Edited by Patricia Cahape and Craig B. Howley

Indian Nations At Risk

Listening to the People

Summaries of Papers Commissioned by the Indian Nations At Risk Task Force of the U.S. Department of Education

Indian Nations at Risk: Listening to the People

SUMMARIES OF PAPERS COMMISSIONED BY THE INDIAN NATIONS AT RISK TASK FORCE OF THE U. S. DEPARTMENT OF EDUCATION

Edited by
Patricia Cahape and Craig B. Howley

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Clearinghouse on Rural Education and Small Schools

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SUMMARY OF PAPER 11.

Strategic Plans for Use of Modern Technology in the Education of American Indian and Alaska Native Students

Paul K. Berg and Jason Ohler

American schools are 19th-century, Industrial Revolution-era inventions, but the same technology used to spur industrial growth has worked to the detriment of American Indian and Alaska Native students. Schools were created along with industries, organized like industries, to train workers for an industrial society. The resultant large, low-context, industrial schools institutionally discriminate against Native students.

The American education model is also one based on reductionist scientific tenets established in the 18th century, which only label as "valid" information that is observable, quantifiable, and replicable. This dogma has imposed limitations, ignoring such ancient practices as acupuncture. Western science is a myth like any other and is antagonistic to Native students. The education system to which it gave rise has been disastrous for Native American students.

Industrial-age education standardizes people like factories standardize products. This process denies the cultural rights of Native people. But a new educational paradigm—a new way of viewing reality—is on the horizon. Although it is impossible to predict exactly what shape it will finally take, Native students probably will be better off with the new system. New tools, such as area computer networks, computer information systems, and multimedia have the potential to change schools.

New tools have been slower at transforming schools than other industries, partially because teachers are not trained in these systems. Schools also tend to resist change. When new technology is used, it is

usually as a new version of an old technique, such as computerized quizzes or worksheets. Development in education technology also has progressed more slowly than in other industries.

Schools are adopting some revolutionary new tools. Some school systems have established local area computer networks. By linking several microcomputers with a central computer that controls software and data flow, teachers can reduce the amount of disk storage space needed and the time spent loading and reloading programs. This also reduces the expense of buying numerous copies of software, provides rapid student access to encyclopedia, dictionary references, maps, images, important facts, and important literary works.

Some schools have found computer-managed instruction useful. Students have access to a central database of separate, sequenced skill mastery tasks and testing forms. Charleston, Villagomez, and Shaffer (1989) have established criteria to help educators evaluate instructional software for Native student use. Some educators have found that multimedia activities involving computers, text, sound, and visual information also help students learn.

Large-scale computer information systems help school officials track and evaluate large amounts of student data; such systems potentially could play a role in transforming Native education. One Chippewa-Cree tribal member and researcher believes using computers can resolve the chronic problem of undersampling Native American students.

At the village school of Kwethluk, educators started a pilot project during the 1989-90 school year to improve reading and math skills among students in grades two through eight. Students used 20 microcomputers linked to an interactive network, mice, color graphics, and calculators to learn and practice their skills. After the first year, the principal saw a mild increase in attendance, a 24 percent decrease in disciplinary referrals, a substantial increase in grade school reading skills, and a dramatic increase in math scores.

Distance education holds much promise for isolated Native populations. Distance education includes: correspondence education (exchanging files), computer networking (leaving and receiving messages from multiple others), radio, audio conferencing, TV (one-way and two-way), audio graphics, phone line technologies, and at home/stand-alone technologies. However, Natives need to seek out available and emerging technology and demand that educators receive training in its use to solve educational needs.

Conclusions

People worldwide are using computers and related technologies to maintain language and culture. Natives have been slow to benefit from the power of technology. However, we see evidence that this is beginning to change.

As part of the research, the authors contacted people from every major region of the United States. As they traveled via electronic mail, phone or mail, they came across indications that Native educators, organizations, and tribes are beginning to turn to technology to help meet challenges and solve problems.

