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SCHOLASTIC'S MAGAZINE FOR EDUCATORS OF THE 80'S

# ELECTRONIC LEARNING

Eight Objectives  
in Educational Computing

## Eight Model Schools

*An End-of-the-Year Report*

**INSIDE:** How to Get Your  
Computer Articles and  
Software Published



# PROGRAMMING

## A COMPUTER LAB THAT PRODUCES PROFESSIONAL PROGRAMMERS

**I**T'S 6:15 A.M. SCHOOL WON'T start for another couple of hours, but Denver's George Washington High computer lab is already buzzing with activity.

Through the course of the day students will visit this "Shared Resource Laboratory" to work on programming projects, to do math assignments, or to use a word processing program. Some of them will be working on more than their regular school work. Under the tutelage of lab supervisor Dr. Irwin Hoffman, a number of George Washington students are becoming expert programmers—on a professional level—by writing educational programs of their own.

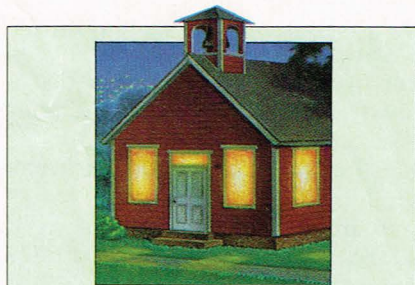
Ever since the George Washington lab opened in the mid 1970's, Hoffman's expressed aim has been to give all students in all subjects access to its technology. And whenever the software needed to accomplish that goal hasn't existed, he's invented it—supported by a parade of capable, hard-working student programmers.

### A SCHOOL OF CONTRIBUTORS

That is not to say that Hoffman's plans have all been carried through by a small circle of programmers. As his curriculum-development projects have flourished, more and more of the George Washington High faculty and students have gotten involved in the lab, and are coming up with curriculum ideas of their own. Already, teachers in math, business, special ed, and bilingual education use the lab on a regular basis, and up to 500 students (approximately one-third of the student body) may pass through the lab on any given day.

The projects themselves range widely over the curriculum. One set of students, for example, is using a graphics tablet to digitize a map of Africa. The students hope to develop a generic program that will outline virtually anything that can be mapped—a continent, a country, or even the human body—and will randomly pinpoint locations for users to identify.

Hoffman's most ambitious project, however, has its roots in the computer lab, where he teaches programming. He was having trouble getting some concepts about BASIC across to some Russian students, and he saw possibilities for implementing the computer in the bilingual de-



### George Washington High School, Denver, CO

**Participants:** 500 students

**Equipment:** 53 computers

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partment. The result: the LIRIC (Language Instruction for Recent Immigrants Through Computer Technology) Project—a three-year collaborative effort to develop English as a Second Language (ESL) software.

### THE LIRIC PROJECT

With funding from a federal Title VII

topics, from occupations to road signs to prepositional phrases. Users work through each program in a particular language version (identifying, for example, road signs pictured in English). If they get stuck at any point, all they need to do to get a translation is push the escape key.

The development of these programs depended upon contributions from all corners of the school. By the time the series was complete, Hoffman says, between 18 and 20 programming students, several foreign-language instructors, two computer lab technicians, and a couple of art students had all contributed their expertise. They had to solve a range of fairly complex problems; redesigning the character generator for instance, since there were no Vietnamese and Lao character sets available. One student designed a sophisticated management system that records not only the number of right and wrong answers, but the number of times a student flips screens for assistance, and distinguishes between typing and other errors.



*George Washington High student Steve Cohen helped design the LIRIC series.*

grant, the LIRIC Project was designed to produce a 40-some program series with versions in the four non-English languages most prevalent in Denver schools: Spanish, Vietnamese, Lao, and Hmong (a Laotian hill tribe dialect).

The series covers an assortment of

This year, the series is being piloted in Denver high schools. So far feedback has been positive, Hoffman says. He is now at work—during those rare moments when his computer lab isn't "buzzing"—on a contract for national distribution of the programs.