by 2000, 100% of all Federally inspected meat and poultry products will be produced under a HACCP system.
- By 1998, more than 95% of plants slaughtering cattle, swine, chicken, and turkeys will be tested routinely for *Salmonella* incidence.

The Secretary of Agriculture has also set as a Departmental food safety goal a 25% reduction in the number of foodborne illnesses by the year 2000.

2. Redirect FSIS resources to improve food safety and to achieve other consumer protection responsibilities.

- FSIS will expand and improve interagency cooperative agreements on inspection and establish effective partnerships with States and other agencies to:
 - develop a national inspection database through the Field Automation and Information Management initiative
 - support risk assessments for regulatory and non-regulatory activities
 - promote the nationwide adoption of the Food Code
 - achieve a national consistency of training, application of knowledge, and delivery of inspection

3. Promote the necessary cultural change to support a HACCP-based farm-to-table food safety strategy.

- As part of the President's *National Food Safety Initiative*, FSIS is collaborating with other food safety and public health agencies to identify and encourage research to address food safety risks.
- The Agency will collaborate with States, other Federal agencies, industry, and academia to expand existing information systems on foodborne illness and establish a national clearinghouse on food safety information and education.
- FSIS will cooperate with States and producers to expand knowledge and use of public health-based on-farm practices.

**Year 2000 NPR Goals
USDA Forest Service
June 20, 1997 DRAFT**

1. Offer to all customers, contractors, suppliers, and vendors the opportunity to conduct financial transactions electronically.
2. Offer toll-free telephone, world wide web, and automated applications to all permittees and applicants of the most frequently requested special use permits.
3. Establish an internal market economy, using enterprise teams, to improve efficiency of managing the National Forests in California, reinvesting the savings in a highly skilled workforce to improve the quality of land stewardship and customer service.
4. In collaboration with the Bureau of Land Management, improve service to the public land users by providing one-stop shopping for information, permits, and other frequently requested over-the-counter products and services at BLM and Forest Service facilities.
5. In collaboration with the Bureau of Land Management and the National Park Service, provide an integrated, nationwide outdoor recreation information system that gives all Americans quick and easy electronic access to information about recreation on federal lands, recreation use permits, and reservations.

HHS REINVENTION IMPACT CENTERS

HEALTH CARE FINANCING ADMINISTRATION Beneficiary Cluster

Health Promotion

NPR Goal: Increase the well-being and survival of beneficiaries through increased use of covered preventive services.

The long-term goal is to improve health outcomes and reduce morbidity and preventable deaths through: partnerships with other purchasers and the health care community to improve health care interventions; and educating beneficiaries and influencing them to obtain preventive and health-sustaining treatments. Over the next four years, this goal will be achieved by striving to reach the targets established in the following areas:

- Increase from 34% to 100% the number of states conducting maternal AIDS education projects to inform women of childbearing age of the importance of HIV testing and, if necessary, treatment as part of prenatal care that is covered under the Medicaid program.
- Increase from 59% to 80% the number of Medicare beneficiaries with end stage renal disease receiving adequate hemodialysis.
- Increase to from 45% to 85% the number of Medicare beneficiaries with diabetes receiving annual eye exams.
- Increase from 41% to 60% the number of Medicare beneficiaries aged 65 and over receiving vaccinations for influenza.
- Increase from 16% to 60% the number of Medicare beneficiaries aged 65 and over receiving a vaccination for pneumonia.
- Increase from 39% to 60% the number of Medicare beneficiaries receiving, biennially, a mammogram.

Medicare Integrity

NPR Goal: Achieve more than half of program integrity savings by eliminating mistaken or inaccurate payments.

The long term goal is to improve the fiscal integrity of the Medicare program through a stronger emphasis on eliminating mistaken or inaccurate payments and preventing fraud and abuse. We will continue an aggressive fraud and abuse surveillance and enforcement effort, which results primarily in savings from recoveries of payments already made. Over the next four years, however, we will shift the balance of savings from the current even split between avoided and recovered payments so that more than half result from eliminating mistaken payments.

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REINVENTION IMPACT CENTERS

Immigration and Naturalization Service 4-Year Goals

Improving Customer Service-In the Airports

- In partnership with the airline industry, biographical information on international air passengers will be collected in advance of their arrival in the US through the use of the Advance Passenger Information System (APIS). In addition, we will expand the electronic sharing of visa and application information between the Department of State and INS through the DataShare initiative. The overall result will be that most international air passengers will be cleared through the primary inspection process in 30 minutes or less, while improving enforcement and regulatory processes.
 - Advanced biographical information will be obtained on 80 percent of international air passengers through the use of APIS greatly expediting passenger processing and enhancing enforcement. (Joint - Customs, INS, APHS)
 - Electronic sharing of visa and application information between DOS and INS through the DataShare initiative will include nonimmigrant visa information reducing the incidence of fraudulent visas and expediting the visa issuance process by capturing and sharing information on 80 percent of all visaed travelers. (Joint - INS and DOS)

Improving Customer Service-On the Land Border

- INS will process most travelers in 20 minutes or less at any location along the northern land borders, except at peak traffic times and weekends.
- In the southern land borders, the Federal Inspection Services will establish five additional Dedicated Commuter Lanes (DCL) for pre-approved, frequent border travelers who have passed rigorous background checks that qualify them for expedited entry and minimal inspection. The overall result will be that the majority of the travelers will be processed in 30 minutes except on weekends and peak traffic times, effectively freeing up additional resources to reduce the illegal movement of people and prohibited goods into the United States. (Joint - INS, Customs, APHS)

Border Patrol

Historically, the San Diego, California and El Paso, Texas border corridors were those most frequently used by illegal border crossers. These two areas alone accounted for over 67 percent of all apprehensions along the southwestern border. Because of our current border strategy, illegal immigration patterns have been altered, reducing apprehensions in those corridors to only 43 percent of the southwest border total. However, pressures of illegal immigration continue. Local border communities and states continue to experience the negative impact of crime related to alien and drug smuggling.

- By employing a multi-year border control strategy and maintaining a professional, well trained law enforcement workforce we will sustain definitive control over the San Diego and El Paso corridors, ensuring that apprehension rates do not degrade even as we allocated future resources to other illegal crossing corridors along the border.

Expanding Partnerships

A key component of the Clinton Administration's continuing commitment to crack down on illegal immigration is the reduction of the magnet of job opportunities that draw unauthorized workers. The INS, while expanding its efforts to remove undocumented aliens from work places, also created pilot programs such as "Operation Jobs" to assist businesses to replace unauthorized workers with those legally authorized to work. This program has the added benefit of protecting the rights of legal workers and helping states to reduce the numbers of those on welfare.

- The INS will actively encourage partnerships with states by attempting to increase the number of partnerships in these programs from two to six. INS will serve as a catalyst by identifying 10,000 jobs previously held by unauthorized workers that may be freed nationwide.

Naturalization Reinvention

Within the last three years, the INS has experienced a surge in Naturalization applications. This year alone, we expect to receive 1.8 million applications.

- Complete process reinvention for naturalization and implement the resulting best practices to other benefits processes nationwide, while maintaining the integrity of the naturalization process.
- Establish and maintain customer friendly processing time standards for all applications and implement nationwide.
- Provide newly naturalized citizens the option of applying for US passports as part of their naturalization process.

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National Park Service

4 year Goals

A. Delivering Great Service

By the year 2000, increase by 7 percent the customers who rate park facilities, services, and recreational opportunities as "good" or "very good".

Increase by 10 percent the customers who rate the usefulness of technical assistance provided for historical and natural resource protection as "good" or "very good".

By the year 2000, an integrated nationwide outdoor recreation information system will give all Americans quick and easy electronic access to information about recreation on federal lands, recreation use permits, and reservations.

B. Internal Reinvention

Integrate 50 percent of the major NPS data systems.

Reduce NPS employee lost time injury rate by 50 percent and reduce the costs of new workers' compensation costs by 50 percent.

Annually support 3.3 million volunteer hours in parks, a 10 percent increase.

Work to ensure that the population of annual new hires reflects the overall diversity of the civilian labor force.

C. Fostering Partnerships

Eighty percent of communities served with NPS technical assistance programs rate our partnership assistance as "good" or "very good".

1,000 additional miles of trails, 1,000 additional miles of protected river corridors, and 30,000 additional acres of parks and open space are conserved with NPS partnership assistance.

U.S. DEPARTMENT OF LABOR
OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
4 YEAR STRATEGIC GOALS

OSHA's vision is to be a world leader in occupational safety and health, with a clear focus on protecting the safety and health of America's workers. To achieve this vision, OSHA has established three interdependent and complementary strategic goals which will guide the development of programs and activities for the Agency. For each goal, the agency has identified specific, quantifiable objectives to assess OSHA's performance:

Goal #1: ***Improve safe and healthful working conditions for all workers, as evidenced by fewer hazards, reduced exposures and fewer injuries, illnesses and fatalities.***

- ◆ Reduce injury/illness rates 20% in at least 50,000 of the most hazardous workplaces.
- ◆ Ensure that 80% of all worker complaints and referrals are resolved within an average of 20 working days of notification to the employer.

Goal #2: ***Change workplace culture to increase employer and worker awareness of, commitment to, and involvement with safety and health.***

- ◆ By September 30, 1998, OSHA will standardize and fully implement Cooperative Compliance Programs (OSHA's innovative enforcement/partnership leveraging programs) in all federal enforcement states, and by September 30, 1999, affect 12,000 workplaces that employ 2.5 million workers.
- ◆ Increase the number of plain language standard rewrites from 1 per year in 1997 to 5 per year in 2000.
- ◆ Make all standards, regulations and reference materials available from the OSHA Home Page on the Internet.

Goal #3: ***Secure public confidence through excellence in the development and delivery of OSHA's programs and services:***

- ◆ By September 30, 1999, OSHA will redesign all of its field enforcement offices in order to improve the agency's ability to affect the most hazardous workplaces.

Reinvention

REINVENTION IMPACT CENTER: 4-Year Goals for Student Financial Assistance

DELIVER GREAT SERVICE

- By October 2000, the annual number of students and families submitting or renewing their federal student aid applications electronically will at least double to 3.3 million, reducing the annual number who submit labor-intensive, paper financial aid applications.
- By October 2000, students and families submitting or renewing their federal student aid applications electronically will have their eligibility for aid determined within 72 hours, down from a current average of over 28 days for those using paper applications. *[Requires legislative action.]*
- By July 2000, ED will redesign the Free Application for Federal Student Aid (FAFSA) available on the web to make it an interactive, interview-style process, reducing the average number of data items applicants must provide by at least a third. *[Requires legislative action.]*
- By October 2000, ED will begin disbursing federal student aid through streamlined processes similar to those used for bankcards and electronic benefits transfers.

FOSTER PARTNERSHIPS AND COMMUNITY SOLUTIONS

- By December 1999, ED and its partners in the financial aid community will have established, for the first time, mutually agreed upon industry-wide standards for data exchanges needed in administering student financial aid. These standards will stabilize data requirements, improve data integrity, reduce costly errors and facilitate student aid data transmission.
- By July 2000, ED will have coordinated with states, postsecondary institutions, and Congress to change financial aid laws and regulations to support innovations in the delivery of postsecondary education, such as distance education and the creation of virtual universities. *[Requires legislative action.]*
- By July 2000, ED will have worked with the financial aid community and Congress to implement the use of a multi-year promissory note for student loans, streamlining the application process, minimizing delays in receiving funds, and providing better consumer information for borrowers. *[Requires legislative action.]*

REINVENT TO GET THE JOB DONE WITH LESS

- By December 1999, the financial aid community, including schools, state agencies, lenders and guarantors, will be able to use ED's web site as their principal source for obtaining federal financial aid information, programmatic and technical publications, and software, reducing the amount of such materials the agency produces and mails by a third.
- By July 2000, ED will implement data exchange with the IRS, and other federal and state agencies, that assures protection of individual privacy but allows ED to use information for purposes of determining federal student financial aid eligibility, reducing reporting burdens for students and families, and improving data quality and reliability. *[Requires legislative action.]*

May 13, 1997

NOTE TO JON SCHNUR--

I have reviewed your draft memo. I see much more to like in the ideas as you have played them out than I have in our conversations--there are several intriguing possibilities here. To be most helpful, and due to lack of time, I have put most of my concerns fairly bluntly, trusting that you will appreciate the spirit in which they are offered. Here are my quick comments:

- Of the three options, I think like the online service the least. It would take an enormous, sustained investment to make this good enough to be worth the effort. More likely it would be largely duplicative and unsustainable, and of uncertain quality. Perhaps it would be possible to do something fairly modest -- an appendage of a family conference website, if one exists -- that essentially points to a variety of sites and services concerned with family and learning, including ED and HHS websites, rather than purporting to supply a lot of the content.
- I think the teacher-family communications angle could be strengthened if it focused more on making sure that every teacher in selected schools have access to a phone and voice mail, rather than focusing so much on cellular phones. In some schools, all they may need to do is to inexpensively install or turn on conventional phone lines, perhaps with a few cell phones that teachers can share on the school yard or for security purposes. In other schools, where wiring would be expensive or impossible, cell phones might make sense. The voice mail angle has a clearer connection to helping develop stronger family-student-teacher ties; cell-phones look more like a luxury that teachers might or might not use in ways that benefit students. If nothing else, I would de-emphasize the cell option. Also, some schools have done impressive things by giving families computers that they can use to hook up with school e-mail networks and web-sites. Is this prohibitively expensive? If this is going to be a mode effort, maybe you could do this for a smaller number of districts or schools?
- In general, when you are talking about voice mail, I think it is a service, not equipment. Also, for any of these things, if the service/benefit is provide for less than three years, it looks like a marketing promotion/pump priming, rather than education reform.
- You raise the possibility of donating communications equipment and services to urban sites participating in the national tests early on, but don't really develop why this initiative might make sense. Four reasons: tie to high standards; shows that Gore isn't just concerned with suburban/well-off schools; logical justification for assisting some schools and not others; rewards commitment to improve with resources and assistance.
- Aside from the school construction specter, you would have to make some modifications to the school design competition to avoid looking like it is something mainly of interest to

the wine and brie set. These schools need to be affordable, not blue-sky concept schools. The concept of "museum" exhibits, rather than interactive design exhibits, sounds wooden to me. To be meaningful, there has to be something more than a traveling road show.

- None of these proposals seem focused at the heart of the educational enterprise, which is teaching and learning. Right now, these proposals make it sound like Gore's vision is cleverly designed schools with lots of bells and whistles that families will like to come to, but where teachers are an afterthought. At a minimum, they should be tweaked in ways that better focus in this area. For example--design ideas need to be presented as ways that foster continuing education for teachers, high quality interaction between students and teachers. Communications equipment should somehow support teacher mentoring and support, etc., as well as home-school communications.
- My understanding is that 21st Century Teachers is not moving forward very rapidly. Unless you are going to use this as a springboard to reinvigorate, I might not reference in this memo. (This is based on what I hear from Terry Dozier).
- We should also talk about some other reservations I have on this for Gore, as a strategy--working with CEOs to provide benefits in this manner.
- See other specific, marginal comments on the draft.

Hope these are helpful. If there's time, I'm happy to chat with you about these. I will also bring a copy of these notes home, in case we don't get to talk while I'm at the office.

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-- Bill

Decision Memo to the Vice-President

From: Et al

Date: May 13, 1997

Subject: Guidance for staff who will meet with CEO's this Wednesday to discuss possible "New Venture" education announcement.

DRAFT TUES. 4 PM

Decision needed: 10-12 CEO's interested in helping launch an educational initiative with you will meet tomorrow evening in San Francisco to discuss options for a joint announcement at the family reunion conference next month. Staff will attend the meeting and should be prepared to outline education initiatives that you would like to see announced and carried out -- or at the least, discussed further with these CEOs.

You need to decide whether to approve the outline of initiatives described below, and approve, modify or disapprove the attachments for staff to provide on Wednesday. The recommendations can be presented to the CEOs as your proposals, or as options for more discussion.

Recommendations: We recommend that you and these CEOs announce at the family conference a new institute for families and learning that will help families and schools move into the 21st century. This institute would launch and oversee several activities that would be developed in further conversations with you and the CEOs that would include many of the options described below.

- ▶ donate cellular phones, voice mail, and other equipment to enable closer communication between parents and their children's teachers and schools. Further thinking is needed about how to distribute this equipment fairly, visibly, and in way that will result in their effective use. One strategy would be conducting a national competition, providing equipment and possibly monetary awards to schools with good plans for using technology to help children learn and to promote effective communication among parents and teachers. The monetary awards could be used by winning schools to help defray the costs of giving real and on-line "tours" to other schools interested in learning from them. Another strategy would be offering equipment to urban school systems or schools signing up for the President's Call to Action (including, where appropriate, agreement to participate in voluntary national tests in reading and math).
- ▶ fund the development of an online service that would provide families with relevant and accessible information about helping their children learn and succeed in school. This would provide families with on-line, one-stop shopping for specific, easily understandable information and tips relevant to raising children from infancy through their high school years preparing for college and careers; tips on how to become involved in your child's school; questions to pose in selecting the right school for your child; descriptions and reviews of children's educational software; information on how your school and library can make use of the e-rate; and by grade level, examples of student work that meets or falls short of a variety of challenging academic standards. Information on standards and student work would enable parents to compare academic expectations set by their children's school -- as well as their children's work -- with expectations for student work in high-performing schools around the nation and world. This would also provide parents a new tool for pressuring and helping their child's school improve.
- ▶ help you launch a national effort supporting the design, renovation, and construction of public schools that are centers of their community, family-friendly, make effective use of technology, and draw on research about how children learn. Billions of dollars in bond issues and state appropriations have recently been approved for school construction and renovation to begin to

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address the new baby boom moving through our schools, with 6000 new schools needing to be built to accommodate growing student enrollments and replace aging school buildings. This effort would provide leadership in helping communities across the nation design these schools well.

