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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

In the Matter of)	
)	
Price Cap Performance Review)	CC Docket 94-1
for Local Exchange Carriers)	

**REPLY COMMENTS OF
THE AMERICAN LIBRARY ASSOCIATION,
THE COUNCIL OF CHIEF STATE SCHOOL OFFICERS,
THE NATIONAL ASSOCIATION OF SECONDARY SCHOOL PRINCIPALS,
NATIONAL EDUCATION ASSOCIATION, AND
NATIONAL SCHOOL BOARDS ASSOCIATION**

Five national education and library organizations submit the following Reply Comments in the above referenced proceeding. Commenters represent their members in advocating solutions to the urgent need for classroom and school connections to the National Information Infrastructure ("NII") so that the promise of advanced telecommunications applications for education will be available to all students regardless of location or economic circumstance.

I. Background on Commenters

The American Library Association ("ALA") is a non-profit educational organization composed of librarians, library trustees, friends of libraries and others interested in the improvement of library and information services for the American people.

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The Council of Chief State School Officers ("CCSSO") is a nationwide, nonprofit organization composed of the 57 public officials who head the department of elementary and secondary education (and in some states other aspects of education) of the 50 states, five U.S. extra-state jurisdictions, the District of Columbia and the Department of Defense Schools. Its members are public officials who are either appointed by state boards or governors, or are elected to their responsibilities.

The National Association of Secondary School Principals ("NASPP") is the Nation's largest school leadership organization, representing more than 40,000 high school and middle level educators. Its membership includes principals, assistant principals, assistant superintendents, deans of students, and college and university professors. NASPP focuses on professional development programs to help school leaders become more proficient in serving America's middle level and high school students. The Association also promotes the interests of education in Congress; conducts research on issues critical to middle level and high schools; sponsors the National Association of Student Councils, the National Honor Society, and Partnerships International; and provides consultant services to members on such topics as instructional improvement, student government, urban education, etc.

The National Education Association ("NEA") has more than 2.1 million members, including elementary and secondary teachers, higher education faculty, educational support personnel, retired

educators, and students preparing to become teachers. NEA is the nation's largest professional employee organization.

The **National School Boards Association ("NSBA")** is a nationwide advocacy organization for public school governance. NSBA represents 95,000 elected and appointed school board members who govern 15,500 local school districts across the country. NSBA's mission is to foster excellence and equity in public elementary and secondary education through local school board leadership.

II. Developing the NII - Addressing the needs of educational institutions and libraries

A major plank of this Administration's policy platform has been the promotion and development of the NII. The NII has been described as a "network of networks" that will eventually connect Americans in all walks of life, allowing them to use a vast array of communications technologies and services to improve the quality of life. The Vice President clearly articulated a vision of the NII in a speech in January of this year when he said:

"We cannot tolerate -- nor in the long run can this nation afford -- a society in which some children become fully educated and others do not; in which some adults have access to training and lifetime education, and others do not. Nor can we permit geographic location to determine whether the information highway passes by your door."

The Vice President also has set a worthy goal of connecting every classroom, library and hospital to the NII by the year 2000.

At the same time, Congress has been taking a leadership role in promoting the NII and in reforming communications laws to

encourage its development. To this end, bills have been introduced in both the House and Senate to overhaul major portions of the Communications Act. The House and Senate Commerce Committees, along with the House Judiciary Committee, have held hearings on the legislation. It is quite possible that major communications reform legislation will be enacted by Congress this year.

As with the NII, education has been a key issue with both the Administration and Congress, as evidenced by the recent passage of the "Goals 2000: Educate America Act." Clearly, there is a strong linkage between the development of the NII and the improvement of the nation's K-12 education system. Secretary of Education Richard W. Riley recently testified before the Senate Committee on Commerce, Science and Transportation that NII "is an essential tool for achieving the National Education Goals." As many education experts, teachers and policy leaders have noted, including the President and key members of Congress, the NII promises to provide schools with the ability to tap into vast stores of information, get in touch with other classes and teachers to compare information, and share experiences and ideas more widely than has ever been possible before. It promises to open a true "window to the world" for the classroom and its students, providing a rich source of information and ideas that children can access no matter where their school is located.

A. Using regulatory incentives to benefit public policy

Ensuring that the NII is deployed as rapidly and widely as possible is, therefore, a key to improving our education system and

enhancing the learning process. The Administration has clearly articulated that it will be strong public-private partnerships that will largely create the NII. It has also, quite rightly, said that the government has a clear role in ensuring that policies are adopted that both stimulate private sector investment and ensure that the public sector (including schools and libraries) have a primary place in and can benefit from the NII.

Creative partnerships, based on effective public policies that set the stage for private investment, will be needed to make the NII a reality. The FCC has recognized the potential to leverage public policy to stimulate private investment in the NII in its current price caps proceeding. As the Commission said in its explanation of the purpose of the price caps proceeding:

"As a forum for considering further regulatory reform, the scheduled fourth year review of the LEC price cap plan could not be more timely. The basic purpose of this review will be to consider whether the plan should be revised to better serve the goals of the Communications Act and the public interest in the years ahead. . . .[M]any of the local links in this infrastructure will be provided by the price cap LECs. Revisions to the LEC price cap plan may help this infrastructure achieve its full potential."

We have reviewed the initial round of comments in this proceeding. We also have been participating in efforts in Congress to include language in the communications policy reform legislation to ensure that, as the NII is built, adequate investments are made to benefit educational institutions (especially K-12 schools and public libraries) so they are able to fully use the NII's capabilities. Other educational institutions should also be

considered, such as libraries designated as federal depository libraries (generally two in each Congressional district).

