

Oral History: Ronald L. Culbertson

Faculty 1973 – 2009

Head of Middle School 1986 – 2009

Recorded: June 19, 2009

Interviewed by Nancy Gilpin

Culbertson Discusses the Introduction of Computers in the Middle School and Publishing the Book *Exploring Apple Basic*

Gilpin: Let's see. Could you tell me about designing the first computer curriculum for the Middle School with Paul Killebrew, how that came about, a little bit about the vision for the program.

Culbertson: Speaking of cutting edges, that was certainly one that Gilman was involved in. At some time in the early seventies, the Upper School acquired what was a surplus Hewlett-Packard microcomputer. It used a card reader to enter data into the processor and it fed back off a teletype. Ned Thompson in the Middle School was interested in trying to do some work with computers. I had done some computer work in college; I wasn't long out of school. All my experience had been in Fortran, one of the early computer languages, and this particular Hewlett-Packard was in Basic, so it took a little retraining for all of us to do it, but we decided we would try doing this with the seventh grade, and so in the seventh grade program we incorporated—it was probably six weeks of computer instruction.

Kids were putting on a series of steps in an algorithm to solve problems. And it was complex, because they had to mark these computer cards with pencil—it was an optical card reader—and they'd have a stack of twenty to fifty cards, which then went back program into a card reader, gave us some kind of response. Oftentimes it was an error that they had done. It took a day for that to happen. They got it back, they'd have to correct the cards or redo the cards, we'd batch them again and run the programs again. It was not an easy process, but we loved this notion of having kids organize their thinking into an algorithm that would then do something. I still believe it's a great process for kids. And that kind of logic—building an algorithm, I still think is a wonderful experience for kids to have.

Then in 1976, Mr. Thompson and I got a grant from the Dodge Foundation to spend the summer working with these new-fangled things called microprocessors and teaching teachers from across AIMS schools what they might be able to do with these microprocessors. The microprocessors—there were three of them that were part of the Dodge Foundation grant—were Apple computers, made by a little company working out of a garage in Palo Alto, California. They sent us their prototypes of what would be then Apple IIs, and we spent the summer with twenty-five teachers from around the Baltimore area, teaching them how to program in Apple Basic, and it was really a spectacular process. It was great fun working with those teachers and it really seemed—it simplified, of course, amazingly simplified the process of teaching kids how to program.

That next year, we acquired maybe as many as five Radio Shack computers, because Apple hadn't finished their production of Apple IIs yet, so we bought Radio Shack Tandy computers. They were more complex, because actually, the Apples had a floppy disk reader for storage, but the Tandies still used cassette recording, so it was a little more complicated. But, the Basic was pretty much similar to Apple Basic and we began doing that with our seventh graders, teaching Basic programming and it was, of course, so much easier. Then the Apple IIEs came out in production in 1977, '78. We bought probably ten of them at one time and, of course, Apple was generous with us because we had done the grant through them and involved them in that process, and we began in earnest teaching kids how to program and we still do that today in our seventh grade math class. We still teach Basic. It's slightly different form of Basic. Actually, a much more intuitive programming language, but we still do it today. And of course—

Gilpin: Not Apples, though, today.

Culbertson: We no longer use Apples. It's a shame because I'm not sure how we lost that connection with Apple somewhere along the line. The price tag or the support—somewhere along the line that connection disappeared, which is a shame.

In 1982, Harry Goldberg who taught math with me and I wrote a sort of manual for how to teach middle schoolers programming. Of course, no one really across the country then was even thinking about programming for middle schoolers. We wrote a little book and then submitted it to a publisher and Hayden Publishers agreed in 1985 to publish the work. It took us another year; we actually rewrote the book from scratch and in 1986 published *Exploring Apple Basic*, which we still use occasionally. It didn't make me any money, but it was a great experience, that notion of publishing a book. There was a text—a teacher's guide—and a set of quizzes and tests that were all part of that project. It was great fun. I'll never regret having the opportunity to be involved in publishing—getting the book published. It was a great honor and great fun to do that kind of thing.

Gilpin: When you're talking about programming, that's like writing a program? Because there are different aspects of computer—

Culbertson: Correct. What we're talking about is writing a program: a set of steps and an algorithm to generate some kind of solution.

Gilpin: And that's good for developing logical thought?

Culbertson: Absolutely.

Gilpin: Kind of like geometry.

Culbertson: Of course. And, indeed, everything that we do now is program-based, so the algorithms that you use for word processing or Excel spreadsheets: all of those are based on a program. Those are not written in Basic anymore—they're written in some sort of machine code—but it's still here. It's the basis of everything we do.

Gilpin: Did the students—as they went along—get more of this kind of computer training?

Culbertson: Yes.

Gilpin: So this is the beginning, in seventh grade and moves on from there.

Culbertson: That's correct. That's right.