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ABSTRACT

Computer assisted instruction programs for adult literacy are becoming more prevalent in learning centers, community organizations, and in schools across the country. Computers are also being used to curb illiteracy at the source, in elementary and secondary schools, in an effort to reduce dropout rates. Two IBM (International Business Machines) literacy software programs have been particularly successful in providing literacy education for both children and adults. The "Writing to Read" program is designed to teach the basic skills of reading and writing to kindergartners and first graders, and the "Principle of the Alphabet Literacy System" (PALS) interactive videodisc program is aimed at functionally illiterate adolescents and adults. Both programs are phonetically based and offer multimedia instructional experiences through the use of computer graphics and programmed audio instruction. A Spanish language version of 'Writing to Read" called VALE (Voy A Leer Escribiendo), has proven equally effective in teaching Hispanic children how to read and write in their native language. Students are engaged in independent study and proceed as quickly as their understanding allows. Effective computer software can restore the excitement of learning as well as upgrade the work force through literacy training. (13 references) (DB)

LITERACY TODAY: A REALTIME TECHNOLOGY TRANSFORMATION

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Literacy Today:

A REAL-TIME TECHNOLOGY TRANSFORMATION

"What sculpture is to a block of marble, education is to the human soul. The philosopher, the saint, the hero, the wise and the good or great...very often lie hidden and concealed in an unfortunate soul, which a proper education might have disinterred and brought to light".... Joseph Addison

At a Washington, D. C. elementary school, principal William Dalton reads from a paper of a first grader who has learned to read and write, using a computer.

The brief story describes the child's glimpse of President George Bush, "in his black limousine."

The principal is asked whether or not computers are really helping young children learn to read and write.

"Well," he replies," limousine is not exactly your typical first-grade word."[1]

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A Cincinnati man in his mid-fifties never travelled alone when driving outside of the city.

His fear: Due to his inability to read, he could not decipher road signs and was terribly afraid of getting lost.

Another middle-aged man was forced to take his young children with him to shop for food at the supermarket, relying on the children to read food labels because he could not.

After a few short weeks in a computer-supported literacy training program, both men were reading and discovering a new sense of achievement, confidence and self-worth.[2]

Computers Role in Literacy Growing

Computer-based adult literacy systems are being used with increasing frequency in learning centers, community organizations and in schools across the country -- helping functionally illiterate adolescents and adults learn to read and write.

For the adolescent or adult learner who is able to read for the first time, the comments are strikingly similar:

"I feel good about myself..."

"I don't feel like I'm a dummy anymore."

"I feel whole again."

"Now that I can read, I feel confident about going out and applying for a decent job."

"For the first time, I was able to go into a store and buy my wife a greeting card and know what it said."

"I can now read to my grandchildren."

"I feel like I'm starting my life all over again..."[3]

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Attacking Literacy at The Source

In efforts designed to curb illiteracy at the source, young children also are taking their first steps in language skills with the help of computers.

"Classroom technology," says IBM's Jim Dezell,"is enabling educators to attack illiteracy at both ends of the spectrum -- from kindergartners and first-graders to dropouts and the under-achievers who are marking time in the educational process."

Dezell, general manager of IBM's Educational Systems and a former teacher, feels the dropout rate -- not the federal deficit nor the trade imbalance -- is the number one problem facing our country today.

"If we look behind the statistics," he contends," we find that students drop out mentally when they don't learn to read in the first grade. Gradually, they become disillusioned and disenfranchised from the learning process."

Nationally, 29 percent of students -- or nearly one out of three -- is dropping out of school. In some major metropolitan areas, the rate is more than 50 percent, and in some schools, it exceeds 75 percent.[4]

This problem translates to rising crime rates, unemployment, an increased tax load to support mounting welfare programs, growing prison populations and most critically -- a drop in the skills level of the nation's workforce.

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A recent independent study revealed that 70 percent of the reading material used for a cross-section of jobs across the country requires a reading level of 9th grade or higher.[5]

Yet, an estimated 23 million of the nation's workers (20 percent) read at no better than an eighth grade level.