We believe that the current proceeding offers a unique opportunity to stimulate increased investment in technologies and services that will bring the benefits of the NII to schools and libraries more rapidly than otherwise would be the case. We do not believe this opportunity should be passed by, and we offer these comments to assist the Commission in shaping an appropriate policy to encourage investment in the NII for education.

Our review of initial comments indicates that incentives need to be created to stimulate increased investment by the large local exchange carriers ("LECs") in connecting schools and public libraries to the NII. The Comments of the Computer and Communications Industry Association's ("CCIA") contained one possible model for price caps reform that CCIA believes will stimulate LECs to invest in communications technology for education. CCIA's suggestion is to provide the LECs who agree to invest in the NII for education with fewer restrictions and more freedom to use the returns they make for investment. Under CCIA's proposal, the productivity offset, which is designed to limit price increases by incorporating the efficiencies the LECs have achieved into their price changes, would be set at two levels: one level based on traditional productivity for LECs in general and a lower level for those LECs that have agreed to invest in education.

We recommend that the Commission's current system of price cap regulation be reformed to provide these positive financial

incentives in order to encourage LEC investment in communications technology for education and libraries. We encourage the FCC to review current productivity and sharing provisions to ensure they allow the flexibility that is needed to encourage initiatives like this proposal to succeed.

B. Recommendation: An innovative education/industry partnership

We have looked into this issue in more depth over the last few weeks and have agreed on another suggestion. Specifically, we suggest that the FCC redirect the .05 percent Consumer Productivity Dividend ("CPD") that is now part of the annual access rate price cap formula to a program designed to benefit education and libraries.

As present, LECs are required to reduce prices each year by an amount equal to the CPD. The purpose was to ensure that consumers obtain larger price reductions than would have occurred in the absence of price cap regulation. However, the record is clear that this benefit has not materialized for most, if any, consumers. Residential and small business long distance rates, in fact, have been increasing the past two years according to the FCC's own analysis. At best, the "dividend" has disappeared down a regulatory black hole, leaving the vast majority of consumers without any noticeable benefit.

Under our proposal, there would be significant and clearly visible public interest benefits. We suggest that the 0.5 percent CPD not be included in the price cap rate calculation, but instead

be allocated to a special account against which the LECs would charge investments made in educational and library infrastructure in their telephone service territories. If at the end of a rate period the full 0.5 percent dividend amount has not been absorbed through infrastructure investments, it could be made available for use in the following year.

This system would work as a significant incentive for LECs to meet the urgent universal service needs of education and libraries to be effective users of the information super highway in the future. Each year, pursuant to plans developed in conjunction with local school and library boards and approved by the State public utility commissions, LECs would be entitled to a credit offset against the dividend account up to the total amount in the account each year.

If this proposal is adopted, participating LECs should be required to work with state and local education and library leaders and submit plans to the FCC for review and approval that outline how and where investments in education in each state would be made. The FCC should issue a supplemental notice of rulemaking to fully develop this proposal and ensure that a workable policy is adopted that considers such things as timeliness, how the credit bank would be managed and operated, and how contracts for projects under this program would be awarded (i.e. for wiring classrooms).

C. Joint decision making process for setting usage and site priorities

There are any number of education needs for which the proposed program could be helpful. Certainly wiring or connecting school classrooms and public libraries to the NII is a top priority and one of the areas where the program could be applied. In a few states or school regions, however, wiring is not a significant problem and in those cases, it might well be that new tariff structures or more equipment to connect to the NII would be more useful. These are examples of what the proposed program could be used for; and in the supplemental notice of rulemaking we have suggested, questions like these could be addressed. Attached to these Reply Comments is a brief description of the special telecommunications needs of education from the perspective of each of the present Commenters.

D. Considerations for including independent companies

We understand that price caps primarily affect only the larger LECs and not the hundreds of smaller LECs. We do believe the program we are suggesting needs to be adopted nationwide; however, the sovereignty of each small LEC not participating in price caps needs to be preserved, and they have to be accountable for their decision to participate and how to participate independent of any other company.

E. One part of the solution

We also recognize that our proposed program is only one step towards the goal of ensuring that education and libraries are

integral parts of the NII. The need is enormous. More decisive Congressional action, as well as other FCC proceedings such as the Universal Service review that will likely take place later this year, also contain elements that need to be considered as part of a strategy to ensure that education fully benefits from technological innovations.

F. Allow Cable Companies the same opportunity

We also are aware that other industries, such as the cable industry, are subject to oversight by the FCC. We understand that cable companies are subject to a form of regulation that is similar, in some respects, to the price caps system used to regulate LECs. We see no reason why these ideas would not be applicable to the cable industry, and we would certainly welcome investments in education and libraries from cable and other segments of the communications industry. If the FCC decides to adopt the proposal we have offered, we urge it to give serious consideration to implementing a similar system for cable companies.

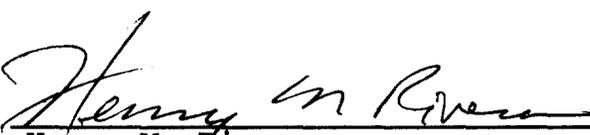
III. Conclusion

We are excited by the potential we believe is contained in the reforms we have outlined. We believe that if the FCC moves in the direction we are suggesting, it will confirm its leadership in promoting the NII. Further, we feel that the ideas we are suggesting are fully consistent with the intent of the communications legislation now moving through Congress, and we are

pleased that Congress has focused attention on the relationship of the NII to education.