The CEOs would sponsor a \$1 million "community design challenge," offering awards for top-rated school designs developed by teams of students, parents, architects, and educators. The CEOs would also provide \$500,000 to create a world-class museum exhibit -- possibly debuting at the Getty Museum in Los Angeles in the fall of '98, before going on a year-long national tour -- that incorporates the winning designs. The exhibit would tell the story of the American school in the 19th and 20th centuries, and portray possibilities of the American school in the 21st century.

- ▶ Launching an electronic dashboard. (To be described in greater detail)
- ▶ Running national competition for exemplary schools, providing resources for those schools to mentor other schools. (To be described in greater detail.)
- ▶ Would potentially link to other initiatives, such as tech corps, 21st century teachers, and regional forums to prepare schools and communities to take advantage of the e-rate

Rationale: Discussions about this announcement have been complicated by the need to meet the following objectives. While no single initiative described in this memo can accomplish all of these purposes alone, we believe that the entire package provides you with a vehicle to:

- ▶ Make a real impact on learning, families, and schools. The telecommunications equipment and on-line service can provide many parents with better information and communication with their children's teachers over the next year or so. The 21st century schools initiative can provide leadership in shaping the design of up to 6,000 schools over the next decade to make them family, learning, and community-friendly.
- ▶ Focus national attention on several principles in school design that you believe are important, particularly the effective use of technology in education, school partnerships with working families and communities, and the importance of drawing on research about how people learn. We want schools to teach the basics, reflect basic American values and fit the needs of communities today; but we must build schools that will be in existence for the next half a century. The 21st century school design competition can foster community planning efforts around these principles and draw considerable local media attention. The museum exhibition can place your vision of schooling in context of the history of American education for audiences around the country, potentially beginning at the Getty Museum in Los Angeles.
- ▶ Draw effectively on the knowledge, interest and resources of the "New Venture" CEOs. The telecommunications equipment and on-line service would draw on their expertise and interest in technology, as well as their interest and ideas about making use of technology to support families and learning. The 21st century school effort would tap their imagination and their interest in supporting the design of schools of the future, taking advantage of a rare opportunity to infuse their thinking into the investment of billions of dollars to build and renovate schools that will be used by families for the next 30-60 years.

hooking 3

Enable you to use the bully pulpit -- in June and in the coming months -- to provide strong national leadership in education, including but not limited to the use of technology in education. Donated telecommunications equipment and the creation of the on-line service would give you platforms to discuss the importance of technology in supporting family involvement in education; these initiatives could also help you highlight new opportunities for families and schools afforded by the e-rate decision.

The 21st century schools initiative enables you to convey a big-picture vision for schools as the nation prepares for the next century, while promoting this vision in a concrete, positive way. ~~An enduring bully pulpit and real legacy could be created here.~~ Visits to community design planning efforts would provide forums for you to highlight importance of communities coming together to invest in their schools. The opening of the museum exhibit could spark national discussion about the direction of the American school in the 21st century, and would provide you opportunities to discuss the issue at exhibit openings at museums around the U.S.

DRAFT

Component 1: Donating cellular phones, voice mail, other equipment (including laptop computers?) to enable closer communication between parents and their children's teachers and schools.

DRAFT

Purpose and summary: Parent-teacher communication is critical to the success of a child's learning, and regular communication before problems arise is critical. Cellular phones, voice mail systems, e-mail, and other technologies all offer new ways for parents and teachers to communicate amidst busy schedules; moreover, the recent e-rate decision makes it financially feasible for even the poorest schools to take advantage of these technologies.

If distributed in ways to ensure their effective use, this equipment can make an immediate impact on teacher-parent communication in many schools. If the equipment is donated through a national competition, the initiative can also spark and showcase efforts to make effective use of these and other technologies. Finally, the competition could be structured to provide technology-savvy schools with resources to help other schools in need of mentorship and assistance. Under this initiative, these companies would:

- ▶ donate telecommunications equipment to schools with good plans and a commitment to use technology to improve parent-teacher communication in support of student learning. Donating cellular phones to teachers can enable better communication with parents for the many teachers who do not even have phone lines in their classrooms. Many teachers depend on a single telephone in a school office, thereby making it difficult for them to call parents to discuss a child's education during planning periods or after school. Voice mail systems -- those provided in hundreds of schools with help from the Peabody school -- can enable teachers and schools to provide parents with information on such areas of interest as homework and extra-curricular activities; they can also enable parents to leave messages for their child's teachers.
- ▶ sponsor a national competition, providing equipment to schools with good plans for using technologies to foster parent-teacher communication, promote family involvement in education, and improve student achievement. Real thought would need to be given on how to publicize this competition, evaluate applications, and ensure the supply of a significant portion of this equipment to schools serving high percentages of disadvantaged children.
- ▶ sponsor a second category in this national competition, providing recognition and financial awards to schools that demonstrate an ability to use technology well. The financial award would be used in those successful schools to help other schools in need of assistance, defraying such costs as providing a "tour guide" for other schools interested in learning through personal visits, on-line visits, or telephone conference calls.

Analysis: This initiative can provide many parents better communication with their children's teachers over the next year or two, and it can encourage schools to take advantage of the recent e-rate decision. Moreover, the initiative can stimulate and showcase effective efforts to use technology, and enable technology-savvy schools to provide assistance to other schools who need the help. Significant issues needing attention: what organization would be created or selected to manage the competition and distribution of equipment, how to ensure this equipment is used well and benefits schools that need the help. Another concern: while one clear advantage of this initiative is its very concrete benefits, it may be vulnerable to perceptions that donated equipment is a relatively insignificant step in light of the broad educational issues facing our country. This concern might be addressed by placing the announcement in context of a broader initiative, as well as by targeting equipment strategically through a well-designed competition or efforts to channel equipment into areas of real need.

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Component 2: Sponsor an online service to provide families with relevant and accessible information about helping their children learn and succeed in school.

Purpose and summary: Families need information on a wide array of topics related to raising children and helping children learn and succeed in school. While there are a few efforts underway to provide some of this information on the Internet, they do not appear to offer the breadth and depth of content, user-friendliness, and technological prowess to make an on-line service very appealing for parents.

This effort would provide families with on-line, one-stop shopping for information and tips relevant to raising children from infancy through their high school years preparing for college and careers. If developed and managed with real sophistication, this service could become as ubiquitous and appealing to parents and children as Sesame Street became in the 1960s. With high-quality and usable content, this service could encourage families who aren't on-line (frequently or at all) to discover the Internet. The CEOs would sponsor the development and management of an on-line service that:

- how to find system?*
- ▶ would provide an array of useful information, searchable by topic and keyword, including tips on becoming involved in a child's school; questions in selecting the right school for a child; descriptions and reviews of children's educational software; information on how schools and libraries can use the e-rate; information on development of babies and young children, including parenting tips and questions about a child's health; links to educational websites at museums and elsewhere. Part of the site could address commonly asked questions from parents.
 - ▶ would provide important tools for helping parents compare academic expectations of their child's school with student work and academic expectations at high-performing schools around the nation and world. The site would provide, by grade level, examples of student work that meets or falls short of challenging academic standards. Information on standards and student work would enable parents to compare academic expectations set by their children's school -- as well as their children's work -- with nationally and internationally competitive standards. This information would provide parents a new tool for pressuring and helping their child's school to raise standards and improve. The site could demonstrate student work at levels needed to pass voluntary national reading and math tests, and provide homework supplements and exercises to help children prepare for the first administration of these tests in 1999.
 - ▶ would be designed to ultimately offer on-line classes for parents and families in such topics as pre-natal care, raising young children, tips on helping students with homework, posing critical questions to their child's school, as well as classes of interest to a whole family.
 - ▶ would be kicked off with a series of regional forums this fall on issues of interest to families about learning and schools. One-day forums could provide information on making use of the e-rate and technology, strengthening family involvement in education, creating after school programs, and -- in high-growth areas with many new schools to be built -- designing new schools for the 21st century. Keynote speakers could include the Vice-President, corporate executives from Silicon Valley, and other experts.

Analysis: If done in a high-quality way, this could offer an important new service and source of information for American families. However, serious consideration must be given to costs, possible scope of information offered by service, organizational needs, and sustainability.

6/1/98
Purpose and summary: Thousands of schools will be built and substantially remodeled in the next several years to accommodate record-breaking student enrollments and to replace or modernize the more than a third of the nation's existing school buildings that are currently over 50 years old. With schools built in approximately 50-60 year cycles, this presents an historic opportunity to physically and academically design schools where several generations of American children will be educated.

?
Done right, these 21st century schools can be built in ways that will be conducive to technology-rich, personalized learning environments that are in schools open to -- and even the hub of -- the community. Absent strong leadership, however, this nation may pour billions of dollars into large, impersonal factory-model schools with designs from the early 20th century. This initiative would launch a national partnership (of educators, community leaders, architects, builders, technology experts, parents, teachers, and students) to promote the design of 21st century schools that will leave an enduring legacy for generations of American schoolchildren and their families. Specifically, it would:

- ▶ Sponsor \$1 million competition for "community design teams" of architects or architecture students in partnership with community leaders, technology experts, education researchers and practitioners, and students. Teams would submit school designs incorporating research on education and technology and show how the school would appeal to teachers, students, and the community. A national competition would yield innovative designs, bring needed attention to the issue, and stimulate communities to engage in a sort of barn-raising -- imagining and designing together schools where our children and grandchildren will be educated.

Awards would be made to top-rated designs, judged by a prestigious panel of educators and architects. The designs would become part of a major museum exhibition telling the story of the American school in the 19th and 20th centuries, describing its role in fostering the American dream and communities, and imagining possibilities of the American school in the 21st century.

- ▶ Sponsor \$500,000 world-class museum exhibition on the American school, incorporating the ten winning designs. A board member of the Getty Museum has expressed initial interest in hosting the premier of this exhibit, which could subsequently go on a national tour. Museum openings in certain cities could be accompanied by 1 or 2-day school design institutes for local communities.
- ▶ As the exhibition opens in fall '98, convene national conference on designing new schools. Conference cosponsors could include ~~American Institute of Architects~~, New American Schools, Silicon Valley executives, schools of education, PTA, and American Institute of Architects.

Analysis: This initiative provides a vehicle for providing leadership and vision for schools as we enter the 21st century, highlighting such important design principles as making effective use of technology, being family-friendly and centers of community, and drawing on research on teaching and learning. The competition would stimulate real community and school planning, and the museum exhibit could spark considerable attention and discussion around the country. The major concern is whether this initiative would highlight the fate of the administration's school construction proposal in the budget, and be viewed as a small substitute for a \$5 billion initiative. However, we can emphasize the need for leadership in promoting the intelligent design of thousands of schools needing to be built with or without federal support, and that a failure to include this important proposal in a balanced budget agreement doesn't obviate the need for continued national attention and leadership.

*Not
Cadillac*

Other components, to be further described in greater detail later, include:

DRAFT

- ▶ Launching an electronic dashboard
- ▶ Running national competition for exemplary schools, providing resources for those schools to mentor other schools
- ▶ Links to other initiatives, such as tech corps, 21st century teachers, and regional forums to prepare schools and communities to take advantage of the e-rate



Briefing Packet

www.vrd.org

September 1997

A project of the
ERIC Clearinghouse
on Information & Technology
sponsored by the National Library of Education

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U. S. DEPARTMENT OF EDUCATION
OFFICE OF EDUCATIONAL RESEARCH AND IMPROVEMENT

NATIONAL LIBRARY OF EDUCATION

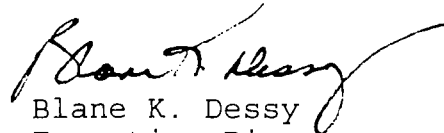
Dear Colleague:

It is my pleasure to introduce you to the National Library of Education's Virtual Reference Desk project by the ERIC Clearinghouse on Information & Technology. We at the Library consider the goal of a national cooperative digital reference service an important one and in line with the mission of the National Library of Education.

It is essential that we understand how today's digital reference services function and that we work to support and improve these services. As we link classrooms to the tremendous resources of the Internet, we must also provide support and guidance which has been the hallmark of library services.

I invite you to review this material and to become involved. Through cooperation, research and service we can improve our children's education.

Sincerely,



Blane K. Dessy
Executive Director

About the ERIC Clearinghouse on Information & Technology

<http://ericir.syr.edu/ithome/>

The Educational Resources Information Center (ERIC) is a nationwide education information network sponsored by the Office of Educational Research and Improvement in the U.S. Department of Education. ERIC, established in 1966, now part of the National Library of Education, produces the world's largest database of education information. The ERIC Clearinghouse on Information & Technology (ERIC/IT), one of 16 clearinghouses in the ERIC system, is located at Syracuse University where it is operated by the Information Institute of Syracuse. ERIC/IT specializes in acquiring and disseminating information in the fields of library and information science and educational technology. The Information Institute of Syracuse conducts research on improving education through educational and information technology and the use of the Internet. Projects of the Information Institute of Syracuse include:

- **AskERIC:** The world's premiere K-12 digital reference service. Answers teachers' questions on the practice of education. Sponsored by the U.S. Department of Education.
- **AskLN:** A teacher-to-teacher mentoring service that links teacher-mentors with classroom teachers who are attempting to use technology to improve teaching and learning. Sponsored by AT&T's Learning Network.
- **KidsConnect:** A digital reference service that uses an international network of volunteer school library media specialists to answer the questions of K-12 students. Sponsored by the American Association of School Librarians and Microsoft.
- **GEM:** The Gateway to Educational Materials project is building a cooperative infrastructure to allow teachers to find lesson plans and other educational materials quickly and easily on the Internet.
- **Digital Library Development:** The Information Institute of Syracuse is designing and building new services that use Internet technologies to deliver high quality information to classroom teachers.

About the National Library of Education

<http://www.ed.gov>

The National Library of Education (NLE) is the largest federally funded library devoted entirely to education. It is the Federal Government's principal center for one-stop information and referral on education.

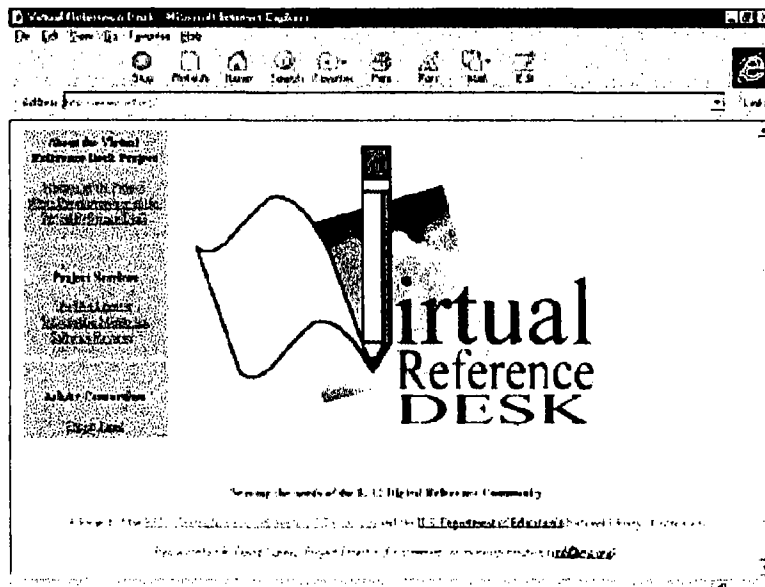
NLE serves the U.S. Department of Education Staff, its contractors and grantees, and other federal employees; the Executive Office of the President of the United States; the U.S. Congress; education and library associations; and the public.

It serves the educational community in three areas:

- **Reference and Information Services Division** responds to telephone, mail, electronic and other inquiries for education information.
- **Collection Development and Technical Services Division** directs the acquisition, preparation, and assessment of all collections in all formats.
- **Resource Sharing and Cooperation Division** develops and maintains a network of national education resources.

The National Library is envisioned as becoming the hub of a national network of libraries, archives, and other information providers in the field of education. Such a Library will be the bridge to an effective partnership across diverse locations that utilizes modern information technology to become a one-stop provider for customers seeking high-quality education information.

Accessing the Virtual Reference Desk



The most current information on the Virtual Reference Desk can be found at:

<http://www.vrd.org>

The Virtual Reference Desk Web site houses a variety of materials and resources; information is organized into the following three sections:

About the Virtual Reference Desk Project offers access to documents such as the project's mission and a white paper, "Building the Virtual Reference Desk," which provides an overview of the project and a brief introduction to digital reference services.

Project Services highlights the following services:

- The Virtual Reference Desk's AskA+ Locator—a searchable database of digital reference services designed to link students, parents, and educators with experts in a variety of fields via the Internet. Each digital reference, or "AskA," service is profiled in the Locator, and includes such information as a brief description of the service, the intended audience and grade levels, descriptive keywords, Gateway to Educational Materials (GEM) subject headings, and links to the service's question-submission instructions and home pages. The Locator is fully searchable by keyword, subject, audience, grade level, and language, and covers a wide variety of subject areas.
- Information Mentoring materials—drafts of guidelines and training materials for K-12 information mentors.

AskA+ Consortium houses information and resources pertaining to the Virtual Reference Desk Expert Panel, which is currently developing criteria for exemplary K-12 AskA services. Features include archived discussions from the Virtual Reference Desk project's listserv, a working draft of the current criteria submitted by the Expert Panel, and Panel member information.

The Virtual Reference Desk Web site is a dynamic and continually evolving project; new resources and information are posted at the site on a regular basis. For more information on the Virtual Reference Desk project, contact R. David Lankes at vrd@vrd.org.

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INTRODUCTION

For the first time in history students, educators and parents can communicate with experts from their classrooms and homes regardless of barriers of space and time. The Internet delivers expertise and experience into the nation's classrooms: not in the form of books, articles or videos, but as conversations and mentoring. Through the Internet teachers and students can access not only the most current of events – they can access commentary and analysis from newsmakers and informed experts. The Virtual Reference Desk project seeks to build a national cooperative digital reference service that will provide the resources necessary to link every K-12 question (from dinosaurs to discipline, standards to star dust) to the needed expertise to provide the best answer.

