From IBM Mainframe to iPhones

In 1967, when I was an undergraduate at the University of California, Riverside, my advisor encouraged me to take a computer course. But computer-science courses were in their infancy, so that I ended in a tedious class focused on learning how to write computer programs using Fortran. After mapping-out steps that would allow a mainframe computer to process a data set, I would go to a key-punch machine and prepare seemly endless cards with small rectangular holes in them. I was preparing a series of such cards at a key-punch typewriter when I began talking to a computer major sitting next to me:

"You know, we'll no longer have to punch these cards in the future. We'll actually get a part of the computer itself to work with," he said matter-of-factually.

I had no idea what he meant. How could I possibly have "part of the computer" for my own personal use? Afterall, that mainframe

Students in computer class using IBM 026 keypunch machines with the printer and mainframe behind the glass window (ca. 1970). Reproduced by permission, Arizona Memory Project.

in the basement of Watkins Hall was a gigantic machine that only functioned if it was fed punched cards in a program it understood.

It was not until 1986 that I went to the University of Maryland computer store to buy my own computer—the new Macintosh Plus M0001A. And by then "having part of the computer for personal use" had become a reality.

But my use of technology in classes that I was teaching began much earlier—before the personal computer, in totally different media—when I accepted a job as an English teacher at the German School in 1982.

In those early days, record players were the major source for aural instruction in the classroom. In fact, the German School *Aktenbuch* from the 1960s mentions that the faculty rejected buying a television—although it had "educational programing"—in favor of a record player. In many ways, I also favored the record player when I joined the faculty because it focused students' attention on the spoken word, sparking their imagination without the distraction of a screen. Even in 2000s, I would create quite a bit of commotion in the classroom when I carried in a large record player with its detachable speakers. Students always offered to help me set up the speakers, and some marveled at the 33 ½ long playing records, saying: "That's the biggest CD I've ever seen." So we listened and followed along with the printed text as Hurd Hatfield, a master storyteller, began reading Washington Irving's "Rip van Winkle": "Whoever has made a voyage up the Hudson must remember the Kaatskill mountains . . . ".

Through a grant from the Maryland State Department of Education, the DSW had Califone record-players (turntables) with three speeds (33 ½, 45, 78 rpm), detachable stereo speakers, and tone quality adjustments knobs.

The performer modulated his voice to give each character a distinct personality and poignantly cried out in despair, when Rip fears to have lost his identity: "Does nobody here know Rip Van Winkle?"

Although the School had educational filmstrips and projectors available, I soon learned that the Montgomery County School System had a film library. This was great. I would order the films that I wanted and drive to Rockville to pick-up the reels of film in those metal canisters. With some help, I set up the projector in the auditorium. And usually things went well. However, one time the film was not properly threaded into the take-up reel and started to spool onto the steps of the auditorium. As the students watched, I hastily attempted to stop the projector like some character in a Charlie Chaplin film.

And I was able to re-spool the film by hand and saved not only the film but also my reputation. I always enjoyed showing my ninth graders the 1946 black-and-white version of *Great Expectations*, directed by David Lean. And, if we had some extra time, the class insisted that I play the end of film backwards, giving a totally new twist to the plot: Pip did not come together with Estella, but separated himself from her. He did not open the curtains to let sunlight into Miss Havisham's rooms, but closed them, bringing darkness to her life. In a way, it was an interesting lesson in plot development and added an additional third ending to Dickens's original two.