Respectfully submitted,

THE AMERICAN LIBRARY ASSOCIATION,
THE COUNCIL OF CHIEF STATE SCHOOL
OFFICERS,
THE NATIONAL ASSOCIATION OF SECONDARY
SCHOOL PRINCIPALS,
NATIONAL EDUCATION ASSOCIATION, and
NATIONAL SCHOOL BOARDS ASSOCIATION

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THE LIBRARY MISSION AND NII INFRASTRUCTURE NEEDS

The American Library Association is a nonprofit educational organization of nearly 57,000 librarians, library educators, library trustees, and friends of libraries dedicated to the improvement of library and information services for all the American people. In recent (May 25, 1994) testimony before the Senate Committee on Commerce, Science and Transportation concerning telecommunications legislation, ALA identified the library mission, the library role in the NII, the barriers and costs libraries face, and gave examples of how the combination of libraries and technology changes lives.

The library mission -- to ensure public access to a diversity of information sources and viewpoints, regardless of a user's socioeconomic status or information seeking skills -- requires affordable access to a ubiquitous, interoperable, fully interactive, high-capacity, telecommunications and information infrastructure.

Libraries work in partnership with governments in support of educations and research, and serve as public access and assistance points for government information through the federal depository library program. Approximately 1,400 congressionally designated libraries throughout the United States have accepted the responsibility to make available free public access to the federal government information provided through the program. An increasing amount of government information is available in electronic formats.

BARRIERS TO LIBRARY ROLE

Significant new costs are involved if libraries are to make their fullest contribution. The costs involved include:

- Communications capability costs. Broadband service to rural areas presents the most difficulty since the current tariffs are distance dependent. Aggregation of school and library demand through cooperatives and networks could help share costs of high speed lines to rural nodes.

The Virginia Library and Information Network provides local calling access via ports on the midlevel backbone, VERnet, the Virginia Education and Research Network. VLIN access for libraries in rural areas in which local area dial-up to VERnet is not available has been supported by the installation of 14 toll-free 800 number lines connected to a central terminal server at the Virginia State Library.

The cost for rural libraries is definitely higher. A VERNET port cost approximately \$1,200 and represents a capital investment, while the 800 number access requires per-minute charges. The 800-service phone bill last November was approximately \$700; in March with these additional libraries connected, it was \$10,000. Use grows daily; three months ago VLIN averaged 180 logins per day, while logins on a recent day in mid-May were up to 440 by 6:15 p.m. The cost is approximately \$.18 per minute during business hours, and about \$.11 at night and on weekends.

- Equipment costs. Each library will need additional computers and associated equipment, as well as routers and other capabilities for network library facilities. The investment is at least a few thousand dollars for each station.

- Middle layer costs, such as technical support, development of easy-to-use access tools, servers for mounting library databases, etc.

- Information content costs, such as libraries purchasing or licensing use of commercial information services and databases for use by their campus or local communities. A subscription to a database can range from several dollars per hour to thousands of dollars for a site license.

- Training costs. Librarians and educators providing help to the public must be trained, and must help to train the public to use the new technology, the access tools, and to find and evaluate the best information solution in the sea of information option.

A recent study of a sample of public libraries conducted by Charles McClure and his colleagues for the U.S. National Commission on Libraries and Information Science found that 21 percent of public libraries have Internet/NII connections. However, only 12.8 percent provide public access terminals. Internet connectivity was 77 percent for public libraries serving a population base of more than one million, but declined to 13.3 percent for libraries serving less than 5,000. Telecommunications costs were the most important factor affecting public library involvement with the Internet/NII. The message from public libraries in the study to the federal government was clear; libraries must be provided with the basics first, such as equipment and continued support for connectivity charges. The full report will be released soon.

A pilot project in New York State, Project GAIN, used foundation and other funding to demonstrate that if rural librarians were given the tools and training to use networked information resources, they could do so effectively and improve the quality of service they offered their patrons. Very small libraries successfully demonstrated the effectiveness of linking rural communities, previously without access to networked

electronic information, to the rich and extensive global information environment of the Internet. However, with project funds ending, some of these libraries are struggling to continue to afford their electronic connection.

The cost of rural access is cited by librarians throughout the country as a major barrier, often because they must make a long-distance call to access a high-speed node. However, providing network access over a large city area is also extremely expensive. The Cleveland Public Library and its associated institutions (CLEVENET) have been using Internet connectivity to deliver information services directly to patrons since 1989. The CLEVENET system currently includes 18 public libraries in seven Northern Ohio counties, including urban, suburban, and rural populations. Ongoing telecommunications costs are the single greatest deterrent to the fullest use.

THE COMBINATION OF LIBRARIES AND TECHNOLOGY CHANGES LIVES

Library needs should be met, because electronic networking technology is a powerful stimulus to the already demonstrated ability of libraries to change lives for the better. ALA has been collecting anecdotes about how libraries change lives, and many of these involve the use of information technology through libraries. Here are just a few examples from ALA's campaign, from Project GAIN in New York, or from previous hearings:

- "At age 77 I was introduced to the computer housed at my public library...I love it!
- An unemployed woman learned computer skills through the local library computer club, and secured a job in the county purchasing department.
- A mother used a medical database on the library computer to locate several medical journal studies pertinent to her daughter's chronic ear condition. That information enabled the parents to discuss the situation with the doctor from a more knowledgeable viewpoint, giving them the confidence to not elect surgery.
- A homeless person, after learning to use computer and networked information resources at the Seattle Public Library, found a job at a local computer store.
- A teenage boy was roused from a coma using techniques his parents learned about in a library book located through an online library catalog.
- An adult literacy student, finding no support group on the Internet for new adult readers, started one and became an online mentor to others.