Executive Summary

Every week thousands of students, teachers, librarians, parents and other members of the education community receive answers to their questions through the Internet. Dinosaur facts, math formulae, staff development ideas and more stream through the wires, fibers and computers that make up the global network. No longer are members of the education community restricted to artifacts of knowledge (books, magazines, etc.) to find answers; they now have access to the knowledge itself in the form of experts. AskA services such as AskERIC, the MAD Scientist Network and the Internet Public Library have demonstrated the power of putting people directly in touch with those who can answer these questions.

The Virtual Reference Desk project headed by the ERIC Clearinghouse on Information & Technology (ERIC IT) and the National Library of Education (NLE) has embarked on improving the way the K-12 community gets its information from the Internet. A one-year study will provide the needed tools and research to improve how AskA services respond to the questions of the K-12 community. Research will result in a set of tools (software, documents, etc.) that these services can use. AskA services, telementors and users alike can utilize the resources of the Virtual Reference Desk to look for answers to existing questions in a cross-subject knowledge base. AskA services can download custom software and help manuals to implement in their services. Scholars and practitioners can review case studies of exemplary digital reference services. Users can use a locator service to find high-quality AskA services they can interact with directly.

It is hoped that this initial project will provide a foundation for a larger cooperative national digital reference service for the K-12 community. The ERIC IT Clearinghouse is working with the National Library of Education and the White House to plan an expanded Virtual Reference Desk. Such a service would link those with questions to those with answers developing a network of the various AskA services. This service would continue to act as a clearinghouse for resources, knowledge and funds for existing AskA services as well as working with associations and organizations to create new digital reference services.

The vision of the Virtual Reference Desk is as an exceptional educational resource: a cooperative of all those dedicated to improving education including schools, colleges, industry, government, and qualified experts. By linking the K-12 community directly with expertise and primary source information, the nation can improve education. Students can learn not only from books, but from authors. Teachers can tap not only into developing news, but newsmakers.

Today's connected K-12 education creates an amazing opportunity for first hand knowledge. The Virtual Reference Desk is helping to build such a network of experience and inquiry.

Building the Virtual Reference Desk

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“In our schools, every classroom in America must be connected to the information superhighway, with computers and good software, and well-trained teachers. We are working with the telecommunications industry, educators and parents to connect... every classroom and every library in the entire United States by the year 2000. I ask Congress to support this education technology initiative so that we can make sure this national partnership succeeds.”
(Clinton, 1997)

As more K-12 users – educators, students, teachers - look to the Internet to meet their information needs, Internet services must be able to build and maintain their own services to meet these users' expectations.

Various types of organizations are using this dynamic electronic environment to meet the information needs of the education community. For example:

- Publishers build Web sites for delivering product information to school library media specialists (Oryx Press, 1997).
- The federal government broadcasts funding opportunities through Internet mailing lists (EDInfo, 1997).
- Professional teaching organizations (such as the National Education Association) build databases that match teacher mentors to other teachers just getting online (21st Century, 1997).

These organizations are taking advantage of the unique benefits of the Internet (such as low publication costs versus potential audience and the interactivity of the medium) to build and maintain services.

Another type of organization using the Internet to meet educational user needs is K-12 digital reference service. Digital reference services, sometimes referred to as AskA services [such as Ask-A-Geologist (1997)] seek to fulfill the information needs of the K-12 education community. They use a broad range of approaches and Internet capabilities (e-mail, the World Wide Web, Gopher, etc.) to answer the questions of students and educators on the Internet. These digital reference services link questions from the K-12 education community to expert respondents.

Through these services students learning about space can ask questions of astronauts. Teachers in the classroom can learn about best practices from other teachers. Parents can get the answers to help them better understand the practices and policies in their local schools. AskA services are taking the education community beyond static archives of information to actual experience and knowledge.

These digital reference services have been enormously successful. The Ask Dr. Math (1997) site run by the Math Forum (1997) and the MAD Scientist Network (1997) operating out of Washington University in St. Louis have received enthusiastic reviews. AskERIC (Lankes, 1995) and KidsConnect (Bennett, 1997), both run at Syracuse University, are extremely popular resources for students and educators and have won recognition and awards.

However, the popularity of these question and answer services places them at risk of being overwhelmed if the nation succeeds in connecting its classrooms by the end of the century. KidsConnect alone experienced a 1,000% increase in its questions in the month of September 1996. By the year 2000, projections indicate that there will be approximately 54 million students enrolled in elementary and secondary schools in the US: 39 million in grades K-8 and 15 million in grades 9-12 (Lankes, Bry and Whitehead, 1996). Considering that only a fraction of today's students have Internet access from their schools, the size of this potential burden on Internet-based educational resources is daunting.

By understanding how exemplary K-12 digital reference organizations build and maintain services in the complex Internet environment, new strategies and solutions can be developed. New Internet information services can use the existing digital reference services as models for meeting future needs of the K-12 education community. Existing Internet information services can also use these descriptions of reference services to improve present activities.

The Virtual Reference Desk

The ultimate goal of the Virtual Reference Desk project is to allow all qualified and interested individuals to volunteer their time to answer the questions of the K-12 community. The project builds on national initiatives of the President including a call for increased volunteerism (White House, 1997)

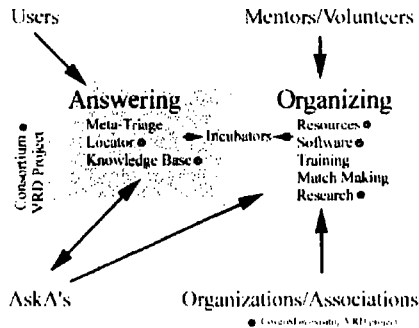


Figure 1: Functions of the Virtual Reference Desk

through mentoring and meeting the education initiatives outlined in the Memorandum for the Heads of Executive Departments and Agencies (White House, April 1997). The project specifically addresses “Consider[ing] a broad range of educational resources, including... employees willing to serve as tele-mentor or answer student and teacher questions.” It will further allow agencies to “update and improve [agency] services in response to comments from teachers and students.”

The Virtual Reference Desk will provide the needed infrastructure for tele-mentoring services as well as a rich knowledge base of student and teacher questions for identifying trends and service needs in the K-12 community. Also, it will link the federal initiatives with those of not-for-profit associations, for-profit educational offerings and ongoing digital reference activities.

Presently the Virtual Reference Desk is a special project of the ERIC Clearinghouse on Information & Technology and the National Library of Education. The U.S. Department of Education has funded a one-year project to create a research and resource foundation for existing digital reference (AskA) services. This project can be expanded into a national switchboard and resource center for aiding existing services as well as creating new services.

It is clear that there is a need for a national cooperative system for digital reference. Static web pages and impersonal software cannot match the power of person-to-person communication in meeting the needs of the K-12 community. The Internet provides an environment to build a comprehensive, high-quality educational support system composed of all types of organizations.

Functions of the Virtual Reference Desk

Figure 1 demonstrates the two major functions of the Virtual Reference Desk in relation to both the project’s services and audiences.

The first major function of the project is the “answering” function. Here, a K-12 community member (student, teacher, etc.) accesses:

- a meta-triage (see figure 1) function to match his or her question to an existing set of mentors (whether an existing AskA service or a set of mentors in the incubator space),
- a locator service to help him or her identify an existing high-quality AskA service independently, or
- a knowledge base to directly search archives of questions and answers.

AskA services, on the other hand:

- use the answering functions of the Virtual Reference Desk to get questions from users (through the meta-triage),
- seek answers in the knowledge base to questions they have received,
- submit answers to the knowledge base, or
- transfer questions to another set of mentors.

The second function of the Virtual Reference Desk is that of organizing. Here, mentors/volunteers (see table 1) are matched via the "match making" function to either existing AskA services that meet their particular area of expertise, other mentors with similar interests (in incubator services if no appropriate AskA service presently exists), or sets of mentors with organizations seeking to start new digital reference services. Organizations are not only matched with mentors, but are also paired with existing AskA services for support. Organizations and AskA services alike will use the project's set of resources (static materials and case studies) to either start services or improve present services. The project will also identify software that can aid in digital reference. Organizations and associations can access training services (from training materials to actual on-site training in digital reference) provided by the Virtual Reference Desk project and its members. Lastly both organizations as well as existing AskA services will utilize research to create and/or improve digital reference services.

Components of a Virtual Reference Desk

Presently there are three areas being investigated by the Virtual Reference Desk project team:

1. a research and resource foundation for digital reference services,
2. a set of proposed services in a national cooperative reference service, and
3. the building of an AskA consortium to aid in both endeavors.

Research and Resource Foundations

The NLE has given the ERIC Clearinghouse on Information & Technology funds to support existing AskA services (such as AskERIC, Internet Public Library, MAD Scientist Network). This support is in four key areas:

- A common Internet presence for the dissemination of information and services related to AskA services. This includes Internet resources that AskA services may not be able to support themselves such as real-time reference environments.
- A set of materials, such as manuals, software locators, service locators, training materials, and handbooks that services can use to improve their existing services, as well as allow new services to "come-up-to-speed" quickly.
- A cross-subject knowledge base that participating AskA services can both contribute to and draw from to answer questions. Also, the K-12 community can use the knowledge base as a reference resource, thus potentially lessening the answering load of the AskA services.
- Research into existing exemplary AskA services. This research will focus on services' building and maintaining procedures and will provide a set of models and best-practices for existing and new services.

There are four perceived audiences for these products as detailed in table 1.

Table 1 : Perceived Audiences for the Virtual Reference Desk

Digital Reference Services	Organizations that provide reference services to the K-12 community. These reference services can include research services, linkages to experts, and/or expert access to information resources. These services include AskERIC, the MAD Scientist Network and the Internet Public Library. These services are often referred to as "AskA" services (such as Ask A Scientist).
Information Mentor/Volunteer	Individuals that provide expertise in answering the questions of the K-12 community. This expertise can be in a given topic area (such as physics), a given process (such as an expert searcher or librarian), a given field (such as teaching), or other valuable area. These individuals are looking to connect to Digital Reference Services in order to answer questions.
K-12 Community User	A member of the K-12 community (a student, teacher, administrator, school library media specialist, etc.) seeking information via mentors on the Internet. This information can be reference material (such as research articles), referral information (such as web sites for curriculum materials), or access to subject expertise (such as a mathematician).
Organizations and Associations	Organizations (associations, government agencies, companies, etc.) that wish to provide either support for an existing digital reference services, set of information mentors, or a new digital reference service.

Proposed Services in the Virtual Reference Desk

In conversations with the White House (one of the originators of the Virtual Reference Desk concept), the research team at the ERIC Clearinghouse on Information & Technology has begun planning a second, somewhat parallel phase of The Virtual Reference Desk project. In this phase several services would be added to the project:

- meta-triage function will match a K-12 user's question to an answer source (primarily, an AskA service).
- matchmaking service will match mentors with existing AskA services, other mentors with common interests, or associations and organizations with AskA services looking for support.
- incubator will help create new AskA services to fill gaps in subject areas not already covered by existing AskA services. The incubator function would provide training to organizations and associations as well as interested mentors.
- question and answer distribution infrastructure will provided for incubator services.

These services are summarized in table 2.

Table 2: Proposed Services of the Virtual Reference Desk

Service	Description
Incubators	Not all subject areas are represented in existing AskA services. New services will be needed as the K-12 community achieves the national goal of 100% connectivity. Incubators will link up interested organizations and individuals around common areas of interest to create new digital reference services. The incubators will provide training (see below), software and the necessary expertise to assure the success of these new services. Once these services have been trained, they will leave the incubator "space" and run themselves.
Knowledge Base	This system will attempt to capture the knowledge being created by the digital reference services during the information mentoring process. A massive, cross-site, cross-subject index will be an invaluable tool to the K-12 education community as well as the AskA services. A student or mentor can see if an answer already exists to a given question.
Locator	The Locator is a database of high-quality "AskA" sites available to the K-12 community. Students and educators could use the Locator to identify digital reference services that can best answer their questions and be assured they meet quality standards for appropriateness and accuracy.
Match Making	The Match Making system would put potential volunteers in contact with existing AskA services based on areas of interest and expertise. It would also pair organizations with existing digital reference services. Finally the system would pair interested mentors and organizations together to begin new "incubator" services (see below).
Meta-Triage	This system will link the various digital reference services together, allowing students and teachers a single point of access. The service, based on the Virtual Reference Desk research, will match incoming K-12 questions to existing AskA services, incubator services, and available mentors.
Research	Research into existing digital reference services is essential to building a national infrastructure of K-12 tele-mentoring. By examining current best practices and the state-of-the-art, new services can avoid pitfalls and increase their chances of success. To date, digital reference services have been development projects with few resources for documentation or dissemination. In order to facilitate many aspects of the Virtual Reference Desk (the Incubators, Match Making, Resources, Meta-Triage and more) good baseline data is needed regarding how existing digital reference services function. This research will result in both scholarly works as well as a practitioner handbook in the creation and maintenance of an AskA service.

Service	Description
Resources	Resources for this project include a set of electronic documents and services directed primarily to existing digital reference services and those seeking to begin these types of services. The resources are training and process documents. The core of the existing collection will be generalized forms of: • The AsKERIC Manual for Network Information Specialists • The MADSci Manual for MAD Scientist Volunteers and Moderators • Information Mentoring Material produced by the Information Institute of Syracuse. Also under consideration is a simplified list of world-class academic standards for information mentors. This simplified list of standards would allow a mentor/volunteer answering a question to quickly judge the level of knowledge of the person who asked the question. For example, an engineer gets a physics question, he or she knows that a 10th grader knows so much vs. an 8th grader.
Software	The existing Virtual Reference Desk project will produce a value-added set of software pointers and reviews. The project will serve as a clearinghouse to identify, modify and distribute software created by and for digital reference services. This software includes the "Moderator" software developed by Lynn Bry of the MAD Scientist Network. The project will also provide certain software, such as Chat and Palace software, for AskA services to conduct real-time mentoring activities.
Training	An expanded Virtual Reference Desk project will create and deliver training based upon research and accumulated resources. This training will help organizations establish services as well as prepare information mentors for service. As digital reference needs grow in organizations (such as libraries), there is a need to train organizations in answering questions completely electronically.

The AskA Consortium

The Internet model is one of collaboration and cooperation. Building the Virtual Reference desk as a single site or within a single service would be difficult, counterproductive, and would overlook the incredible work already being done by existing Internet services such as the Internet Public Library (1997), AskERIC, the MAD Scientist Network, and many others. For this reason, the Virtual Reference Desk project is helping to form an AskA consortium. This consortium will serve two major functions:

1. *A cooperative network that seeks to provide resources (computing infrastructure, funding, knowledge) to its members.* Working together AskA services present a far more attractive force to associations and organizations than working separately. Further, by participating in the Virtual Reference Desk, AskA services can gain access to mentors, questions and organizations and associations seeking to support their valuable work.
2. *A guiding body for the Virtual Reference Desk.* There is a lot of work to be done, and many issues to be worked out in forming a high-quality national reference service for the K-12 community. AskA consortium members will be at the front of that debate. Setting policy and guiding the Virtual Reference Desk in this manner will make the Virtual Reference Desk truly an open cooperative system.

The AskA consortium already consists of members such as AskERIC, the Internet Public Library and the MAD Scientist Network. It has an expert panel formed to provide initial guidance as well as establish quality criteria for AskA services and participation in both the Virtual Reference Desk project as well as the AskA consortium itself.

Conclusion

The Internet affords us a unique opportunity in education. We are now able to link students to resources beyond artifacts of knowledge (such as print or video). Today we can link directly to knowledge and information itself in the form of experts and experience. Every week thousands of students, teachers, librarians, parents and other members of the education community get answers to their questions through the Internet. Dinosaur facts, math formulae, staff development ideas and more stream through the wires, fibers and computers that make up the global network. AskA services such as AskERIC, the MAD Scientist Network and the Internet Public Library have demonstrated the power of putting people directly in touch with those who can answer these types of questions.

The vision of the Virtual Reference Desk is an exceptional educational resource: a resource that is a cooperative of all those interested in improving education including schools, colleges, industry, government, and qualified experts. By linking the K-12 community directly with expertise and primary source information, the nation can improve education. Students can learn not only from books, but from authors. Teachers can tap not only into developing news, but news makers. Today's connected K-12 education creates an amazing opportunity for first hand knowledge. The Virtual Reference Desk is helping to build a network of experience, knowledge and inquiry in today's connected K-12 education environment.

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AskA+ Locator

One of the first services of the Virtual Reference Desk is the AskA+ Locator. This locator serves several functions:

- It allows students, teachers, parents and other members of the K-12 community to locate high-quality digital reference services that can answer their questions.
- It serves as a central point of information on a particular AskA service, such as contact information, answer policies and any additional “behind the scenes” information.
- The locator acts as a registry of AskA+ Consortium members.
- It promotes the use of quality criteria in organizations not affiliated with the AskA+ Consortium, and makes those organizations not affiliated with the consortium aware of quality standards in digital reference.
- Serves as the foundation for the knowledge base.

The Locator will be continuously updated and revised to ensure a high-quality collection of services.

Overview of K-12 Digital Reference

August 29, 1997

With many K-12 students already connected to the Internet and millions more expected by the year 2000, digital reference services (also known as AskA services) are expected to experience a significant increase in user demand. In September 1996 alone, KidsConnect, an Internet question-answering and referral service provided by the American Association of School Librarians, experienced 1000% growth, and the numbers of students and educators seeking answers to questions continue to rise. At present, the prospect of an increased volume in questions to these services is troubling: most AskA services are not equipped to meet increased demand and are already overburdened. The sheer volume of questions has placed a tremendous strain on many digital reference services; unable to keep pace with demand, many have been forced to cease operations.

As of this writing, the Virtual Reference Desk project staff has identified approximately 70 digital reference services that are geared towards the K-12 community (see the following table for information on a sub-set of these services). The services range from single-person volunteer efforts such as Ask the Math Tutor to sophisticated organizations like AskERIC, with a professionally trained staff and a highly developed question intake and distribution system. Although the smaller "Mom and Pop" AskA services are perhaps most at risk, larger services staffed by employees or volunteers are not immune from becoming similarly overwhelmed. Many services attempt to deal with the large number of questions they receive by stating up front that they cannot answer every question, but select only "representative" questions to answer. This approach attempts to make the best of a difficult situation by answering only those questions that are thought to appeal to the broadest possible audience. However, the bulk of the questions received remain unanswered and the information needs of many students and educators are left unmet.