More and more businesses are reporting difficulties finding qualified applicants. At New York Telephone Company, only 20 percent of those taking an operator's test actually pass.[6]

Using Business Tools in Education

If this situation is to be reversed, educators feel, innovative and dramatic new approaches must be taken in the nation's schools, including more extensive use of technology.

Technology has long been a common staple in American business and it has the same potential to make substantial contributions to American education, they say.

Barbara Conkle, project specialist with the Baron River (KY) Area Development District, recently said that "if people who are out of work today don't have a good basic education, they cannot find a job."

"Furthermore, they cannot even be retrained until those basic skills are brought up to a level at which they can be prepared for a high-technology job".

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Dezell says that technology represents a dramatic resource for re-energizing the educational process --- changing the classroom experience from instruction to discovery.

"Teachers today have the opportunity to become knowledge enablers or knowledge engineers -- specialists on how people interact with knowledge."

Dezell's enthusiasm for the potential of technology stems from the success of two major IBM literacy software programs, "Writing to Read" and "PALS".

"Writing to Read Works"

IBM's "Writing to Read" program is designed to teach reading and writing to kindergartners and first graders.

It was introduced in 1984 and has become widely accepted, with more than half a million children enrolled in Writing to Read this fall.

The Educational Testing Service (ETS) evaluated test results for thousands of children who completed the Writing to Read program. Their conclusion: Writing to Read is an effective program that works.

Test results show kindergartners reading at second and third grade levels upon completing the Writing to Read program.

Dr. Mindy Long, director of a Writing to Read program in Dekalb County (Atlanta) schools says that the program has had a very positive effect on children in that school system.

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"From the minute the kids hit the school grounds, they have a really successful experience; it does a lot for their self confidence," she says.

At present, some 50 of Dekalb county's 76 schools have Writing to Read labs, and the remainder will be added to the system by the end of the 1989 school year.

"Writing to Read also is allowing our teachers to become teachers again, freeing them from the mundane, repetitive tasks that do not contribute to the learning process," Dr. Long says.

Test results show that inner-city children can learn as well as suburban children, poor children as well as rich children and boys as well as girls, when given consistent instructional exposure.

Help for Hispanic Children

A Spanish language version of Writing to Read, called VALE (Voy A Leer Escribiendo), has proven equally effective in teaching hispanic children how to read and write in their native language.

This develops the self confidence necessary to take advantage of their educational opportunities.

Dr. Philip Grignon is superintendent of the South Bay (CA) Union School District which operates 12 VALE labs.

"If you tell children to forget their vocabulary and start to learn another," he says,"their learning curve flattens out and declines for a while.

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IBM's PALS Program

IBM's PALS (Principle of the Alphabet Literacy System), was introduced in 1936 and is aimed at functionally illiterate adolescents and adults. The PALS program is in use in many labs across the country.

Each lab is capable of handling students up to 16 hours a day.

The PALS program consists of 20 weeks of instruction, one-hour-a-day, five days a week. On average, students increase reading and writing skills by two to three grade levels after only 20 weeks.

Of equal importance, post-training evaluation shows significant increases in student self-confidence and self-esteem. And class attendance remained very high for students with histories of attendance problems.

The PALS program, which is geared to individuals with reading levels below the sixth grade level, utilizes motion picture quality graphics, and relies heavily on word symbols and pictures for its messages.

PALS employs an interactive videodisc system called IBM InfoWindow. The system's touch-screen technology permits limited-skill users to interact with the computer by touching its screen in response to prompting symbols.

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Computers Make A Difference

Orangeburg (SC) School District # 5, a district with 76 percent of its students involved in the free lunch program, credits computer assisted instruction at all grade levels for a dramatic reduction in the dropout rate.

From 1984 to 1985, Orangeburg's dropout rate among its at-risk students fell from 8.5 to 2.5 percent.

Included in the schools district's computer labs are the Writing to Read program for elementary students and the PALS program for students in secondary grades.

Dr. James Wilsford, superintendent, says that "data from the labs shows that after we added computerized remedial programs in 1987, test scores in reading increased 9.07 percent, and math scores increased 13.8 percent, based on Normal Curve Equivalent Gain."