- A small, steel-town public library's workplace center equipped with online jobs databases and resume preparation help, enabled a user making a career change to find a job as a cable-TV station manager.

- During one week in April, the Emporia (Kansas) Public Library provided information to an investment group about opportunities in Puerto Rico, tracked state legislative action through an online database, helped 26 people find employment opportunities through a national job database, helped a paint manager find an executive search firm in Chicago to fill an opening in her company, helped a sixth grade student learn "everything he needed to know about dinosaurs", enabled a woman who has recently undergone surgery for breast cancer to obtain information about chemotherapy, assisted local governments with their information needs, and answered several hundred other questions. This is the information needed to make life decisions.

COUNCIL OF CHIEF STATE SCHOOL OFFICERS

Goals 2000: Educate America encourages states to develop technology plans as an integral part of their overall plan for systemic educational reform. The Council's records indicate that 38 states have at this time developed technology plans. Iowa already has an extensive and well developed operational program with 126 miles of fiber optics and a point of presence in all 99 counties. Other states are in the initial stages of development. CCSSO assumes that all states will eventually develop technology plans. However, a major limitation to full implementation of the President and Vice President's vision of a window on the world for all students through connection of all classrooms to the National Information Infrastructure by the year 2000 is costs. Cost for both the wiring of classrooms and the rate of service charges required after full installation of a broadband service.

Regardless of tight fiscal restraints, as a nation we cannot afford to fail to provide all learners everywhere with primary access to NII. It is imperative that all communities develop plans that include broadband telecommunications services and that service providers develop affordable and equitable educational rates. Such services are central to educational management, instruction, and assessment if all children are to achieve all that they can achieve and the nation is to meet the National Education Goals.

One step in a series of steps to make universal educational service available in all learning settings is the proposed use of the price cap regulation. The suggestions here develop a working arrangement between the private sector and the schools. This action should provide a strong incentive to the Local Exchange Carriers to invest in the education marketplace. The connection of the NII to classrooms is essential to the reaching of the National Education Goals.

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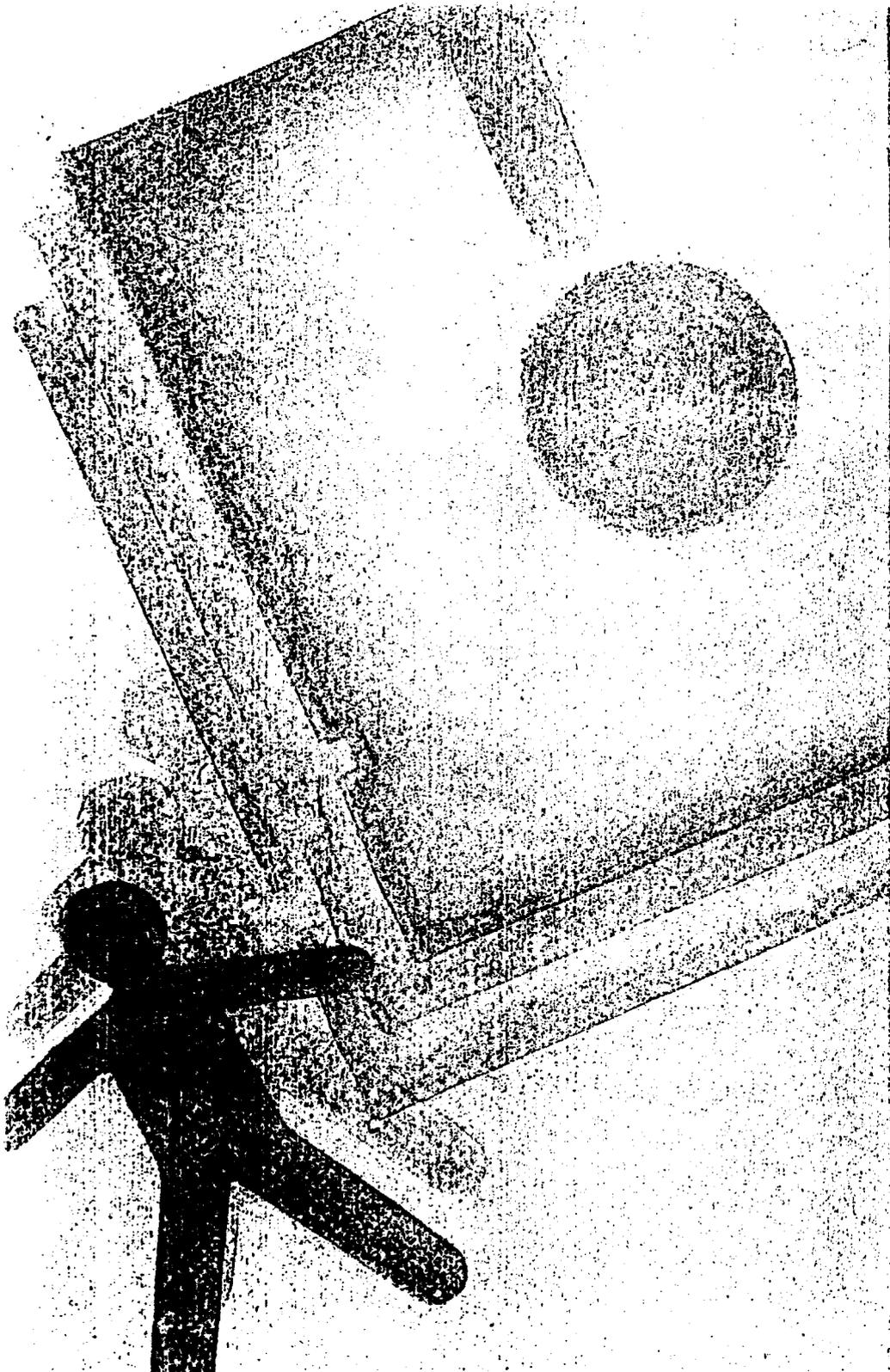
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NEA SPECIAL COMMITTEE REPORT



Technology And Change

The public schools of America of the late 1980s are in an era of change. Change is occurring in all forms and coming from all directions.