It is ironic that for many services, their success has ultimately resulted in their demise. The increasing demand on digital reference services is currently exceeding many services' abilities to provide user information in a timely fashion — or at all. "It became too much for me to handle," says Mary Bates, founder of the now-defunct Ask An Engineer service. "I was running out of people to [help] answer questions. . . I discontinued the service." Bates' experience is not uncommon: her service is one of many digital reference services that lack the necessary resources and support to meet heavy user demands, and must shut down as a result. Other services struggle to keep up with the increasing volume of student and educator questions: "It is a strain to keep up with queries," says Paul Harker, who runs the Ask the Harkster service from the Geoaccess division of Natural Resources Canada. "Ideally, one wants to reply right away, but that's not always possible." In fact, less than 33% of the K-12 services identified by the Virtual Reference Desk project answer every question that they receive; the services are simply too overrun with questions to reply to each user seeking help. Moreover, fledgling AskA services are also concerned about the possibility of becoming overwhelmed. A moderator at Ask A Linguist, whose volunteers are currently fielding between 20 and 30 questions a day, states, "We're feeling some trepidation. . . It's a brand new service and has not been advertised anywhere, so it may be overwhelming [once the site is advertised]."

It is clear that there is a need for a national cooperative system for digital reference. The Virtual Reference Desk project seeks to promote a cooperative effort among AskA services in the form of training materials, a shared, cross-subject knowledge base, software, and other tools. Shared resources and information, comprehensive training, and enhanced communication among digital reference services will serve to build a high-quality educational support system.

Table of Present Question Load for Digital Reference Services

Service	Number of Questions	Comments
AskERIC http://ericir.syr.edu/ The AskERIC Q & A service has been in operation since November 1992. Information specialists respond to education-related queries within 48 hours by providing referrals to ERIC resources and Internet resources.	800 weekly	Answers 100% of questions received.
AskLN http://ericir.syr.edu/AskLN/ AskLN has been in operation since September 1996. Volunteer librarians, technology coordinators, and classroom teachers answer questions regarding the use of technology in the classroom.	15 weekly	
Ask A Bible Specialist http://www.bibleinfo.com/question.html Ask A Bible Specialist is a question and answer service devoted to information about the Bible and Christianity.	300-400 monthly	
Ask A Dinosaur Expert http://denrl.igis.uiuc.edu/isgsroot/dinos/rjinput_form.html Ask A Dinosaur Expert is a question and answer service that provides information to students about dinosaurs, especially in relation to Illinois geology.	6-10 weekly	Answers approximately 25% of questions received.
Ask A Franklin Institute Science Expert http://sln.fi.edu:80/tfi/publications/askexprt.html Answers questions on a variety of science topics.	20 weekly	
Ask-A-Geologist (Geological Survey of Canada) http://www.nrcan.gc.ca/gsc/cpdnew/askageol.html Ask-A-Geologist is a question-answering and referral service that provides information on topics related to the geosciences in Canada and the Canadian landmass.	15 weekly	Tries to reply within 2 working days.

Service	Number of Questions	Comments
Ask A Gravity Expert http://www.physics.umd.edu/rgroups/gen_rel_the/question.html Ask A Gravity Expert is a question and answer service that answers student questions about gravity.	6 weekly	Usually answers 100% of questions received.
Ask A Linguist http://linguistlist.org/~ask-ling/index.html Ask A Linguist is a question and answer service designed to be a place where anyone interested in language or linguistics can ask a question and get the response of a professional.	2-30 daily	The number of questions is very erratic at present, and the numbers can vary wildly.
Ask A Physicist http://web.physics.twsu.edu/physics/askphy.htm Ask A Physicist is a question and answer service for people who have questions about physics.	5 weekly	
Ask A Valley Forge Expert http://www.libertynet.org/iha/valleyforge/vyou.html Ask A Valley Forge Expert is a question-answering and referral service for information about Valley Forge and its significance to America today and to the world.	50-250 monthly	Amount of questions can dramatically increase during the school year.
Ask A Volcanologist http://volcano.und.nodak.edu/vwdocs/ask_a.html A team of four to six volcano experts answer questions on all topics related to volcanoes.	125 weekly	
Ask An Amish Expert http://www.800padutch.com/askamish.html Ask An Amish Expert is a question and answer service run by resident experts at the Mennonite Information Center in Lancaster County, Pennsylvania.	50 questions weekly	Approximately 90% of questions asked are repeat questions, despite the FAQ located at the site.
Ask An Astronaut http://www.nss.org/askastro/form.html Ask An Astronaut is a question and answer service that provides the opportunity to read about and question astronauts while learning about their missions. Each month features a different astronaut.	5,000-7,000 monthly	Ask An Astronaut responds to 25-30 questions per period. Questions can take up to a month to answer.

Service	Number of Questions	Comments
Ask an Astronomer http://www.twsu.edu/~obswww/o20.html Ask An Astronomer is a question-answering and referral service for astronomy questions ranging from black holes to quasars, or galaxies to globulars.	2 daily	Number of questions can rise dramatically during school year.
Ask an Earth Scientist http://www.soest.hawaii.edu/GG/ASK/askanerd.html Ask-An-Earth-Scientist is a question and answer service concerning the natural workings and natural history of the Hawaiian Islands and the world.	50 weekly	Responds to approximately 75% of questions received.
Ask Dr. Bob http://ny.frontiercomm.net/~bjenkin/askbob.htm Ask Dr. Bob is a question and answer service for general science and technology information.	10 weekly	Ask Dr. Bob responds to approximately 10 questions a week; the actual number of questions received is greater.
Ask Dr. Math http://forum.swarthmore.edu/dr.math This question/answer project began in the fall of 1994 with a team of Swarthmore College math students answering math questions of K-12 students. Currently, the service includes over 150 volunteers from around the world. Answers consist of explanations and examples of particular math problems.	270 weekly	Approximately 43% of all questions received are answered.
Ask Dr. Physics http://www.cord.edu/dept/physics/drphysics/question.html Ask Dr. Physics is designed to help K-12 students acquire a better understanding of the physical world and to assist K-12 physical science teachers in developing demonstrations, exercises and lessons for their students.	7-10 weekly	
Ask Earth & Sky http://www.earthsky.com/esquestion2.html Ask Earth & Sky is a question and answer service for information on established ideas in science, as well as new discoveries in earth science, astronomy and environmental science.	Receives several hundred questions per month	Several representative questions per month are answered.

Service	Number of Questions	Comments
Ask Jack http://www.usatoday.com/feedback/wjack4.htm Ask Jack answers questions about the weather and weather-related phenomena, past and present.	150 weekly	Approximately 33% of questions received are answered.
Ask Jake, The Sea Dog http://www.whaletimes.org/whaques.htm Ask Jake, the Sea Dog is a question-answering and referral service designed to provide accurate marine science information for children and adults.	100-200+ weekly	Ask Jake attempts to answer all questions; number of questions received varies according to the time of year.
Ask Patti http://www.parentsplace.com/readroom/authors/wollman/mail-frm.html Ask Patti is a question-answering service for parents and teachers that provides information on young children's issues.	Receives several hundred questions per month	Answers 25-30 questions per month.
Ask Shamu http://www.bev.net/education/SeaWorld/ask_shamu/asindex.html Questions are answered by animal experts at Sea World and Busch Gardens.	200-300 weekly	Answers are short and factual with minimal references.
Ask the Dentist http://www.parentsplace.com/cgi-bin/objects/dentist/mail-frm.html Ask the Dentist is a question-answering service for parents and students that provides information on dental issues.	10 weekly	Ask the Dentist responds to approximately 10 questions a week; the actual number of questions received is greater.
Ask The Diabetes Team http://www.castleweb.com/diabetes/dteam/d_0d_000.htm Ask the Diabetes Team is a question and answer service providing information about diabetes and diabetes management to children with diabetes and their parents.	Several dozen weekly	Attempts to answer all questions.
Ask the Harkster http://ellesmere.ccm.emr.ca/schoolnet/harkster/Home.html Ask the Harkster is a question-answering and referral service for information about Canada and its geography.	2-10 weekly	

Service	Number of Questions	Comments
Ask the Math Tutor http://www.fliegler.com/mathman.htm Ask the Math Tutor is a question-answering service for students who have questions about math.	35 weekly	Usually responds within 24 hours.
Ask the Optometrist http://www.visioncare.com/ask.htm Ask the Optometrist is a question and answer service providing information about vision, eyes, or eyecare in general.	10-15 weekly	
Ask the Space Scientist http://bolero.gsfc.nasa.gov/~odenwald/ask/askmag.html One expert astronomer responds to questions by posting answers in the archives.	95 weekly	The astronomer spends about 1-2 hours per week providing brief factual answers. References to other sources are not included.

Service	Number of Questions	Comments
Ask the Webmaster http://205.246.90.11/classroom/ask/ Resource for teachers regarding building and maintaining Web pages and the Internet in general.	3 daily	Answers 100% of questions.
Cybernutation Online http://chd.syr.edu/chd/CyberNutritionoff.html CyberNutrition Online is a question and answer service that focuses on all aspects of food, nutrition, and diet.	10-15 questions daily	Attempts to answer all questions in 7 days; goes offline during the summer and longer school vacations.
Dave's ESL Question Page http://www.pacificnet.net/~sperling/qpost.html Dave's ESL Question Page is a question-answering and referral service for students or others experiencing difficulty with the intricacies of the English language.	10-12 daily	
ESL Help Center http://www.pacificnet.net/~sperling/wwwboard2/post.html The ESL Help Center is a question and answer service for students or others experiencing difficulty learning the English language, including grammar, writing, vocabulary, idioms, slang, TOEFL exams, etc.	6-12 daily	
FINDOUT: Ask A Question http://www.findout.com/askform.htm FINDOUT: Ask a Question is a question-answering and referral service for general information on a variety of topics.	500 weekly	Will spend only 15 minutes on each question.
Internet Public Library http://ipl.sils.umich.edu/ref/QUE/ Opened in January 1995, this service is geared toward all audiences. Questions are answered by professional librarians and focus on types of resources and general knowledge and trivia. Answers consist of references to other resources as well as factual information.	150 weekly	Approximately 60% of questions received are answered.
KidsConnect http://ericir.syr.edu/kidsconnect/ KidsConnect is a question-answering, help and referral service to K-12 students on the Internet. Questions are answered by a professional school library media specialist.	125 weekly	All in-scope questions are answered; service tries to answer questions within 48 hours.

Service	Number of Questions	Comments
Library of Congress (American Memory) http://lcweb2.loc.gov/ammem/ndlpedu/ American Memory is part of the National Digital Library Program which began in 1994 with the goal of offering access to online American history resources. It is unclear how many questions are history-related and how many are related to the American Memory project itself.	250 weekly total LOC 60-65 weekly for the American Memory Learning Page	Some of the 60-65 American Memory Learning Page questions may be counted in the 250 answered by the LOC.
Mad Scientist http://medschool.wustl.edu/~ysp/MSN/ Developed in September 1995, this site is maintained by graduate students from Washington University in St. Louis and one moderator from CERN in Switzerland. Questions in 25 areas of science are answered by over 500 scientists from around the world.	250 weekly	Less than half of all questions are answered directly. If the answer can be found in the archives, or by doing a simple WWW search, the moderators email a "stock message" to the person detailing where to look, or how to run a WWW search. Answers given are brief and factual with no references to resources.
National Museum of American Art Reference Desk http://www.nmaa.si.edu/deptdir/ressub/rescdir/referencequery.html Opened in 1993, this service is part of the Smithsonian. The scope is limited to American Art questions only.	60 weekly	
ScienceNet http://www.campus.bt.com/CampusWorld/pub/ScienceNet/intro/forms/askaq.html ScienceNet is a question-answering service for anyone with an interest in science, technology, engineering, or medicine.	25-50 weekly	Answers 100% of questions at this time.
The Wild Ones http://www.columbia.edu/cu/cerc/WildOnes/scientists.html The Wild Ones is a question-answering service for those who are interested in learning more about species and habitat preservation/restoration.	80-100 monthly	

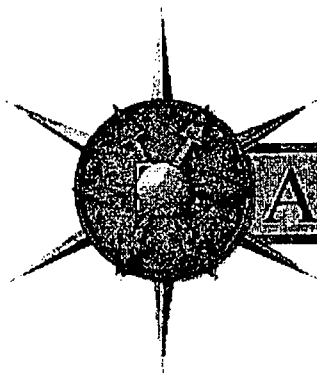


The AskA⁺ Locator is a database of high-quality "AskA" services designed to link students, teachers, parents and other K-12 community members with experts on the Internet. Profiles of each AskA service include identification information (e.g., publisher, e-mail address, contact person, links to services' home pages), scope, target audience, and a general description of the service. Some of the Web sites linked from AskA⁺ service profiles provide additional resources such as on-line reference, archives of previously asked questions, and links to related sites. Information in the Locator, including links to AskA services, is accessible through the following search options:

Search the AskA⁺ Locator

- Search the Locator by term (e.g., keyword, subject, grade, etc.)
- Browse a listing by subject
- Browse an alphabetical listing by AskA⁺ service

During the following months, the AskA⁺ services contained in the Locator will be reviewed for their quality according to a set of criteria determined by the Virtual Reference Desk Expert Panel. As a result, some information will be removed and added. Any comments, including changes to AskA service profiles (additions, corrections or deletions), can be e-mailed to vrld@vrld.org.



AskA+ LOCATOR

Search Subject Alpha VRD

By Subject

The following is a list of all the sites organized by their subject matter. The list is in alphabetical order of subject, and then title name. There may be more than one site with the same name listed, but each link leads to an individual resource.

The Arts

- [Ask The Author](#)
- [National Museum of American Art Reference Desk](#)

Educational Technology

- [Ask the Webmaster](#)

General Reference

- [Ask A Librarian](#)
- [Ask A Question](#)
- [Ask Dr. Brainstorm](#)
- [AskERIC](#)
- [AskLN](#)
- [Ask Zach \(Ask a Librarian\)](#)
- [FINDOUT: Ask A Question](#)
- [KidsConnect](#)
- [The Internet Public Library](#)

Health

- [Ask the Dentist](#)
- [Ask the Diabetes Team](#)
- [Go Ask Alice!](#)
- [Ask A Hemophilia Expert](#)
- [Ask The Optometrist](#)
- [Ask a Parenting Expert](#)

Language Arts

- [Ask The Author](#)
- [Ask A Linguist](#)
- [Dave's ESL Question Page](#)
- [The ESL Help Center](#)

Mathematics

- [Ask Dr. Math](#)
- [Ask The Math Tutor](#)

Religion

- [Ask an Amish Expert](#)

Science

- **Astronomy**
 - [Ask An Astronaut](#)
 - [Ask an Astronomer](#)
 - [Ask the Astronomers](#)
 - [Ask A High-Energy Astronomer](#)
 - [Ask Earth & Sky](#)
 - [Ask the Space Scientist](#)
 - [Ask the Crew](#)
- **Biology and Life Sciences**
 - [Ask Dr. Bug](#)
 - [Micke Grove Zoo](#)
- **Engineering**
 - [Ask Professor Construction](#)
- **General Science**
 - [Ask A Franklin Institute Science Expert](#)
 - [Ask A Scientist \(STANet\)](#)
 - [Ask A Scientist \(Schools Online Science\)](#)
 - [Ask Dr. Bob](#)
 - [Mrs. Fliegler's Homework Helper](#)
 - [NPR Plug Into Resources](#)
 - [ScienceNet](#)
 - [Scientific American Ask The Experts](#)
 - [The MAD Scientist Network](#)
 - [The Wild Ones](#)
- **Geology**
 - [Ask-An-Earth-Scientist](#)
 - [Ask-A-Geologist \(Geological Survey of Canada\)](#)
 - [Ask-A-Geologist \(US Geological Survey\)](#)
 - [Ask A Hydrologist](#)
 - [Ask A Volcanologist](#)
 - [Ask Earth & Sky](#)
 - [Question a Geologist](#)
- **Meteorology**
 - [Ask Earth & Sky](#)
 - [Ask Jack](#)