Over the years, the School's technology advanced from film to televisions with cassette players. Teachers signed-up for a TV trolley with a television set and a video player (either the European PAL or the American NTSC version), which they rolled into the classrooms. Many a time, teachers made deals among each other and with Mrs. Sieg or Mr. Thommes, the keepers of the trolleys in the library, about who would get what trolley.
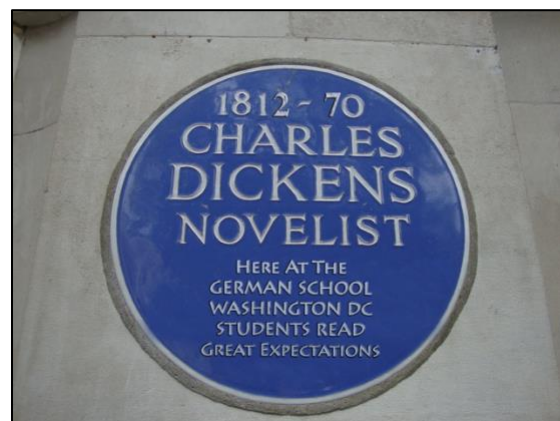
GISW auditorium sign during the 200th Anniversary of Charles Dickens's birthday. Such blue plaques are common in the United Kingdom, marking a connection between a place and a famous person, event, or structure.

Gabriele Sieg, DSW librarian from 1976 to 2001 with one of the TV trolleys. Photo: 1990.

Later, one of my favorite additions in viewing movies was the DVD player attached to a screen projector. Many a time, I showed movies to sixth- and seventh-graders in the science lecture room (*Hörsaal*). Those showings went well, if I could get the DVD player to communicate with the projector on the ceiling. And the younger students enjoyed following the awkward adolescents in the movie *Frog* played by Shelley Duvall and Scott Grimes. But a real cinematic experience occurred when we were able to project movies in the auditorium, making Shakespeare's *Macbeth* and Wilder's *Our Town* come to the big screen.

In 1988, thanks to a "Chapter II" grant from Montgomery County Public Schools Instructional Resources, the DSW library received two computers for library cataloguing use. By the early 1990s, the School had numerous "MacIntosh PCs" in the library and in a computer room where students learned about word processing, spread sheets, and data bases, "on the best personal computer available at the moment."

By 2000, computers had become much more sophisticated, and students were able to create more than just spreadsheets or to do word processing. In fact, Uwe Hinxlage, a biology teacher, Jochen Mäusle, a computer and math teacher, and I worked with our tenth graders to create multimedia projects bridging the humanities and the sciences: After a visit to the National Zoo, our students were asked to write an impression of their visit and a poem inspired by some larger issue. For example, are animals aware of their captivity? Are zoos obsolete? Why do certain animals have "bad reputations"? Individual students created a main page or hub with German and English documents, linking them to secondary information, to readings of the poem, to photographs, and to video clips. Students also created links between words in their poems or impressions and other relevant information. For example, one
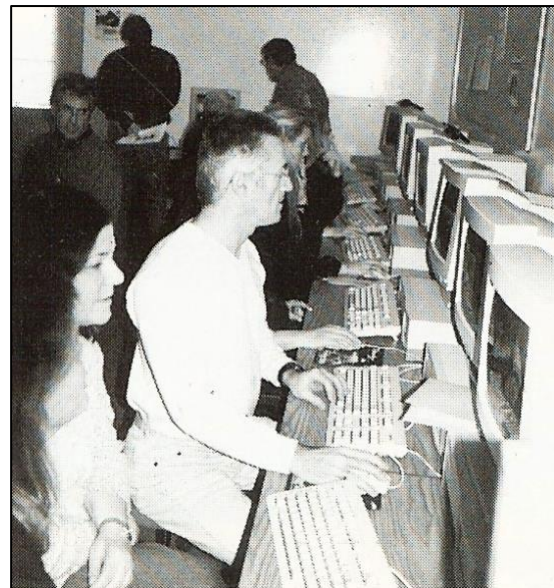
DSW teachers work in the computer room during in-service training (2000).

student linked the word *bat* with another electronic page that she had created about the popularity of Batman and the role of this hero in popular culture. Another project began with a picture of the water tank containing amphibians. The accompanying poem dealt with turtles that swam upward along the glass wall of their enclosure: ". . . with their webbed feet, their armored backs, / their halo eyes, / striving to reach something: / An eternal struggle to escape." I had also written a poem about the rhino Chitwan and tied it to reports and pictures about poaching and slaughter of rhinos in the wild. We later presented these projects at an in-service for the faculty entitled "Student-Constructed Hyper-Media." And I was especially pleased that my report on this project was published in a teaching journal ("Electronic Poetry: Student-Constructed Hypermedia," *English Journal* 90:2, November 2000).