The student is changing. Family patterns are dramatically different from those of just a few years ago. The population is graying while young people become poorer, more heterogeneous, and more likely to be side-tracked by drugs, dropout problems, teenage pregnancy, and other social dysfunctions.

The teacher is changing. The typical teacher is acquiring higher levels of training and becoming more experienced. At the same time low pay and uninspiring working conditions are discouraging teachers and creating shortages in a growing number of areas.

The school structure is changing. Reform programs, innovative projects, and restructuring proposals abound. The education reform movement that began in the early 1980s surges on, but the direction is changing, from the early emphasis on top-down efforts to further standardize and regulate to more recent efforts to decentralize, individualize, and provide more flexibility.

The American economy is changing. The shift from an industrial to an information and service economy signals a profound need to reexamine the school curriculum and pedagogical methods. The analytical, collaborative, innovative, problem-solving American workers needed for

industry and business will require a different education from that required by an individual expected to do standardized routine work in a factory.

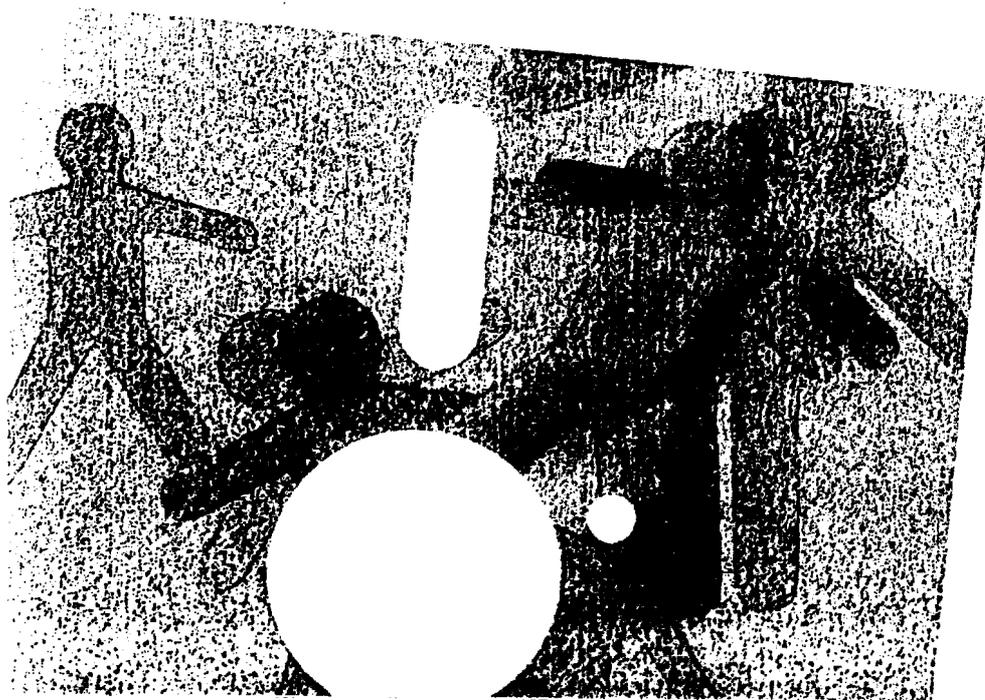
Some observers are advocating the expanded use of technological innovations as *the* method to respond to these many changes. While that may be too narrow a viewpoint, these changes provide an excellent opportunity to examine the potential benefits of integrating technology into the schools of America.

The 1987 National Education Association Representative Assembly approved the creation of the Special Committee on Educational Technology. In authorizing the committee, the Representative Assembly directed it to build on the work of the recently completed United Kingdom/United States project on microelectronics in education, technology projects of state affiliates, and various reports commissioned by the NEA and other organizations.

The specific charge given the committee was to review the status of technology in the public schools and make recommendations for appropriate NEA policy and programmatic activities.

The committee believes that computers, facsimile machines, multimedia technology, interactive video, telecommunications, hypermedia, and other technological advances can hold real promise for support and enrichment of classroom instruction and classroom management. *The committee shares the hope that when conceived and implemented appropriately, technological innovation can contribute significantly to the improvement of educational opportunity, to managing the increasing knowledge base, and to improving the quality of work life for school employees.*

General Principles



Restructured environment

Educators and other school employees have a unique need and opportunity to plan for the inevitable inclusion of technology in the American schools. *The committee believes that the integration of technology should be conceived in terms of a restructured school environment, not as piecemeal appendages grafted onto the current school structure and curriculum.* To the extent that resources are devoted to the research and development of the technology, similar efforts must also be devoted to matching the sophisticated technology with a sophisticated pedagogy and curriculum designed to educate Americans for the 21st century.