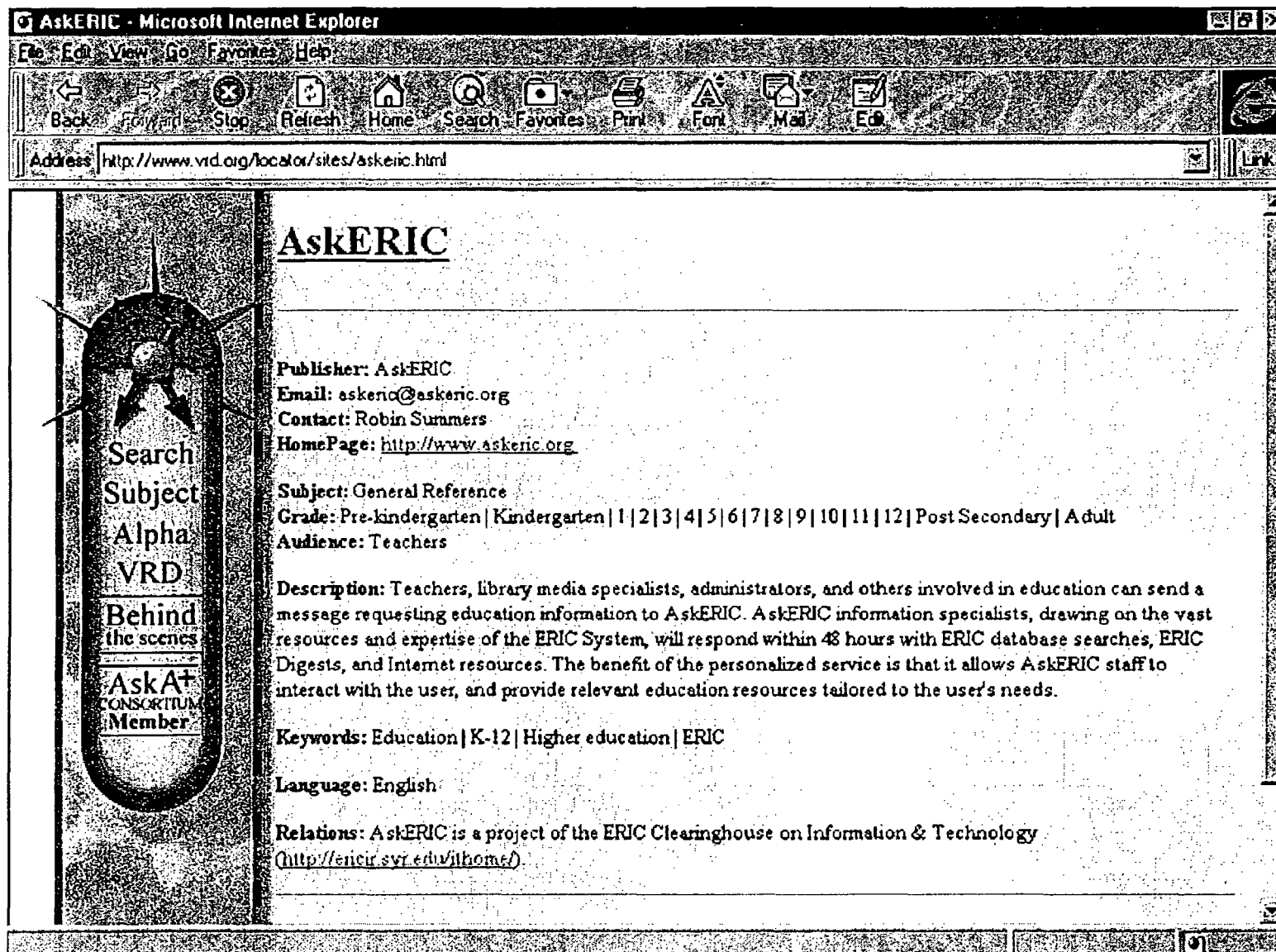
- **Natural History**
 - [Ask A Curator](#)
 - [Ask A Dinosaur Expert](#)
- **Oceanography**
 - [The Answer Tank](#)
 - [Ask Jake. The Sea Dog](#)
 - [Ask Shamu](#)
- **Physics**
 - [Ask A Physicist](#)
 - [Ask Dr. Neutrino](#)
 - [Ask Dr. Physics](#)
 - [How Things Work](#)

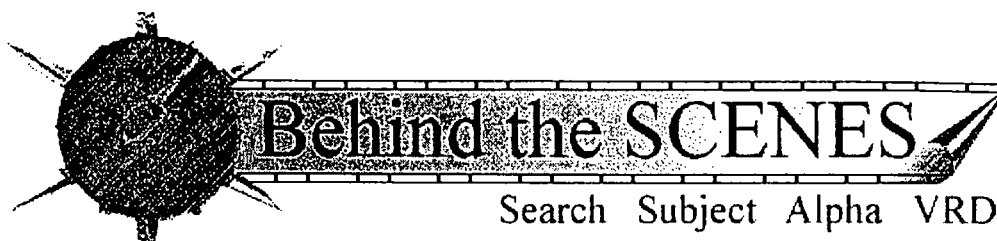
Social Studies

- [Ask A Newfoundland Expert](#)
- [Ask A Valley Forge Expert](#)
- [Ask Asia](#)
- [Ask Patti](#)
- [Ask The Harkster \(Canada\)](#)

Vocational Education

- [Interact With Industry Experts](#)





Excerpted from AskERIC documentation

AskERIC Background

The federal government formed the Educational Resources Information Center (ERIC) in 1966. The government envisioned ERIC as a national information system designed to provide users with ready access to an extensive body of education-related literature. Today, the Office of Educational Research and Improvement (OERI) within the U.S. Department of Education supports ERIC. One of ERIC's primary products is the ERIC database. This database is the world's largest source of education information. It contains over 800,000 abstracts of documents and journal articles on education research and practice (Abdal Haqq 1995) and is available in approximately 3,000 locations worldwide as of January 1995 (ERIC Pocket Guide 1995, Stonehill and Brandhorst 1992).

AskERIC went online as an Internet-based question answering service in November of 1992 (ERIC Annual 1992) as a special project of the ERIC Clearinghouse on Information & Technology. The service had a dedicated staff of one, with assistance from the ERIC Clearinghouse on Information & Technology, and a doctoral student from Syracuse University's School of Information Studies. Within a year, the service had added automated services (FTP, Gopher, WAIS), and increased its staff by three.

As the number of incoming questions doubled AskERIC's staff increased. When the automated services (Gopher primarily) grew beyond the existing time and effort of the doctoral student, a second coordinator level position was added. AskERIC then expanded from a pilot project of three states (Texas, New York and North Dakota) to the entire country. The system needed to become available twenty-four hours a day, seven days a week. A Research and Development (R&D) team was created with separate resources for experimentation. The goal of R&D was to keep AskERIC current in the constantly changing Internet environment. Also created with the expansion was a separate set of resources for interfacing with state and regional networks originally known as the Virtual Communities group. AskERIC also increased its systems infrastructure with the help of Sun Microsystems. The increase in the technical infrastructure lead to the creation of a systems/SunSITE component to AskERIC.

As of this writing AskERIC is in its fifth year of operation. It provides many types of Internet services (Gopher, FTP, World Wide Web, E-Mail). AskERIC is also one of a handful of global SunSITEs. The project has increased its staff and computing power by an order of magnitude. The project has gone from one person in a back room with a NeXT workstation, to staff around the country working on high-end workstations to meet the needs of educators around the country. Throughout that time, the growth has been user directed, with educators determining the types of services offered and the level of resources allocated.

AskERIC Today

Today AskERIC serves over 70,000 educators a week through its services. It constantly seeks out new partners from education, industry, and government to provide its clients with the best information. As shown in Table 3-7 AskERIC has five components:

Table 3-7: Functional Components of the AskERIC Service

AskERIC's Question/Answering Service (Q&A)	A set of trained information specialists around the country take educator's questions via e-mail and use a variety of networked and traditional resources (The ERIC database, Internet sites, Listservs, etc.) to answer these questions
AskERIC's Virtual Library (AEVL)	A set of coordinated automated Internet information systems that provide documents on the process of education (including over 900 lesson plans, subject oriented InfoGuides, and archives of educator discussion groups such as MIDDLE-L, LM_NET (Eisenberg and Milbury 1994), and EDTECH)
AskERIC's Partnerships (originally Virtual Communities)	AskERIC's outreach services to acquire resources for AskERIC's user services (Q&A and AEVL).
AskERIC Research and Development (R&D)	An effort to investigate the networking tools of today and tomorrow. This group also advocates the position of education in today's high-performance computing and networking effort.
AskERIC Systems/SunSITE (Systems)	Support group that maintains systems (hardware and software), purchases technology and acts as a technical liaison with technology partners such as Sun Microsystems and Personal Library Software.

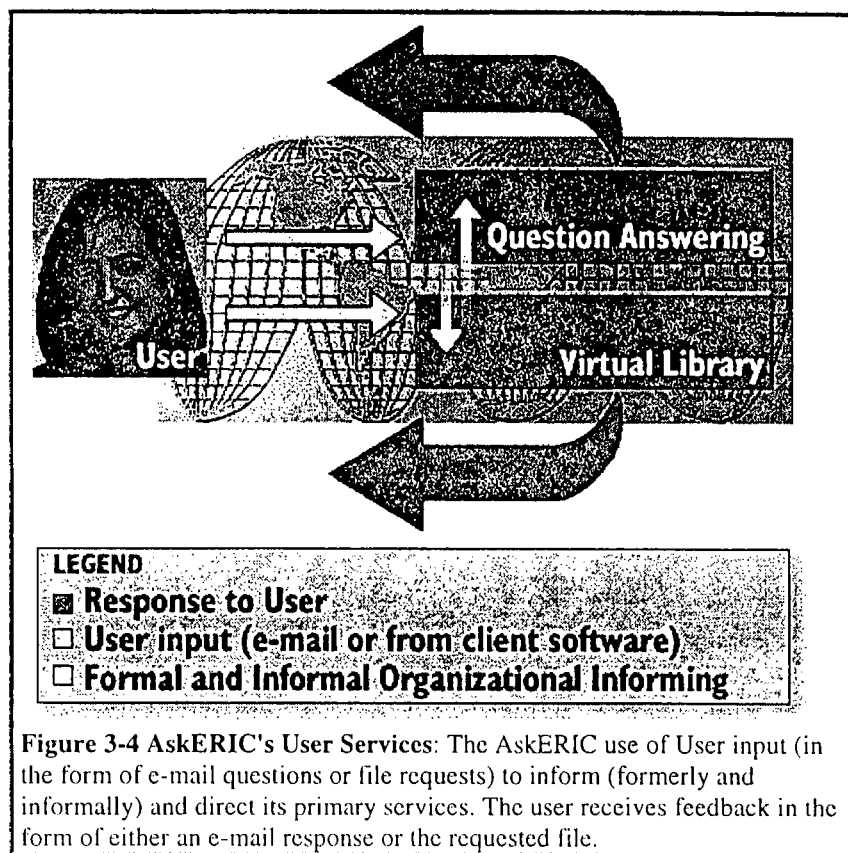
AskERIC will continue to change in the future as educators' needs change and as the network matures. Already several AskERIC initiatives have begun incorporating challenges outlined in the National Information Infrastructure (Executive Office of the President, 1993).

The AskERIC Organization

All five of AskERIC's areas act as detectors, guiding the management of AskERIC's Internet information services. Each, however, does this in a different manner, and to a different degree. While AskERIC concentrates on user input, it must deal with other forces that seek to create policy. AskERIC *Research & Development*, for example, stresses new technology in vision setting activities. AskERIC *Partnerships* (see below) concentrates on exterior interests in policy setting.

User Services

AskERIC's user services are the primary method of guiding AskERIC's Internet information services. Of AskERIC's five units, only two are directly accessible to end-users; the *Question Answering Service* (McKee, 1995), and the *Virtual Library* (Morgan 1994). These services (described above) represent the main user input, and therefore, the primary means of directing the organization. Figure 3-4 represents this input.



In the question answering service, user questions and comments are the major source of information. Trends in questions and comments represent users' situations and information needs. These trends are communicated to the rest of AskERIC particularly to the Virtual Library. An example of this communication is the development of the InfoGuides. InfoGuides are pathfinders to Internet and ERIC resources on given topics. The topics are derived from incoming questions to the Q&A service.

The *Virtual Library*, to a great degree, represents repeated trends in *Question Answering Service*. The Virtual Library also "informs" the *Question Answering Service*. It does this by informing question answerers (Network Information Specialists) what resources are available in the AskERIC Virtual Library and how to access them. It also informs the larger AskERIC organization of "hot" areas on the automated services. This is determined by often-accessed Web pages and Gopher directories.

In combination, then, the *Question/Answer Service* and *Virtual Library* represent not only the interfaces of AskERIC to the user community, but also the primary detectors (gathering data on what users want and how they are satisfying that need). This data form the direction of the project. The user input forms the primary influence in building and maintaining AskERIC's Internet information services.

Technology Services (Research & Development and Systems/SunSITE)

AskERIC also considers technology in determining the strategy of the organization. However, the technological input is considered a secondary input. The *Research & Development* effort exists both within the AskERIC organization, and outside it. Not all of the researchers in *Research & Development* are employees of AskERIC. Many researchers are students from Syracuse University. One could view *Research & Development* either as a part of AskERIC, or as a separate research effort working on AskERIC material. Figure 3-5 below depicts this relationship.

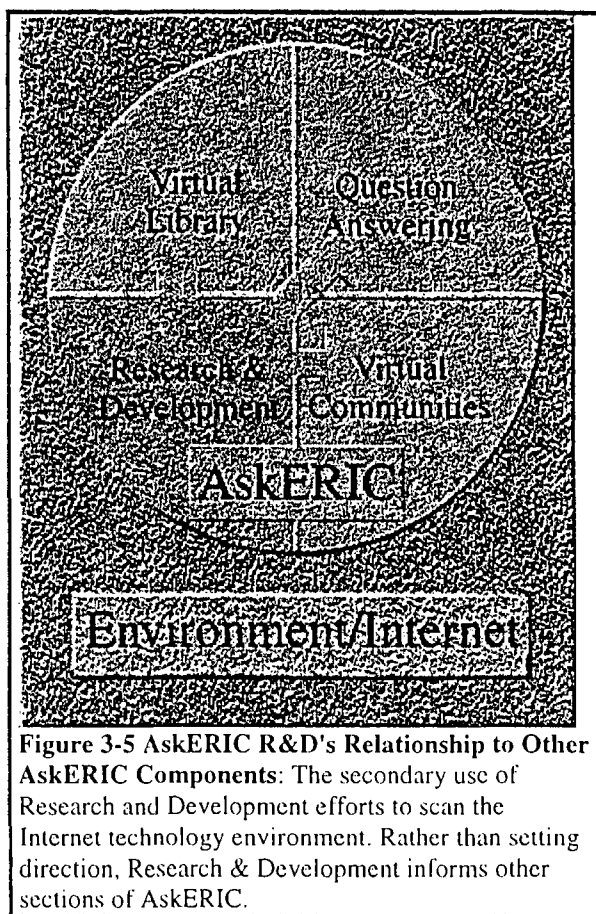


Figure 3-5 AskERIC R&D's Relationship to Other AskERIC Components: The secondary use of Research and Development efforts to scan the Internet technology environment. Rather than setting direction, Research & Development informs other sections of AskERIC.

The main purpose of *Research & Development* is to look for future technologies that may be of use to AskERIC and K-12 educators. However, these technologies are not implemented by AskERIC until the user services (*Question/Answer Service* or the *Virtual Library*) feel there is broad enough acceptance from the end-user population. AskERIC could not use the World Wide Web, for example, until the user services felt there was enough access for their users. So while Research & Development does help to manage and direct the service, it is always constrained by the needs of the user services.

The *Systems/SunSITE* group of AskERIC serves a different technical purpose. Whereas *R&D* seeks innovation, *Systems* seeks stability. It is the responsibility of the *Systems Group* to ensure all computing and network platforms are available to the other AskERIC components (save *R&D* which is mostly self-supporting). *Systems* also overlaps in responsibility with the *Partnership* group (described below). Once a relationship is established with a technical organization (such as Sun Microsystems or Personal Library Software) *Systems* forms a relationship with a technical contact within the partnering organization. This relationship is used to support the technical infrastructure provided by the partner, as well as solicit opportunities and feedback from this partner.

Partnerships

Another component of the project that contributes to AskERIC's ongoing activities is the *Partnerships* group. The *Partnership* group is responsible for soliciting funds, resources and projects from organizations external to AskERIC. *Partnerships* also acts as a liaison to external partner organizations (such as state networks, The Federal Department of Education and various organizations). The *Partnerships* team acts as a liaison between external organizations and AskERIC. This branch of AskERIC, however, does not determine policy or direction. The *Virtual Library* group assists and directs most efforts of the *Partnerships*. If the Library does not see a fit between the external organization and AskERIC, then contact is not continued.

The Partnership team also works with the *Systems* group and the *Research and Development* group on a project by project basis. The technology services act as a sort of contractor to provide specifications and technical expertise to the project. These relationships can be seen in figure 3-6.