The authors identified six basic reasons why Native groups are turning to technology-assisted solutions to address educational problems:

1. To gain skills to compete in mainstream culture.

2. To maintain traditional knowledge and/or blend it with a contemporary understanding of the world to create new knowledge.

3. To discover and strengthen Native identity within the tribe and within the broader world of Native culture.

4. To organize as a Native community, sometimes across tribal lines and over great geographical distance, in order to:
   a. provide more culturally relevant and informed education,
   b. share news and information relevant to Native concerns, and
   c. organize politically.

5. To share Native culture as an educational or artistic product.

6. To teach non-Natives about Native culture.

It comes as no surprise that the use of technology is increasing among Native educators and political leaders. Natives are a technological people. The technology of the Eskimo kayak is unsurpassed. Corn and potatoes, which are products of generations of selective planting by Native farmers, feed the world. Natives have also adopted technology as needed. The iron pot and trade goods contributed to the flowering of the Great Plains cultures during the 18th and 19th centuries.

Native education is at a turning point. The American education system, based on industrial technology, has inadequately served Native students. Computers and related technologies are creating a window of opportunity for Natives to seize the initiative. There is no one best way to use educational technology to improve the quality of Native education. The power of the technology rests in its varied capabilities to expand the learning experiences of students.

Technology can increase the depth and breadth of the educational experience and make Native culture accessible to students within a redefined school environment. If Native people seize the technological initiative, Native education can experience a new age of excellence.

The transformation that the authors perceive is not inevitable. In the absence of organized and concerted efforts to direct educational change, information-age technologies may be used to promote the outdated assumptions, curricula, and methodologies of industrial schooling. Native direction of the development and implementation of educational technology is essential.

Underlying the transformation of education is a redefinition of freedom to include the cultural rights of Native people. No individual, agency, education system, or government has the authority to deny Native people the right to live according to their own cultural direction. Technology can be a powerful tool to help ensure this freedom.

Recommendations

A window of opportunity exists. Natives must seize the technological initiative to advance the cause of cultural rights and Native education. The authors recommend the following to achieve these goals:

1. Native parents should form parent advocacy groups to advocate access to cultural resources for Native students. School systems serving Native students should be encouraged to make use of educational technology, especially multimedia, to provide access to Native cultural resources.

2. School systems serving Native students should integrate computer training within the context of the total school curriculum. Students should actively use computers and related technologies as tools for exploring and creating.

3. Natives should take the lead in teaching non-Natives about Native culture. A potential area of development lies in Native-created courseware for non-Native and Native communities via distance delivery means. Native educators should influence publishers to include the Native perspective in textbooks. At the University of Calgary, an effort is underway to rewrite science books to include a more holistic perspective of indigenous cultures. Television, computer software, laserdisc, and distance delivery are means of sharing the Native cultural perspective with non-Natives.

4. Native organizations, school systems serving Native students, state departments of education, and the federal government should make a concerted effort to develop culturally relevant software for Native students. There is a lack of culture-based instructional material available for computers and multimedia instructional systems. Consideration should be given to developing materials for specific Native tribes and nations.

5. Natives should make increased use of computer networking as a vehicle for organizing as a social and political voice and share information among the geographically dispersed Native community. Computer networking can be a powerful tool for organizing to influence the politics of education.

6. Native organizations, in partnership with the federal government, should establish a National Native Education Institute. The Institute should include research, materials development, and training staff to provide the following services to educational institutions that serve Native students:

   a. Conduct research and identify effective educational strategies for Native students. Particular attention would be paid to educational strategies that involve the use of computers and related technologies.

   b. Develop instructional materials—print, computer software, and video format.

   c. Provide training and training materials to educational institutions that serve Native students.

   d. Disseminate information to focus national attention on the educational needs of Native students.

e. Establish a national Native Education Computer Network to serve as a communication link and information source for educators and students.

The creation of a national institute requires a national commitment at the policymaking level. This level of commitment is necessary to achieve results.

—Summary by Dawn Miller

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