Indeed, the committee expresses the strong opinion that *the schools must focus the uses of technology not on more routinized standardization of the learning environment but on the opportunities to enrich instructional lessons, to individualize instructional objectives for students, to extend the shift from a centralized to a decentralized learning environment, and to support the teacher by easing the classroom management burden of reports and paperwork, thus allowing the teacher to spend more time with students.*

The teacher is central

The committee recognizes and confirms the important conclusion of the Office of Technology Assessment (OTA) in its recent report, *Power On!*,¹ that *the teacher is central to the full development of technology's use in the schools.* Technology cannot be an end in itself. The use of computers and other technologies should be seen as an integral part of the whole school curriculum, aiding and abetting the best instructional practices and curricular designs. If the implementation of the new technology is conceived improperly, one more passing fancy can be added to the unfulfilled promises of schools without walls, the discovery method, behavioral objectives, the new math, team teaching, TV courses, and many other discarded hopes for change.

¹ U.S. Congress, Office of Technology Assessment, *Power On! New Tools for Teaching and Learning*, OTA-SET-379, Washington, DC, September 1988.



Schools And Technology

Two separate and distinct visions of the future potential of technology permeate the literature. One vision sees technology's use as a substitute or remediation for workers. This vision is based on the assumption that high quality technology can be more efficient and probably less expensive than human capital.

Technology = value added

The other vision sees technology's use to enrich human capital. This "value-added" perspective visualizes using technology to expand the employees' scope in handling and sorting information, in allowing modeling and other creative scenario building, in relieving employees from reports and other administrative burdens, and in serving as a tool that expands their discretion rather than further simplifies their jobs.

One example of the value-added approach is referenced by a noted economist in a recent report for the NEA. The report states:

One of the key lessons to emerge from the General Motors-Toyota joint venture in California is that the Japanese automaker does not rely on automation and technology to replace workers in the plant. In fact, human workers still occupy the most critical jobs—those where judgment and evaluation are essential. Instead, Toyota uses technology to allow workers to focus on those important tasks where choices have to be made. Under this approach, technology gives workers the chance to use their imagination and their insight on behalf of the company.²

The committee embraces the value-added vision as the model for the expanded use of technology in education. As the OTA report notes, "Educational technologies are not self-implementing, and they do not replace the teacher."³ The acceptance of the value-added approach is the foundation for the general principles cited above.

² Robert B. Reich, *Education and the Next Economy*, National Education Association, Washington, DC, 1988, p. 16.

³ U.S. Congress, p. 16.

New teacher roles

The committee also recognizes that as schools utilize multiple technologies and restructure programs and curriculum, the roles of teachers and other educational personnel will change. The Christa McAuliffe Educators⁴ devoted significant time to the examination of the question, "What are the most appropriate roles of teachers as technology becomes more available and sophisticated?" The emerging roles identified by the Educators are as follows:

1. Collaborator—initiates and nurtures relationships that expand the boundaries of the classroom and shares knowledge with colleagues. A collaborator fully participates in establishing the standards and educational climate of the school.
2. Mentor/Mentee—teaches and learns from his/her students, community, and colleagues.
3. Planner—creates a vision of the future, develops methods to achieve that vision, and structures the learning environment.
4. Researcher—accesses, analyzes, and organizes information. A researcher guides students in understanding problem-solving strategies and developing discovery and learning skills.
5. Seeker—ventures outside of the classroom to import ideas and resources.

Indeed, the concept of restructured schools (where educational decisions are decentralized and shared, where programs are tailored to meet the individual educational needs of the student, and where the principles of collegiality, cooperative learning, and creativity are nurtured) fits hand-in-glove with the value-added approach to integration of technology into the schools.

The concept of a computer lab down the hall utilized by a few teachers just doesn't cut it any more. For example, the real concern of the schools is student writing

⁴ The Christa McAuliffe Institute for Educational Pioneering is designed to stimulate exploration by teachers into the state of the art and science of teaching. The Institute is a program of the National Foundation for the Improvement of Education created by the National Education Association. Each year five educators are selected to research and teach. The 1988 Educators focused on integrating technology into schools and the roles required of teachers.

skills, not word processing. The schools should not put the teacher into the electronic box. The technology can serve as a tool, a resource, a support, a supplement, an enrichment, but the teacher/student relationship is still at the heart of the process. In fact, the introduction of technology into education can enhance that relationship by creating new and additional options for learning and by giving time back to the teacher from the growing burden of nonteaching duties.

Long distance learning

One technology receiving considerable attention is the telecommunications technology of "long distance learning." This technology exemplifies the contrasting pedagogical choices.

Long distance learning has several distinct advantages when conceived and implemented appropriately. Long distance learning can broaden a classroom's horizons by channeling unique experiences from other sites through electronic field trips or live participation in historic or scientific events. It can provide opportunities for isolated rural areas to receive curricular offerings normally unavailable or impractical. Long distance learning can indeed serve as a resource, a supplement, and an enrichment.

The down side of the pedagogical choice is the option of replacing the personal student/teacher relationship with a teacher in the electronic box. An everyday replacement diet of this latter option will likely be limited by the practical problems of inflexible schedules, lack of attention to unique student needs in distant locations, and boredom from "talking heads" methodologies.

The crucial yardstick differentiating between the two choices is the availability of a licensed teacher in the receiving classroom to introduce the instructional material, monitor the presentation, answer questions of and interact with each student, evaluate the progress of the learning activity, and make adjustments for each student as necessary. Quality teaching is a matrix of professional decision making, which requires on-site attention.

The committee believes that *the Association and its affiliates should be involved in the planning, implementation, and evaluation of long distance learning proposals and programs to provide students the highest quality learning experience.*

The OTA report presents several findings of importance to understanding the relationship between teachers and technology.⁵ While most teachers report a desire to use technology in their teaching, only half of the nation's teachers report that they have used computers in instruction despite the presence of computers in almost all K-12 schools nationwide. The report comments, "Teachers are not the problem, and without them there can be no solution. Most teachers want to use technology, but few have found ways to exploit its full potential."