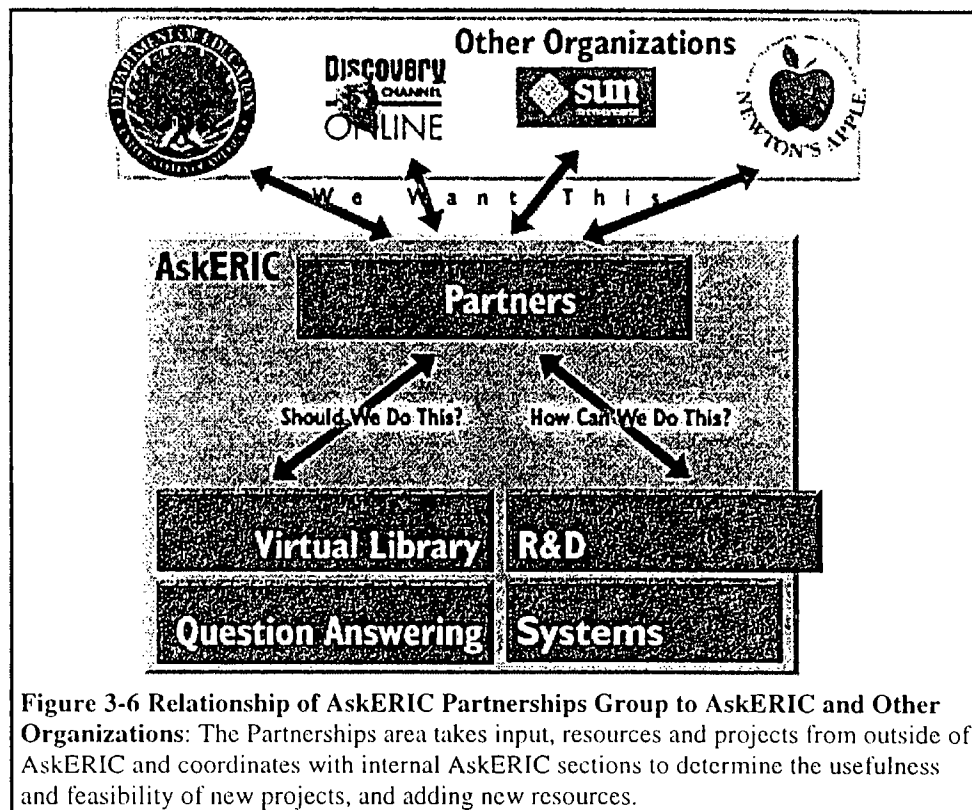
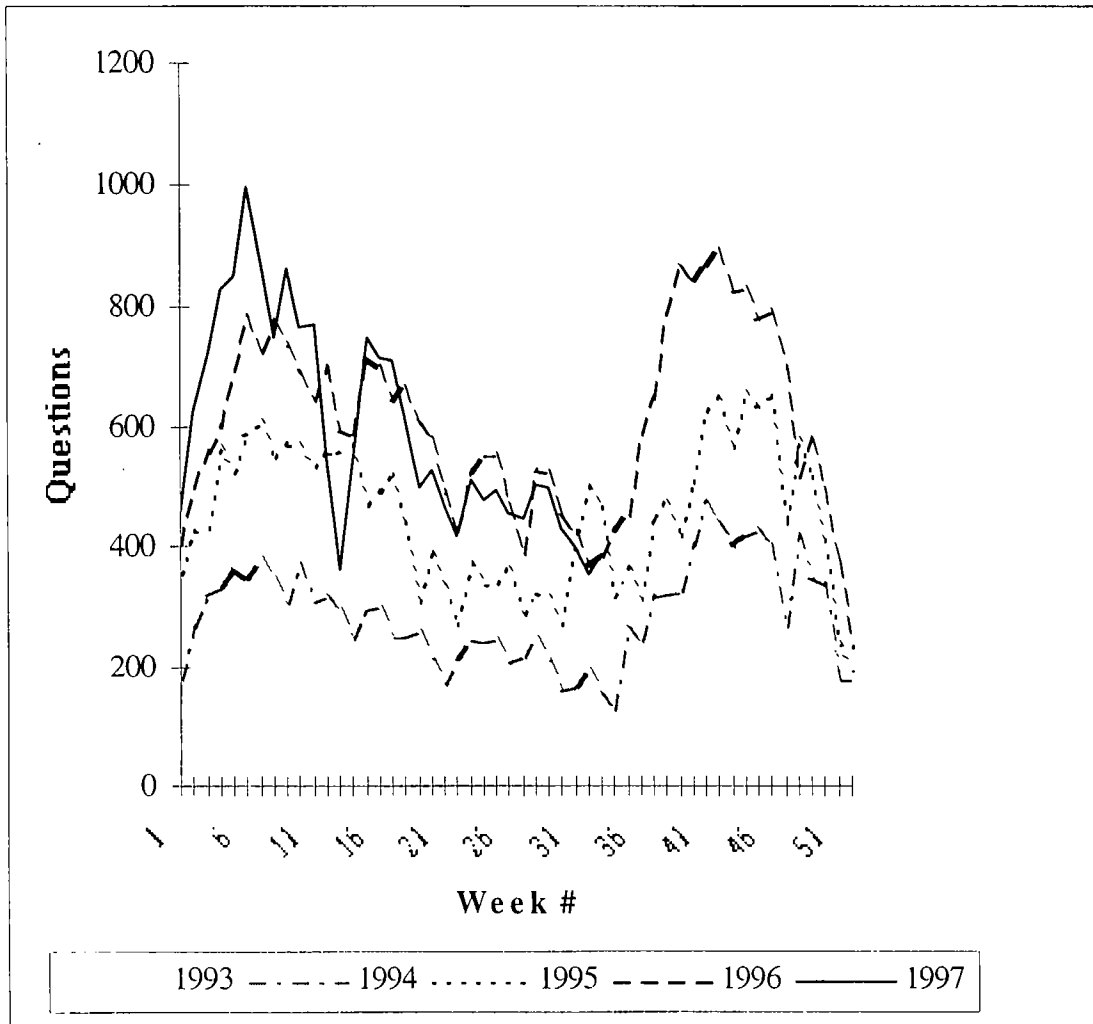


Figure 3-6 Relationship of AskERIC Partnerships Group to AskERIC and Other Organizations: The Partnerships area takes input, resources and projects from outside of AskERIC and coordinates with internal AskERIC sections to determine the usefulness and feasibility of new projects, and adding new resources.

Number of AskERIC Questions over Time



KNOWLEDGE BASE

The knowledge base will capture the knowledge generated through the information mentoring process. Users, AskA services and others will have access to the best answers across subject areas. Searchers will be able to access the appropriate level of sophistication in their searches.

Preliminary Overview of an AskA⁺ Knowledge Base

DRAFT September 2, 1997

A tremendous amount of information is generated during the digital reference process. This information is invaluable, consisting of syntheses of information, informed opinions, brainstorming sessions and re-stating of highly technical information into simpler, more useful terms (for understanding by a K-12 student). Many AskA services have captured this information in a variety of forms such as:

- Subject archives
- FAQ's (Frequently Asked Questions)
- Searchable databases
- Detailed resource guides

The Virtual Reference Desk is taking advantage of this dynamic knowledge creation by building a cross-subject educational knowledge base. The knowledge base will capture question/answer sets in a distributed fashion creating a resource for the K-12 community to use directly or indirectly through information mentoring.

Users of the Knowledge Base

There are three anticipated "users" of the knowledge base:

- *Novice searchers:* members of the K-12 and general community with little or no formal knowledge in online searching techniques.
- *Expert searchers:* users who have either been trained or learned through experience how to use structured mechanisms to locate information in online databases.
- *Automated searchers:* software that synthesizes user input into queries – particularly useful in creating value-added interfaces for a given AskA service.

These categories are purposefully different from audience definitions found elsewhere in the Virtual Reference Desk project. It is not based on users' reasons for searching, but rather on their searching abilities. The purpose for this differentiation is primarily realized in the interface to the knowledge base. A novice user, for example, may search the knowledge base from a single full-text prompt on the screen. A more experienced searcher might use a combination of controlled terms and Boolean operators to add precision to a query. An automated searcher, on the other hand, would by-pass an interface altogether.

To accommodate these diverse users the initial knowledge base design utilizes a "by-passable" hierarchical structure. This system allows a user to bypass complexity to get to a quick answer, while allowing an expert searcher to take advantage of a series of filters to refine a search and avoid being overwhelmed by too much unrelated data.

Hierarchical Approach to the Knowledge Base

The first stage in the hierarchy (see figure 1) is the GEM (Gateway to Education Materials <<http://gem.syr.edu>>) subject vocabulary. This lightweight controlled vocabulary allows a user to quickly define a domain for a given question (such as Science, Language Arts, or Social Studies). Indeed with the second level vocabularies a user can narrow a question's subject further (e.g., physics). Limiting the domain prevents terms from being found out of context. A mathematical formula can be easily differentiated from a chemical formula (i.e., "I'm looking for the formula to make Hydrogen Peroxide").

The second stage of the knowledge base is the site profile. Here users can use the resumes generated for the AskA locator to further narrow their searches. They might want information from the MAD Scientist archives over archives from other services. This stage allows a searcher to make distinctions based on quality, scope or some other criteria.

The third stage of the hierarchy is a collection profile. Here searchers can utilize any segmentation of question/answer sets created by an AskA service. For example, MAD Scientist has broken their archives by scientific discipline.

All of these levels allow searchers to be as specific as they want to be. As mentioned before, however, a user can by-pass this structure and simply enter a query to be searched against all archives.

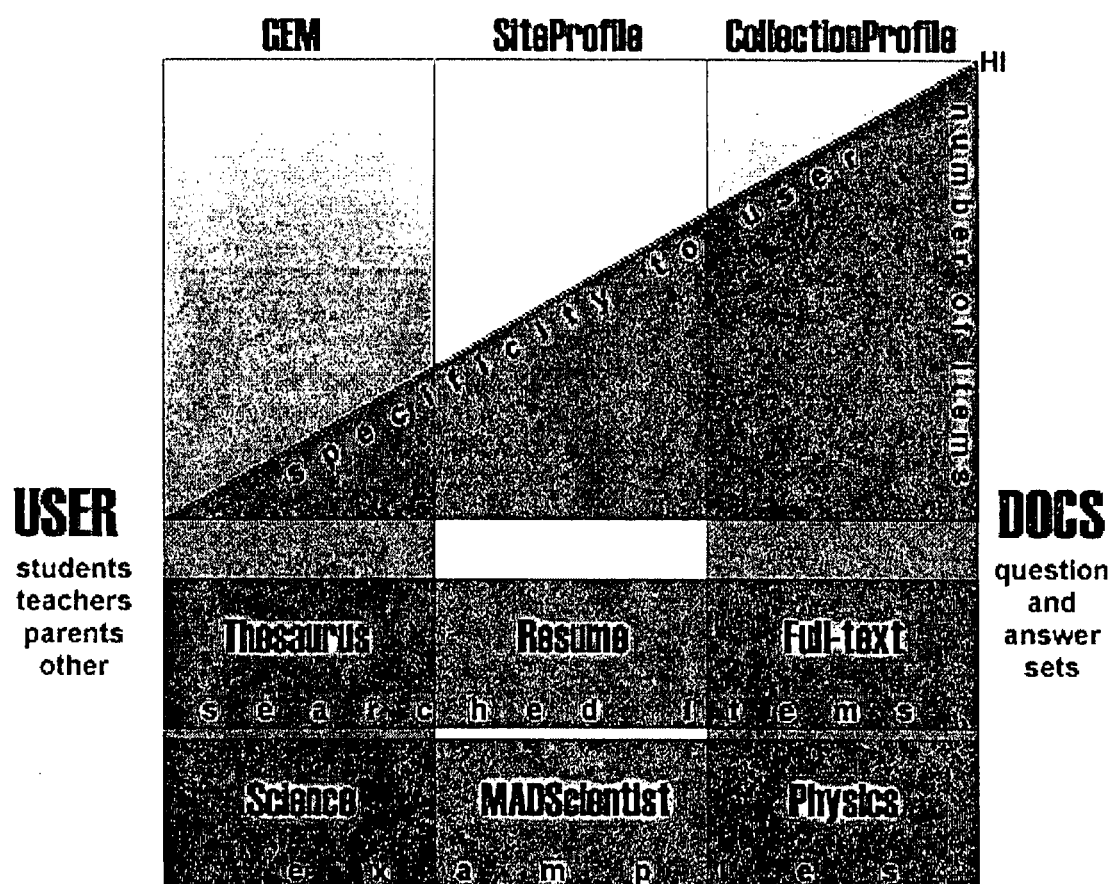


Figure 1: Hierarchical Approach the Knowledge Base

Distributed Approach to the Knowledge Base

Many AskA sites already allow public access to their archives. This makes it possible to build the knowledge base in a distributed fashion. Software (so-called spiders) can go from site to site building the contents of the knowledge base. In this way sites do not have to change procedures or software to be a part of the knowledge base. Since the knowledge base is distributed, the responsibility for its upkeep can be shared with all AskA* Consortium members. The hierarchical approach allows for a structure to be imposed on the distributed material for stronger searching options.

Development Cycle for the Knowledge Base

It is anticipated that the knowledge base will continue to develop as the project expands. In the first stages of development pre-existing software will be used to capture existing archives and make them searchable using full-text search options. As the project expands and more resources become available the sophistication of the knowledge base can expand as well.

Question/answer sets can be cross-correlated from diverse archives. Resources can be quickly synthesized from multiple answers. Sophisticated natural language techniques can be employed to make searching the archives both easier and more powerful. Rather than matching keywords, natural language processing techniques can determine the context of a term (such as the chemistry/mathematics distinction made earlier).

Tying the Knowledge Base to Triage

The knowledge base will become an essential tool in the triage process, both at the Virtual Reference Desk and at different AskA services. The MAD Scientist Network already proposes taking incoming questions and running them through the knowledge base before sending the question to a human expert. In this way an expert respondent can be presented with possible answers to choose from instead of starting "from scratch" with every question.

The hierarchical structure will also be invaluable in developing the meta-triage aspect of the project. Information on load (number of questions that can be answered) can be quickly added to site profiles. In this way those processing incoming questions can use the same interface for finding answers; if no answers are available, a question can be forwarded to appropriate AskA services.

RESOURCE CREATION

A major function of the Virtual Reference Desk is the collection and creation of resources needed to build and maintain high-quality digital reference services. This includes training materials to prepare information mentor/volunteers to respond to inquiries. To this end, the following section contains:

- An overview of training materials under development
- A plan for completing these proposed training materials
- Information Mentoring: Guidelines for Providing Reference Service to K-12 Students

These materials form the basis of a larger training effort that can assist in the development of new AskA services.

Virtual Reference Desk Mentor Training Overview

August 29, 1997

The Virtual Reference Desk project involves the design and development of training resources to prepare virtual mentors to respond to Internet-based inquiries from the K-12 community. The contents and structure of the training resources will be determined through a systematic planning and testing process involving analysis of virtual mentors' background knowledge and overall goals of digital reference services. Final training materials will be completed in May of 1998. (See *Preliminary Training Plan* for timeline of deliverable completion.)

Two distinct resources are currently proposed based on preliminary research:

1. **Mentor training manual for new virtual mentors.** This document will address the common knowledge and skills necessary for the virtual mentor role (e.g., information searching, communication guidelines, etc.). Design of this document may involve some revision of existing material from the Information Institute of Syracuse, *Information Mentoring: Guidelines for Providing Reference Service to K-12 Students*.
2. **Instructor/administrator guide.** This document will outline suggested components to include in mentor training for individual digital reference services (e.g., service policies and procedures, interactive practice activities, etc.). Training delivery methods and strategies will also be included (e.g., ideas for incorporating general mentor training materials, tips on offering feedback on trainee performance, etc.).

In addition, a set of "process documents" will be developed to supplement the mentor training components. Process documents will focus on guidelines for building and maintaining digital reference services.

The two main training resources are discussed further below:

1. Mentor Training

Audience: The audience for the Mentor Training resource includes individuals who have expressed interest in becoming virtual mentors for the K-12 community. It is assumed that members of the audience plan to participate in a particular digital reference service and will also participate in service-specific training activities. All members of the audience will participate in training via the Internet.

Members of the audience come from a variety of backgrounds and skill levels and are preparing to participate in different types of digital reference services. Content development and presentation of training materials will take into consideration differences in the following areas:

- Level and type of subject matter or procedural expertise
- Experience with the service audience (K-12 community)
- Particular service audience (parent, student, teacher, all)
- Level of Internet experience
- Level of reference experience (information searching, evaluation of resources, etc.)
- Service affiliation: university, professional association, government, non-profit, commercial, self
- Service policies
- Status: paid vs. volunteer

Training Goals

Based on input from members of the Virtual Reference Desk Expert Panel (including initial quality criteria for digital reference services), the overall goals of Virtual Reference Desk Mentor Training include:

Virtual mentors should respond to questions from members of the K-12 community (students, teachers, parents) via the Internet—by directing them to resources, providing factual answers, and helping them use information—according to individual service policies and procedures.

Virtual mentors should compose responses in a tone that is clear and friendly and that motivates users (students, teachers, parents) to learn the subject matter and/or problem solving process.

The goal will be verified and divided into specific objectives according to results of the *Virtual Reference Desk Virtual Mentor Questionnaire*. This questionnaire will be completed by individuals training for participation in KidsConnect, MAD Scientist Network and other services.

2. Instructor/Administrator Guide

Audience: Digital reference service administrators/coordinators will use this document to create and deliver training specific to their service policies, procedures and goals.

Proposed guidelines are based on existing training manuals from KidsConnect, AskERIC, and MAD Scientist Network:

- General information about service: contact information, sponsoring organization, mission/goals/objectives
- Description of volunteer role: responsibilities, required skills
- Question/answer procedure: receiving question, writing response, sending response
- Problem solving/troubleshooting
- Practice activities/guided response (responses are reviewed before sent to user)
- Examples of exemplary responses
- Supporting resources

Virtual Reference Desk Preliminary Training Plan

DRAFT 8/29/97

Step	Start Date	End Date	Description/Products
Goal/Needs Assessment	8/11/1997	8/29/1997	Questions to expert panel regarding mentor performance, mentor satisfaction and user satisfaction. Determine components to include in instruction.
Audience Assessment	8/22/1997	9/12/1997	Questionnaire to incoming trainees of various services (via expert panel) to determine mentor characteristics, knowledge, experiences, etc.
Objectives	9/15/1997	9/26/1997	Outline of training objectives.
Design Outline of Training	9/29/1997	10/17/1997	Outline of training materials (components, contents).
*Write Prototype	10/20/1997	11/14/1997	Product: Prototype of training materials for "prototype of software and materials."
Stakeholder Review of Prototype	11/17/1997	12/19/1997	Expert panel, others review prototype (of all VRD resources) and provide feedback.
Revise/Write Draft	1/5/1998	1/16/1998	Product: draft of new training materials
Pilot Test	1/19/1998	2/20/1998	Test training materials on incoming trainees to various services; gather feedback from expert panel and trainees.
Revise/write final	2/23/1997	3/13/1998	Product: Final draft of training
Implementation	5/1/1998	---	Materials are available online; Periodic testing/revision

*Rows in **bold** indicate Virtual Reference Desk deliverables as outlined in the *Technical Proposal for the Virtual Reference Desk*.

Information Mentoring: Guidelines for Providing Reference Service to Students

DRAFT 8/11/97

This resource is designed to help Internet-based “expert” services provide information to K-12 students. It includes background on the role of expert services in education and information problem solving; examples of existing services (including sample questions and answers); links to digital reference resources on the Internet; and a list of related citations from the ERIC database.

Introduction: How Experts Help Kids

Digital reference services, also called “Ask-An-Expert” services, support learning and motivate students in many ways, including providing quick access to current and relevant information and offering positive feedback in the form of personal messages (Harasim et al 1995). These services can also play a primary role in promoting information problem solving skills. This resource illustrates ways that “experts” can improve their services by ensuring effectiveness of transactions (i.e., question-response process).

Digital reference services serve Internet users the same way that traditional libraries serve library patrons. Some are geared toward helping children with school-related questions (e.g., KidsConnect), while others are open to audiences of all ages. Current digital reference services offer two main types of expertise—subject matter (providing mostly factual information) and information skills (providing mostly resource referral). Both types of experts can instruct users in the area of information problem solving. In other words, they can guide patrons to use the information they provide within the context of an information problem solving process.