Winfried Barthen and Peter Dreher during the 2000 "Computers in the Classroom" in-service.

Clearly the use of computers as a learning tool at the DSW had made tremendous steps forward.

In 2008, inspired by Tim O'Brien's anti-war novel *The Things They Carried* (1990), I assigned my eleventh graders to write about the things they carried. One of my students described how essential his brand-new iPhone was to him—something he carried all the time. Although cell phones were already in wide use, the costly iPhone made it possible to have a small computer in one's pocket and school bag. And regulating the use of cell phones in the classroom was not yet a problem, instead we all admired this new inovation.
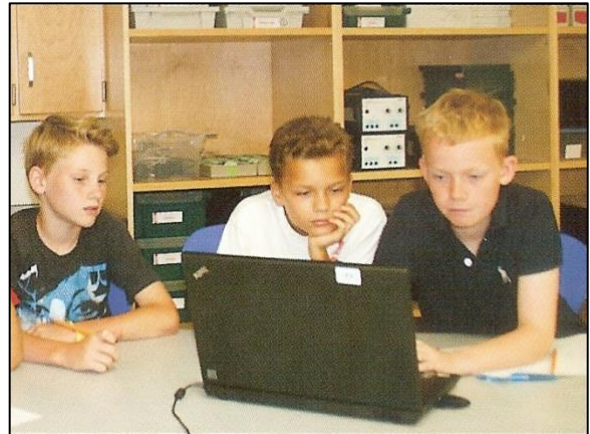
GISW students using a laptop to complete their assignments.

The next step forward was the introduction of labtops. And with the advent of high-speed internet access, the computer became an essential part of classroom learning. After a transition period when teachers and administrators questioned to what extent computers, cell phones, and ipads should be allowed in the classroom, a sensible policy governing modern media in the classroom was established at the GISW.

In fact, I just read in the *GISW Wednesday Newsletter* that students will again start the new school year with a BYOD policy (Bring Your Own Device), which has been in place for several years, and is mandatory from grade 7. All students in grade 7 and above should bring their own laptop to class.

Since my retirement, 5 years ago, I have been doing quite a bit of research on early alpinism and the role of Swiss mountain guides, a rather esoteric field of study. But

The folding German "blackboards" at the GISW work even during a power failure.

I'm amazed how much information can be gleaned through the Internet. The pandemic has limited my ability to visit libraries and archives, but the computer allows me to browse through Alpine journals, old newspapers, and obscure books, perhaps even more efficiently than I might be able to do with the books themselves. I was surprised and pleased that I was even able to access Swiss village records as far back as the 1500s.

However, not everything is available online and the interaction with persons face-to-face gains more importance once it is taken away. Every once in a while, we need a break from the virtual world. So it's no wonder that I miss going to archives, such the one at the Whyte Museum of the Canadian Rockies in Banff or the J. Monroe Thorington Fonds at Princeton University's Special Collections. From my armchair, I can only recall fondly when I was once invited to climb into the attic of an old hotel in my grandmother's village to fetch a volume of bound newspapers from the late 1890s. In short, having "a piece of the computer for

yourself" is great, but it is still exciting to find books on shelves, to interview individuals who remember the past, and to physically climb those historic hills and mountains.

For the same reason, I still remember those great German blackboards—that were actually green—with their three-part triptych-like wings. In many lessons, I brainstormed with my students for ideas by writing words with chalk on those boards, transforming words into thesis statements, developing them into paragraphs with topic sentences, and crafting "aha" conclusions– all without a computer or an overhead projector.

It was my teaching style to work with the class, using the board to practice the ways one can compose a coherent composition by forming groups of words, expressions, subordinate clauses, and sentences.

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Peter Dreher doing research the old-fashioned way at the Archives of the Swiss Alpine Museum, Bern.