There are real and substantial reasons for the above circumstances. It is true that quality and technical problems exist, but of critical importance is the fact that schools are not doing enough to help teachers become familiar and comfortable with computers.⁶

To learn to play a piano, one must have an instrument personally available and quality time to practice. Using a computer is no different. The policies of priority placement of computers for student use and minimal training opportunities for teachers will not produce computer-using teachers. OTA reports that only about one-third of

⁵ U.S. Congress, pp. 87-88, 114.

⁶ Henry Kepner, "What Ever Happened to the Computer Revolution?", *NEA Today*, October 1988.

all K-12 teachers have had even 10 hours of computer training.⁷

One author described the lack of teacher access to computer technology as disrespectful. He stated, "Truth be known, almost all of us have so far been deeply disrespectful to teachers, in our failure to give them personal access to the developing microcomputer technology.... Increasingly, we expect to see computers on the desks of business people, scientists, engineers, doctors, lawyers, social scientists, writers, even some artists and composers. In short, we have come to expect computers on the desks of everyone outside of school who's most intensely involved in the literate activity that school is supposed to teach and promote. Yet we have not stood up and shouted that computers should also be on the desks of teachers, to use as their own personal machines."⁸

If the teacher is essential to the integration of the technological potential in education, the critical elements for the teacher are access, training, and time. The committee supports the following:

1. *All schools should develop and implement a plan to install a computer with adequate software on the desk of each teacher by 1991.* In addition to educational software the teacher may be using with students, the teacher should have access to a word processor, a database management program, and other productivity tools such as test creators, gradebooks, and worksheet generators. Only when teachers begin using computers on a personal basis will schools experience an upsurge in the use of technology.

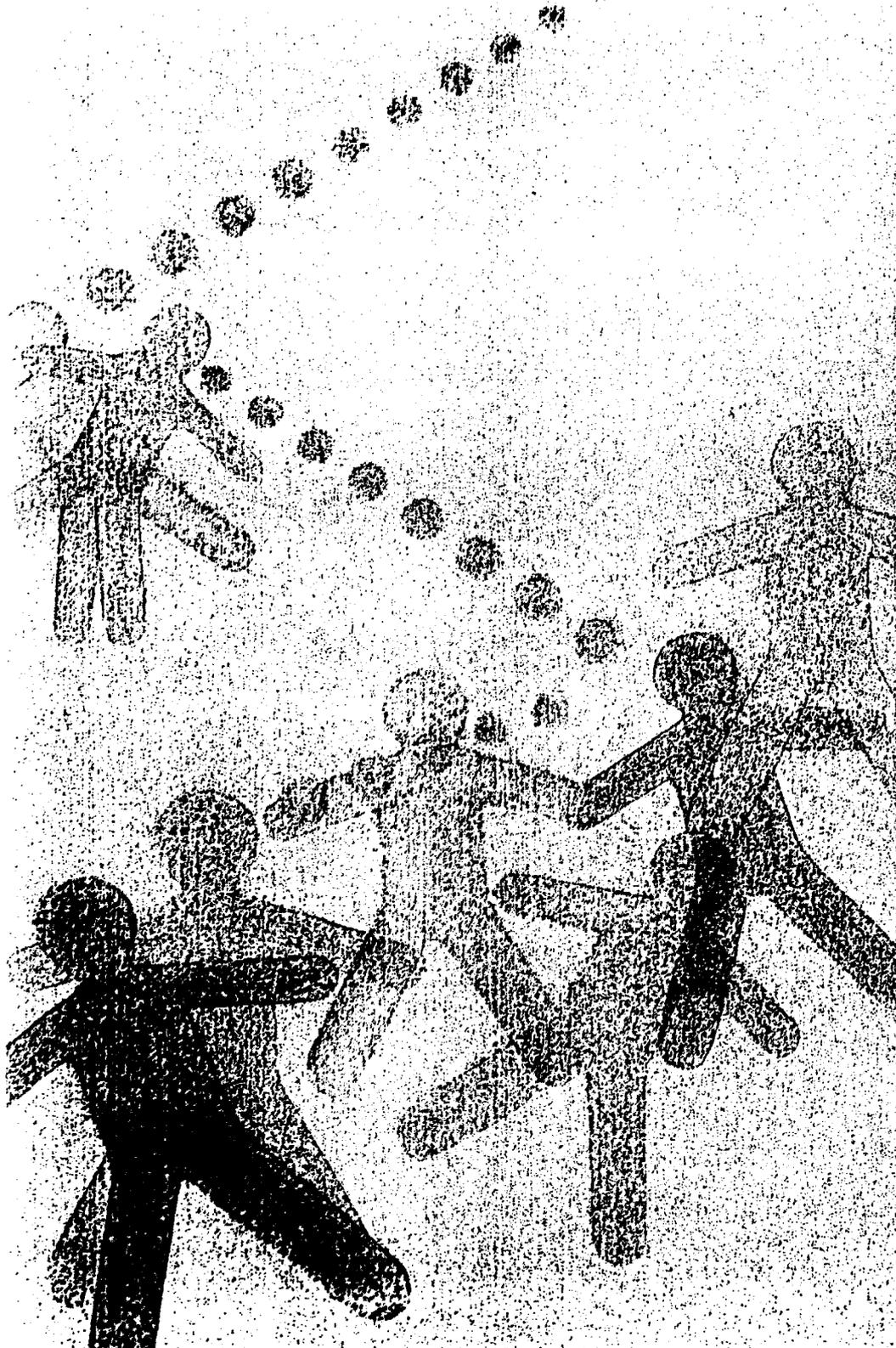
The committee visited a recently constructed high school where computers were installed on each teacher's classroom desk as well as in each academic department office, where all teachers had a private desk and study area. The computers were linked together on a network and also linked with the student computer labs. Every teacher had access from both the classroom and the office to all student work and records as well as a full menu of applications programs. While exceptional today, this configuration should become the norm.