This chapter focuses on serving children as information users, and Internet users in particular. The following guidelines and examples illustrate ways to implement and promote the Big6 Skills™ (<http://ericir.syr.edu/big6/bigsix.html>) approach to information problem solving (Eisenberg and Berkowitz 1990) as an integral aspect of digital reference service. Keep in mind that the steps of the Big6 Skills™ do not always occur in order and some can occur simultaneously when responding to student inquiries.

Guidelines for Using Big6 Skills™ in Virtual Transactions

This section discusses the Big6 Skills™ and other considerations that can enhance transactions between experts and children. Using these guidelines, digital reference services can ensure their effectiveness and help children become better information users.

Big6™ and Digital Reference Services

Digital reference experts can provide guidance to children in all steps of the Big6™. Although some questions may not require guidance in all steps, digital reference experts should consider each transaction as part of the information problem solving process in various ways. Digital reference experts can also use the Big6™ to guide them through the question/answering process themselves. By demonstrating their own use of the Big6™, they provide models for the students to follow. The following

explanations and examples will help you decide which areas are important to address in particular situations.

Step 1. Task Definition

As any reference librarian will know (digital or otherwise), patrons are not always clear in expressing an information need, or question. Library patrons sometimes approach the reference desk with vague, unfocused questions. In order to provide the patron with the most helpful information, the librarian conducts a reference interview: a guided conversation that helps the patron narrow down the specific problem. Once the problem is revised, the librarian will refer the patron to resources or provide the patron with an answer.

The same situation can occur in a digital information center, or Internet-based reference service. But without face-to-face contact with the patron, the interaction is not as straightforward and takes more time. However, it is no less important and can actually save you from spending time researching and writing a response that ends up getting deleted by a frustrated kid who expected something completely different. A digital reference service can increase its effectiveness by helping a patron understand the task, or question, and the types of information required to complete the task.

What should you do if you receive a vague, unfocused question? If the question is too difficult to answer without additional information, then conduct a *digital reference interview*. Write back to the patron with some clarifying questions. These questions can be open—"What do you already know about the subject?" "What sources have you already checked?"—or closed—"Do you want to know the years that the Civil War was fought?" Open questions require more descriptive answers and should be used to broaden the scope, while closed questions usually elicit "yes" or "no" responses and can be used to narrow the scope (Bopp and Smith 1995). Both types of questions can be effective at different points depending on the type of question asked.

Some digital reference services are experimenting with interactive communication tools, such as Interactive Relay Chats and MOOs (Multi-User Object Oriented environments), in order to allow ongoing conversations with patrons. (See "[Internet Public Library Moo Introduction](#)" at <<http://hypatia.ipl.org/moo/>> for information on MOO services at the Internet Public Library.) This type of interaction increases the possibilities for helping patrons refine their information problems immediately.

Example 1: Task Definition—Expert-Student Communication

Here's an example of an original question and a "reference interview" response:

Dear Bug Expert,
I would like some information on insects. Thank you.
From Jeffrey, second grade

Dear Jeffrey,

Thank you for your question about insects. I'm writing to find out what you would like to know about insects, so that I can help you better. If this is for a school assignment, what is the assignment? Do you want to know about a specific kind of insect, like the fly or mosquito? Would you like to know about insects in a certain place, like the rainforest or desert?

Thanks for writing to Bug Experts. We look forward to helping you.
I.M., Bug Expert

Other services take preliminary actions in anticipation that students may not include necessary information in their questions. One possibility is to use Web-based forms that request or require that users include certain items in incoming messages. These items can include the student's grade in school, type of assignment to which the question is related, and types of resources previously consulted.

Example 2: Task Definition—Web-Based Forms

E-mail address: _____
Grade: _____
Topic: _____
Resources you've tried: _____
Type of assignment (paper, project, short answer, etc.): _____
Question: _____

(Adapted from KidsConnect question form <<http://www.ala.org/ICONN/AskKC.html#form>>.)

Step 2: Information Seeking Strategies

Once you have received an inquiry that you can answer with the information given, the answer or information referral process begins. In some cases, the best source may be the expert who relies on his/her own knowledge to answer questions. In others, a variety of resources may be consulted in answering questions or referring patrons to information (e.g., Internet, print or electronic reference tools, other people). Many services keep archives of frequently-used resources or frequently-asked questions (FAQs) that can be consulted in the case of repetitive questions. (Many FAQs are available to the public via the service's Web site.)

In answering an inquiry, it is important to explain why certain resources were used to answer the question and/or which resources are suggested. This will help patrons make their own decisions about resources in future information problems. It is also a good idea to refer students to their school library media specialists (LMS) in order to stress that their LMS are information experts in their schools and can guide them to local and remote resources. Students and educators should be aware that digital reference services can supplement—and not replace—the information resources and services available in school library media centers and other libraries.

Example: Information Seeking Strategies

Here is part of a response that highlights available resources versus most appropriate resources for a given question:

Although there are many Web sites about hurricanes, a simple article in a general or a science encyclopedia will best answer your question: "How are hurricanes formed?" Ask your school library media specialist to guide you to an encyclopedia or other resources that can answer your question.

Step 3: Location and Access

Once you've identified for yourself which resources can help answer a question, the next step is to locate the source and then find the relevant information within the source. For example, if you've chosen the World Wide Web as your general source, you can locate specific information by conducting a search, referring to bookmarks, etc. Then, to find the relevant information within a Web site, you can skim the site to pinpoint the sections that best address the question or topic. This step will come as second nature to many digital reference experts, especially those who rely on their own expertise or a frequently used set of resources; however, acknowledging this step can help you focus on matching information to specific questions.

This step is extremely important to consider in writing responses to children. By describing the decisions you make in locating and accessing information, you can help teach kids to search for information and use resources effectively on their own. This can apply to information found in all types of resources but is especially important when referring Internet resources. Important components in response messages include:

- **Information path**—Describe the steps you took to find the source and the steps the student should take to find relevant information within the source. For instance, if a search engine was used to look up Internet sites on a certain topic, include in your response the name and URL of the search engine and the search terms you used. In addition, make sure you direct the student to the specific page(s) within a site or the specific area within a page (e.g., links, paragraphs, graphics) that most appropriately addresses the student's question.
- **Description of Source**—In your response, it is helpful to include descriptions of each source to which you are referring the student. This includes the origin of information (e.g., the organization or individual responsible for the information on a Web site), content (i.e., the main focus), special features, and reason for selection (i.e., does it address the student's question in a unique way?).

- **Citation Information**—Whether you are referring resources on the Internet or in other formats, it is extremely important to include proper citation information in your response. An easy way to transfer citation information from the Internet to an e-mail message is to copy and paste relevant information, such as title, URL and author, if available.

Example: Location and Access

Here is a response to the question "Can you help me find information on the major cities in Peru?" Path and keyword information are included:

I searched for information on Peruvian cities by using the Alta Vista search engine at <<http://www.altavista.digital.com>>. The search term I used was: +Peru +cities.

Here is one site that may be helpful:

City.Net Peru
<http://www.city.net/countries/peru/#cities>

At the bottom of the page, click on Lima, Miraflores, or Pacasmayo, to find links to information on these three major cities in Peru. After clicking on a city name, scroll down the page to "travel and tourism" and pick a link for more detailed information on the cities.

For instance, go to the Internet address for City.Net Peru (written above), and click on "Lima" at the bottom of the page. On the next page, "City.Net Lima, Peru," scroll down to "travel and tourism" and then click on "Lima: A Quick Tour." This page will tell you about the history, population, climate and other details about Lima, the capital of Peru.

Step 4: Use of Information

For the digital reference "expert," this involves a focused inspection of the information within a source and a transfer of relevant information into the response message. This transfer step is carried out by copying and pasting or manually typing relevant information into the e-mail message. For some "experts," this involves simply copying citation information into a message; for others it may mean providing factual information accompanied by a proper citation.

As a digital reference expert, you can guide your patrons in using the information you provide. After suggesting an answer or a referral to additional resources, you should remind patrons of the various methods for using information; these include copying and pasting from the Internet to word processing programs, printing out information from the computer, taking notes, and highlighting important passages. In addition to suggesting methods of interacting with the information, it is also extremely important to remind patrons to cite their sources in their reports and projects.

Example: Use of Information

This is an sample excerpt of a response to the question "What did kids do during American Colonial times?" that includes tips on using the information.

The "Children's Activities" Web page <<http://www.history.org/places/geddy/geddychi.htm>> from the "Colonial Williamsburg" Web site has lots of information that can answer your question. Print out the Web page or skim through it on the screen and take notes on the parts that answer your question best. A good set of notes will help you later to write your report in your own words.

Step 5: Synthesis

Digital reference experts engage in synthesis activities when they write messages to students. Some responses call for a listing of resources, while others may require paraphrasing information from a source (or from your own expertise). (See [Other Considerations](#) for tips on presenting and communicating your response to students.)

Helping students synthesize the information you provide is a bit tricky unless you know something about the student's final product. This is another place where interactive communication tools and Web-based forms are useful (see [Task Definition](#)). If this type of interaction is not possible, but you have a general idea of what the student is trying to accomplish, you can offer resources for helping the student complete the assignment (see example below) or offer tips as appropriate, such as:

- show both sides of an argument
- include own opinion
- use examples
- have a friend or adult edit your work

Example: Synthesis

Here's a sample excerpt from the question "How can I do a science fair presentation to show how volcanoes explode?"

When you are ready to put your science fair project together, you can find some good tips at a Web site called "The 'How-To' of Science Fair Project" <<http://qlink.queensu.ca/~3dt18/sc-fair.html>>. Click on "Presenting your Project" in the Table of Contents to see a list of things to think about during your presentation. The ideas include: to link main points from signs, graphs, and objects on your display; to adapt your presentation to the age level of your audience; and to be prepared for questions.

Good luck with your project!

Step 6: Evaluation

Evaluation can occur throughout the process in many forms. The digital expert should constantly assess the responses sent according to the quality of information and resources included, adherence to service policies, procedures and standards, and issues of communication and presentation (see [Other Considerations](#)). Formal quality management activities include maintaining an archive of responses and creating a system of providing feedback to those answering questions.

The digital expert can guide students through the evaluation process by explaining decisions made in including information and resources within the response (see [Information Seeking Strategies](#)) and by

encouraging students to assess their own use of resources and involvement in the information problem solving process.

Example: Evaluation

Here is a sample excerpt from a response to the question “What is the description of a lima bean?” that includes tips on evaluating resources as well as the entire information problem solving process:

Some of the Web sites and books I have listed talk about the lima bean as a plant and some talk about it as a food. You can decide which descriptions fit best with your assignment.

When you are all done with your assignment, try to answer the following questions:

- Which types of sources answered your question best: Internet sites? Print encyclopedias?
- What other questions could you ask to get information you're looking for?
- What did you learn about finding information on the Internet?

Other Considerations

Besides following an information problem solving model, it is important to consider other elements of communication and presentation when interacting with children. Digital reference services may consider including some of these ideas in their policies, procedures and standards:

- **Clarity**—Is the message written clearly? Are ideas separated from each other? If you received this message, would you find it easy to read?
- **Age-Appropriateness**—Is the language written at the age level of the student? Is it free of undefined jargon, acronyms, or abbreviations? Is the student referred to resources that are appropriate for his/her grade level? (Note: if the information contained in the message or in a referred source is above the appropriate reading level but contains high quality, relevant information, you can suggest that the student ask an adult to help him/her understand it.)
- **Motivation**—Did you include the student's name as a way of personalizing the message? Does the tone of the message communicate a sense of excitement for the student's learning? Does it encourage the student to explore information and to ask more questions?
- **Service Identification**—Did you include the name of your service somewhere in the message in order to distinguish it from other similar services? Did you include your own name and title in the message? As a form of motivation, students appreciate knowing that a real person spent the time to answer their questions (especially if the expert is writing from a distant geographic location). In addition, including your professional title adds some authority to the information provided; this reinforces the concept of critical assessment of Internet information.

Examples: Questions and Responses

Below are three sample questions and responses that incorporate Big6™ steps and other presentation and communication issues. Big6™ steps are identified throughout the messages.

EXAMPLE 1

Hello, InfoCoach:

> My name is Tammy. I'm looking for information on the 1996 Olympics. My biggest question is how do people get chosen to light the torch? [1. TASK DEFINITION] Thank you very much.

Dear Tammy,

Hi. Thank you for your question. In order to find information for you, I searched the World Wide Web using the Alta Vista search engine <<http://altavista.digital.com>>. I typed this search term in the query box at the top of the page: [3. LOCATION AND ACCESS]

+"1996 olympics" +torch

I put "1996 Olympics" in quotes to show that it's one phrase, and I put plus signs around both phrases, because I wanted Web sites with both phrases in them. Here are some Web sites that will help answer your question:

1. Sports Page

<http://melton.ufro.cl/news/sport.html>

This Web page has information on the history of the Olympics as well as news on the 1996 Olympics in Atlanta. In the sections "Follow the Torch" and "Olympic torch relay begins in Los Angeles," you can read about the tradition of lighting the torch [4. USE OF INFORMATION]. It doesn't say how people are chosen to light the torch, but it does say that the name of the person chosen is kept secret by the Olympic committee.

2. Olympics

<http://deil.lang.uiuc.edu/web/pages/holidays/Olympics.html>

This site has more information and links to other sites about Olympic history and the 1996 Olympics. You can even learn about future Olympics. Click on any of the highlighted information on the Web page to learn more [4. USE OF INFORMATION]. Note: Some of the links require that you have audio capabilities (any of the "NPR radio" sites) or a special password (New York Times site). Also, the "Olympics page" by Coca Cola and the MSNBC site are not active.

3. The Olympic Movement: Home Page

<http://www.olympic.org/>

This page contains information from the International Olympic Committee (IOC). Here you can read about some of the official guidelines of the Olympics [4. USE OF INFORMATION].

These Web sites should give you a start. Take a look at them and decide which ones best answer your questions [6. EVALUATION]. Unfortunately, I wasn't able to locate much information on how people are chosen to light the torch. Perhaps after you explore these sites, you can find the answer yourself and create your own explanation [5. SYNTHESIS]. I also suggest that you ask your school library media specialist to help you find other resources on the Olympics in your school library [2. INFORMATION SEEKING STRATEGIES/3. LOCATION AND ACCESS].

Good luck and thank you for writing to InfoCoach!

Randy S., InfoCoach

EXAMPLE 2

Dear Biome Bob,

We are studying biomes in science next week. My group is doing a project on tropical rain forests.
[1. TASK DEFINITION] Can you help us find Web sites?

Thank you very much,
Jordan, 5th grade

Dear Jordan,

Thanks for your question. I have a couple good Web sites saved in my "bookmarks" file on Netscape [3. LOCATION AND ACCESS]:

BIOMES <<http://www.pacific-academy.surrey.bc.ca/ms/biomes.html>>

This site contains links to other sites with information on wetlands, temperate forests, tundra, savanna and grasslands, tropical rain forests, and deserts. Click on any of the links (highlighted terms) under "Tropical Rainforests". [3. LOCATION AND ACCESS]

TROPICAL RAIN FOREST BIOME

<<http://www.chicojr.chico.k12.ca.us/student/RainForest/Rainforest.html>>

This Web page describes the Tropical Rain Forest and explains the types of plants and animals that can be found there. You can take notes on the information that looks the most interesting to you [3. USE OF INFORMATION].

I also did a search on Alta Vista <<http://altavista.digital.com>> using this search term:
+taiga +deciduous +biome [3. LOCATION AND ACCESS]

I found this good site:

Tour of Biomes

<<http://www.cotf.edu/ETE/scen/MSESE/earthsysflr/biomes.html>>

This site was created for middle school students. Pages are devoted to tropical rain forest, tropical savannah, mid-latitude deciduous forest, desert, subarctic taiga, and polar tundra. Click on the highlighted term "Tropical Rainforest" [3. LOCATION AND ACCESS] to read some interesting questions and answers [4. USE OF INFORMATION].

I hope these will help your group. When you do your project, don't forget to write your own ideas [5. SYNTHESIS] and to cite your sources [4. USE OF INFORMATION]. Good luck!

Biome Bob, Environmental Scientist

EXAMPLE 3

Dear MathMasters,

If a red blood cell lives about 120 days, about how many times a year is each cell replaced? [1. TASK DEFINITION]

Susan T.

Dear Susan,

To answer this question, you will first have to know how many days are in a year [1. TASK DEFINITION]. If you don't know this number, you can find it by looking in an encyclopedia [2. INFORMATION SEEKING STRATEGIES] under the term "year" [3. LOCATION AND ACCESS]. Ask your library media specialist to help you find an encyclopedia in print, on CD-ROM, or the Internet that will have this answer [3. LOCATION AND ACCESS].

To find out how many times a blood cell is replaced during a year, divide the number of days in a year by 120 days (life of a red blood cell):

$$\text{days in a year} / 120 \text{ days} = \text{number of times a red blood cell is replaced in one year}$$

[5. SYNTHESIS]

Good luck finding an answer and thanks for asking MathMasters!

Linda B., Math Specialist

Links

KidsConnect Favorite Web Sites for K-12 Students <<http://www.ala.org/ICONN/kcfavorites.html>>

This list of links was compiled from the “favorite” sites of KidsConnect volunteers—library media specialists who respond to questions sent to the Internet-based KidsConnect question/answer and referral service. Sites listed offer general K-12 curriculum links as well as information on specific subjects and areas of interest.

ICONnect Curriculum Connections <<http://www.ala.org/ICONN/curricu2.html>>

Developed by the ICONnect initiative of American Association of School Librarians (a division of American Library Association), this site provides links to Internet resources that can be integrated into the K-12 curriculum. Digital reference experts can consult these reference and subject-specific resources when providing services to students.

ERIC Citations

Lankes, R. David (1995). AskERIC and the virtual library: Lessons for emerging digital libraries. *Internet Research: Electronic Networking Applications and Policy*, 5 (Spring): 56-63. (EJ505459)

References

Bopp, R. E. and Smith, L. C. (1995). *Reference and information services: An introduction*. 2nd ed. Englewood, CO: Libraries Unlimited.