"And the higher the test scores, the lower the drop-out rate," Dr. Wilsford says.

This assessment of technology's contribution to education is shared by Dr. Bruce Newlin, superintendent of Norwalk-La Mirada Unified Schools in California.

Dr. Newlin's school system also utilizes both the Writing to Read and PALS programs.

"The most important thing we're doing is something that won't pay off for a while," he says. "Because the students who are potential dropouts are identifiable in the first, second and third grade. That's where our efforts are directed."

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Programs Based on Research

Both Writing to Read and PALS were developed by noted educator Dr. John Henry Martin.

In developing the programs, Dr. Martin capitalized on his many years as a teacher and school superintendent, as well as extensive research into how children and adults learn.

Both Writing to Read and PALS are phonetically-based and teach students the relationships between sounds and letters, letters and words and ultimately, how to arrange words into sentences.

Both programs offer multi-media learning experiences, through the use of a computer graphics, programmed audio instruction and hands-on drill-and-practice.

Both programs also allow the student to proceed at their own pace and to repeat as often as necessary for greater comprehension.

"This feature," Dr. Martin says,"removes the pressure and intimidation from the learning process, since students are not singled out when they don't understand."

"Technology does not apply pressures -- people do," he adds.

Program visualization and system interaction also add the elements of fun and interest.

Software is Key Ingredient

According to Dr. Martin, effective computer software is the key to continued success of computers in the classroom.

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"If we don't provide teachers with powerful new tools and technology for instructional assistance, we'll stay where we are academically," Martin says.

Referring to the reluctance of some educational systems to integrate technology into the classroom, Martin feels that too many teachers are using the same techniques today that were used 50 years ago.

"About 19 out of every 20 public schools in the U.S. have at least one computer for instructional purposes. But that doesn't mean they're being used properly -- or used at all," Dr. Martin says.

"To make technology work in the classroom, it isn't enough to build a better piano. You've got to have better composers writing better music," he says.

"This is both an opportunity and a challenge for future developers of software," he adds.

"There have been many technologies before that were heralded as a panacea for schools," he says.

"At the turn of the century, Edison wrote that his motion picture machines would eliminate the need for books. Sarnoff thought radio would be a beacon for radical changes in schooling."

"The Ford Foundation spent millions advocating television as a transformer of teaching. And typewriters were later seen to be the answer for transforming the classroom."

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"Today's computers combine the best features of all of those mediums, in a powerful and versatile learning tool," he says.

Consistent Quality Important

Nationally recognized educator, Dr. Kenneth Clark, feels that today's educational institutions can be the antidote to many of the socio-economic problems facing society.[11]

But the instructional standards must be consistent across socio-economic boundaries for the process to be effective, he says.

Computer technology meets that requirement, as well.

With programs such as Writing to Read and PALS, computers deliver consistently high quality instruction that's based on proven educational principles.

In this environment, the teacher becomes a manager of the learning process and can more effectively administer to the needs of both the gifted student and the slow learner.

In addition, computers never experience fatigue, loss of patience or other human shortcomings that detract from the quality of classroom instruction.

Multi-Media Environments

"Computers," adds Dezell," are creating media-rich environments in the classroom not possible just a few years ago.

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"A new generation of young people is growing up in an electronically configured world, a world where communications devices convey information and culture in ways that are fundamentally different from only a few years ago.

"It's a world in which young people feel very comfortable. Computer technology is a fundamental component of this high technology world -- a component that can be effectively utilized on behalf of our educational institutions.

"It is now time to harness, redirect and leverage that technology," Dezell says,"to play a central role in restructuring American education.

"We must use this new power to help restore learning to an exciting end in itself and to equip America's teachers with the cultural tools of the 21st century.[12]

In a recent speech, Dr. Arnold Packer -- senior research fellow at the Hudson Institute -- urged the commitment of monies to upgrade the quality of our work force through literacy training.

"The U.S. must upgrade the skills level (and literacy) of its workforce to compete for goods and services in the world marketplace and to avoid its own demographic time bomb."[13]

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13.

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