⁷ U.S. Congress, p. 98.

⁸ David Grady, "Giving Teachers Their Due," *Phi Delta Kappan*, September 1988, p. 31.

2. *Classroom management software designed for teacher use to manage the instructional process (e.g., word processing, gradebooks, attendance records, test development, and so forth) should be made available for all teachers and be compatible throughout the school district.* Approximately 40 percent of a teacher's time is spent on nonteaching duties. In the 1986 NEA survey of K-12 teachers, the aspect of teaching with which teachers were most dissatisfied was the amount of time spent on recordkeeping and clerical duties.⁹ An unchallenged benefit of computers is the ability of the machine to handle routine clerical and administrative tasks. This function in education needs higher-priority attention.
3. *The school district and the teacher association should investigate options for teachers to have access to computers in their homes for training, development of instructional materials, and research purposes.* The options could include "take home privileges" and discounted purchase options with employer funding participation.
4. *Teacher-planned training opportunities must be provided for teachers. Practical, hands-on, and regular training in technological applications for learning and managing should be provided during school hours at the school's expense.* The training should focus on how to use technology to enhance instruction and personal productivity.
5. *Training in the use of technology to enhance instruction and professional productivity must be a part of the preparation of every entry-level teacher.* This expectation will necessitate major changes in the availability of curricular offerings and available hardware and software in colleges of education.
6. *Teachers should be provided encouragement, time, and resources to experiment with and research applications of technology, and to integrate technology into the curriculum.* The focus should be on helping teachers to make up their own recipes rather than following the cookbook. Experimentation and innovation are necessary in such a new and developing area of expertise and knowledge.

⁹ National Education Association, *Survey of NEA K-12 Teacher Members 1986*, Research Division, p. 12.



The 1988 NEA Representative Assembly charged the Committee on Educational Technology to study the feasibility of a computer network for NEA locals. This concept is parallel with the committee's thinking on the importance of increasing the collaboration and collegiality among teachers and other school personnel. The sharing of ideas and experience needs to be encouraged. Colleagues have much to learn from each other.

Bulletin board services

In fulfilling the charge, the committee reviewed several networking options. The NEA is already operating two long distance computer networks for NEA leaders and members.

The NEA Instruction and Professional Development (IPD) unit maintains a toll-free electronic bulletin board. The Bulletin Board Service (BBS) operates 24 hours a day. Services available on the BBS include messages, special conferences, bulletins from the NEA, and data files. Files on dozens of education reform issues and policies are available for downloading. Local leaders and members can use the IPD electronic bulletin board for communications and the sharing of ideas. The access number is 1-800-541-0816.

The NEA and the International Business Machines (IBM) Corporation recently established a joint project linking all of the NEA Mastery in Learning Schools together in an experimental computer network. The network also includes several research universities and the federally funded regional educational laboratories. The network is based on a new experimental IBM software package called "People Sharing Information NETWORK" (PSinet). PSinet has the technical capability of linking thousands of teachers together on an interconnected system based solely on microcomputers.

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Interlinked, nationwide networks

The committee encourages the continued utilization of the IPD Bulletin Board Service and believes it provides an immediate tool for teachers and Association leaders to communicate and share information with each other. Such dialogue is particularly critical because of the traditional isolation among teachers. The committee is also aware that other bulletin boards are being installed by several state and local associations and many school districts. That development should be encouraged.

The committee believes that *the NEA must commence the planning to create interlinked, nationwide interactive networks for teachers*. It is understandable that the full potential of such networks resides several years in the future, but basic development work needs to be done now. The empowering potential for teachers and other educational employees of such networks is worthy of Association advocacy.

There is still a great deal of anxiety expressed by educators about the integration of technology into the school environment. Technophobia is a real and flourishing malady. The committee believes that careful and deliberate planning can constructively advance the uses of technology to improve learning and teaching.

The committee has come to the following conclusions:

1. Understanding our mission is very important. One educator stated our central purpose very clearly. He said, "Will technology transform education? No. That transformation must take place first in education's true workplace—the minds of its decision-makers. It requires a shift in focus from what technology is or does to what it enables educators to do."¹⁰ *The planning focus should be on the individual educational needs of students and how educators meet those needs rather than on the technology.*
2. Educators and other school employees have a unique opportunity to plan for the inevitable inclusion of technology in the American schools. *Policy-makers should recognize the inherent value of full participation and collaboration by all involved parties in planning for technology integration into the schools.* Full involvement is valuable not only because it creates ownership but because it can help perfect the quality of the final result.
3. Resource planning has often focused on hardware needs only. *Resources for technology in education must be adequate to provide balanced support for staff development, software, hardware, and research into curriculum integration and development.* It is folly to think that the development of a sophisticated pedagogy to match and utilize the sophisticated technology will come into being without a major investment. The transition to technology-based learning and management will in the short run increase costs to schools. It is a falsehood to assume that the inte-

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¹⁰ Lewis A. Rhodes, "We Have Met The System—And It Is Us!", *Phi Delta Kappan*, September 1988, p. 30.