Eisenberg, M. B. and R. E. Berkowitz (1990). *Information problem-solving: The Big Six Skills approach to library and information skills*. Norwood, NJ: Ablex Publishing.

Harasim, L., et al (1995). *Learning Networks*. Cambridge, MA: MIT Press.

MEANS of PARTICIPATION

The success of the Virtual Reference Desk depends on the participation of the K-12 community, associations, organizations and government. Through cooperation among various stakeholders the Virtual Reference Desk can become the national cooperative digital reference service. The following section outlines initial thoughts on participation activities, and partnership opportunities.

Means of Participation in the Virtual Reference Desk

DRAFT September 2, 1997

The primary means of participation in the Virtual Reference Desk is membership in the AskA Consortium. Consortium members can be from AskA services, educational organizations, and other entities interested in supporting and furthering K-12 digital reference. The consortium will determine resources to be created, quality criteria and general guidelines for the Virtual Reference Desk. Currently the consortium has two parts: general membership and membership in the expert panel. The expert panel has direct involvement in the project and is called upon for information and direction in an immediate fashion; the general membership is still in its formative stages.

The following table attempts to identify how various stakeholders in the Virtual Reference Desk can contribute to the project.

	AskA Services	Information Mentors	K-12 Community	Organizations Associations
Resources	Documentation Training Materials Articles Policy Manuals Best Practices	Experiences Anecdotes		Best Practices Policies
Locator	Current Information (feedback additions deletions corrections) Labor (cataloging)	Feedback (additions deletions corrections) Labor	Feedback and Critiques	Sponsorship Labor
Match Making	Profiles (mission statements, scope definitions) Needs (in personnel & resources)	Qualifications and Scope Definitions		Needs and Mission, Resource Statements
Software	Specifications Functioning Packages for Distribution Expertise			Software Development Computing Resources
Knowledgebase	Question/Answer Sets	Feedback		Software Development Resources Expertise Computing Resources
Incubators	Training Materials Best practices	Time Profiles		Money

	AskA Services	Information Mentors	K-12 Community	Organizations Associations
Meta-Triage	Developed Software Expertise Current Information (load, scope, site profiles)			Software Development Resources Expertise Computing Resources
Training	Existing Training Materials and Practices	Time	Feedback	Time Compensation
Consortium	Time Information			
Research	Current Information and Documentation Time and Expertise			

Central Staffing for the Virtual Reference Desk

While the majority of the work of the Virtual Reference Desk and the AskA consortium will be conducted in a distributed fashion (by several organizations), there is a need for a central staff. This central staff will comprise the Virtual Reference Desk clearinghouse function. This clearinghouse will oversee all Virtual Reference Desk activities concentrating on meta-triage question distribution, training, research and resource creation. The staff functions anticipated are:

- **Coordination:** The staff will provide a central point of contact for AskA consortium members, the K-12 community and the public at large.
- **Distribution:** Information professionals will handle the triage and distribution of questions. It is hoped these people will work closely with volunteers in the library profession.
- **Technical Support:** Technical staff is needed for continued development of the knowledge base, creating triage software, testing and distributing digital reference software, and integrating the Virtual Reference Desk with the various AskA and incubator services.
- **Research:** Continuous improvement is vital to sustaining the Virtual Reference Desk. Practical research will be conducted to constantly improve service and procedures.
- **Training:** Professional trainers will improve the overall quality of K-12 digital reference by training organizations and associations to perform digital reference and train information mentors.

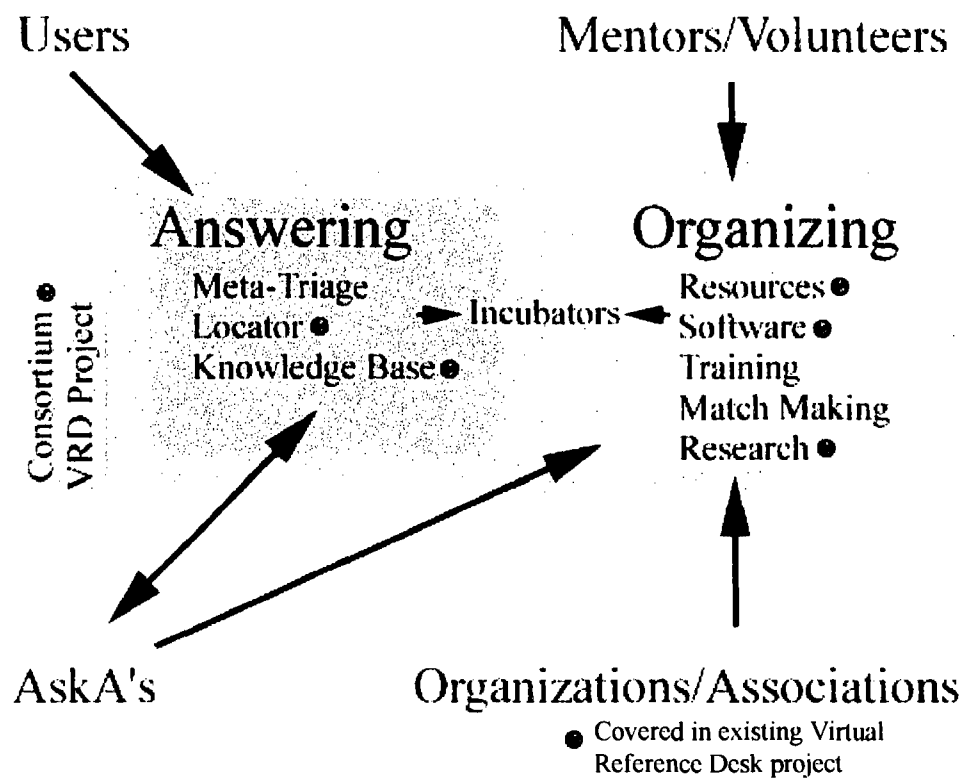
Support of the central staff is considered an excellent means of participating in the Virtual Reference Desk.

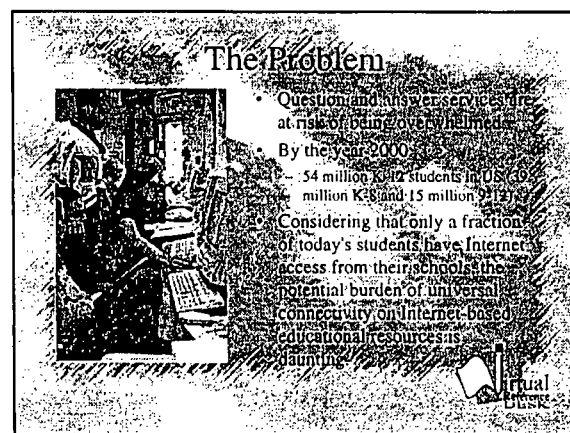
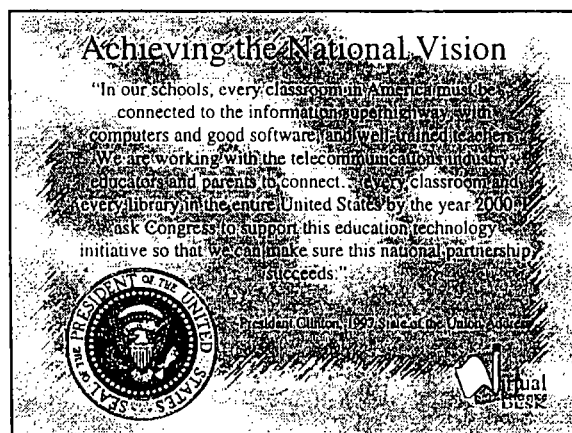
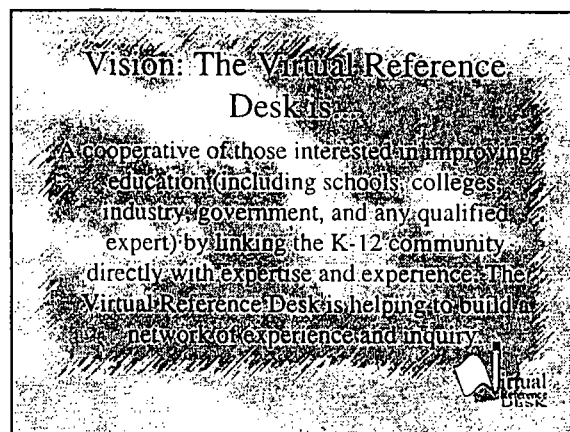
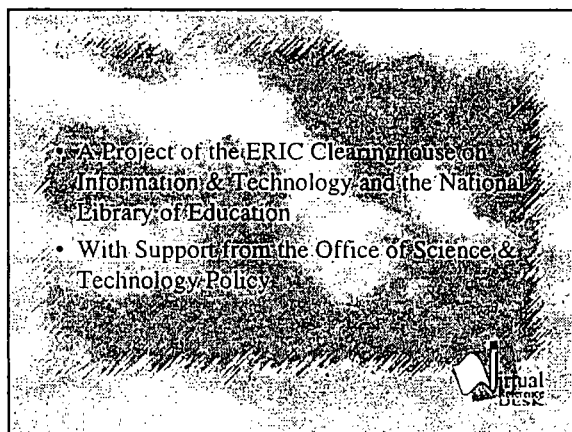
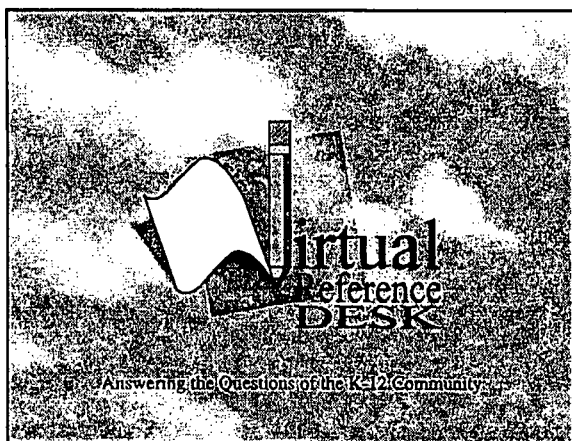
APPENDIX

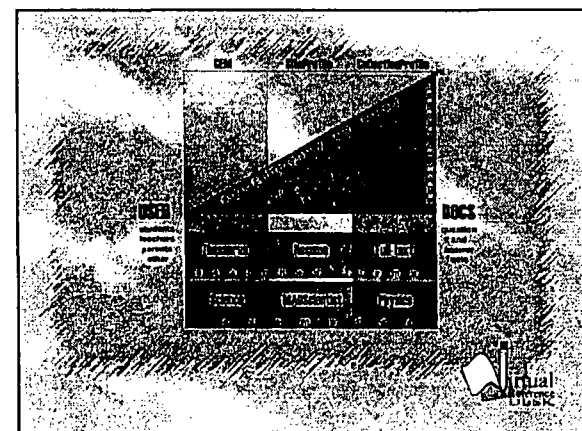
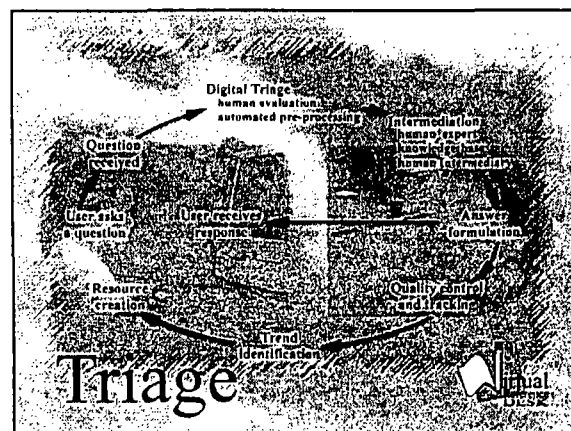
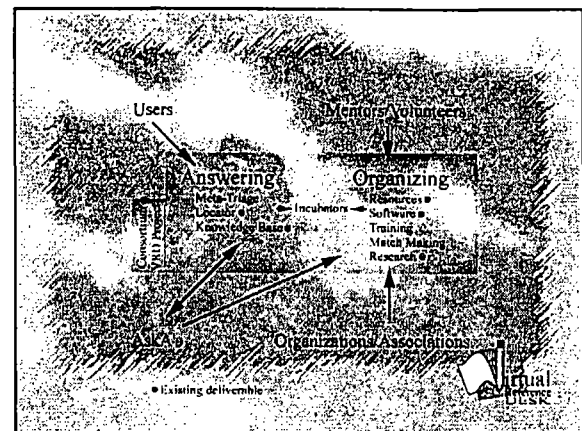
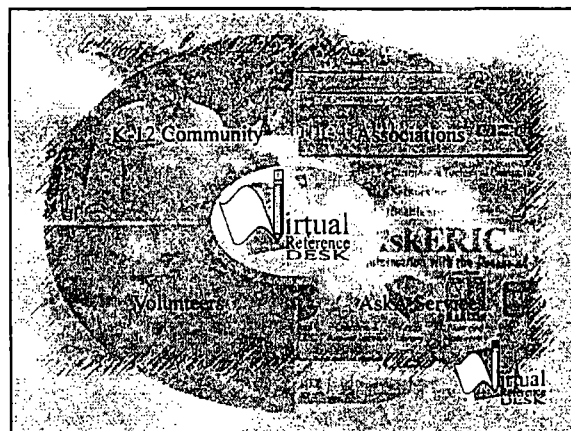
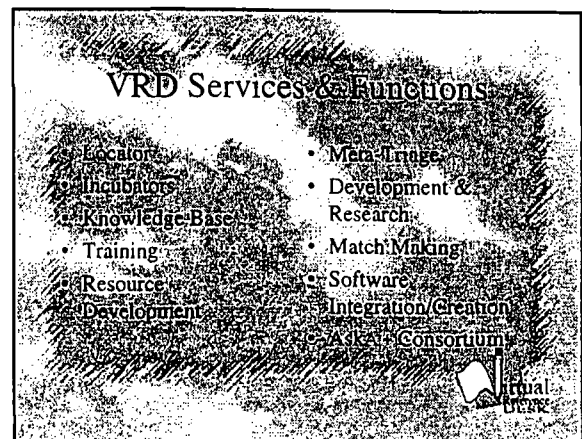
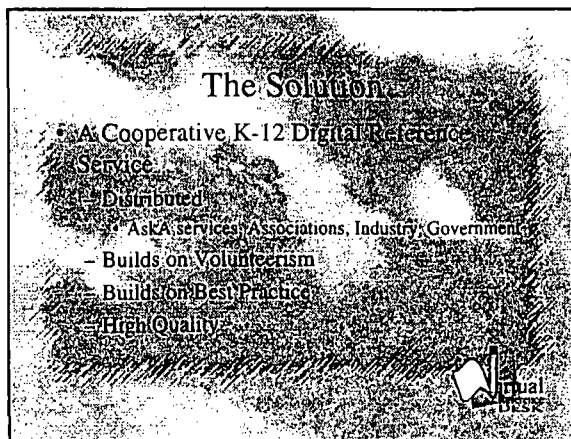
- Functions of the Virtual Reference Desk.
- Slide Show Handouts

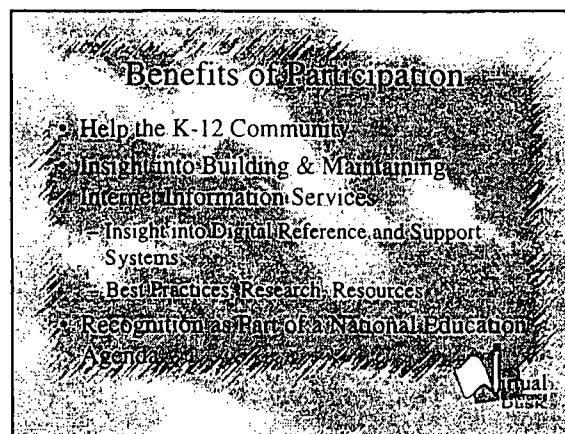
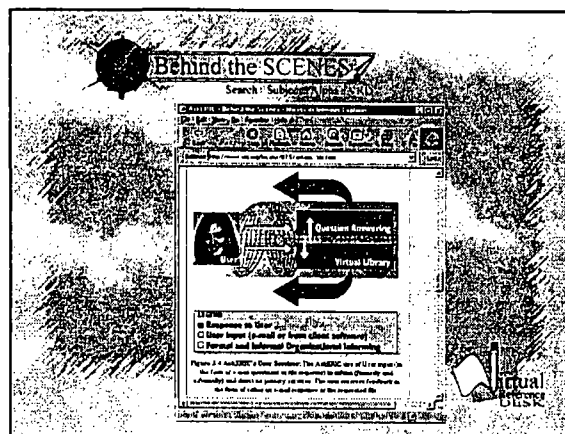
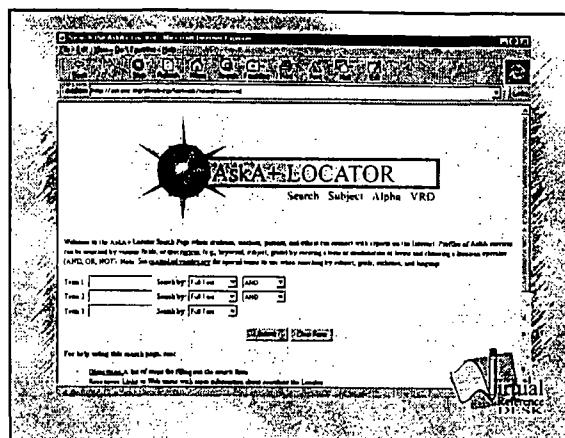
Functions of the Virtual Reference Desk

See Introduction for more details









Benefits of Participation

- Become Part of a Supportive Infrastructure
- Access to Digital Reference Software
- Training



Means of Participation

- Aska + Consortium
- Exchange of Letter of Understanding
- Display of Aska + Logo on Web Site
- Listserv Discussions



Means of Participation

- Resources
 - Information Mentors
 - Information for Research
 - Computing Resources
 - Funding
 - In-Kind

