

Eleanor Roosevelt High School – Maryland USA

Teaching programming with LiveCode to students ages 13-18.

My name is Cyril Pruszko and I teach at one of the top science and technology schools in the state of Maryland, USA. Half of the students have to pass a test and compete to get into our school, the other half are comprehensive students from the surrounding area.

I wanted to attract more students to the field of computers and introduce them to the joy and the challenges of programming. Previously, our Introductory Computer Science course taught the C language but class attendance was mostly boys and slowly dwindling in size every year.

In an effort to appeal to more students, I decided to switch to a language that was less foreign to them and easier to learn: one that enabled them to produce useful programs sooner. I also wanted to make it more interesting and relevant to them. We switched to Python. The students enjoyed the interactivity, and ease of writing programs. Over the course of the year, we covered the material faster than I had planned and I looked for something more to do the last 2 months of the course. The students expressed an interest in doing some game programming and something more graphical. I looked at the libraries for Python but they were not the solution. I did research on other languages and packages and came across LiveCode. It seemed the answer to my search. It was powerful, easy to learn and capable of supporting game programming. So I decided to do a 4-5 week 'Proof of Concept' segment in that class and also use it in the AP (Advanced Placement - college-level) JAVA course after they finished the placement exam.

The students were excited about doing a game that they could take home and run on their own computers (LiveCode is cross-platform and produces executables on PCs, Apples, Linux as well as many mobile platforms - Android, IOS etc). Even more exciting, they could put it on their cellphones, share it with their friends and maybe even sell it on an AppStore. They worked harder than I had seen them work on any programs.

Much to my surprise, they had produced workable, marketable games within 3-4 weeks. They finished early and I had them add Intro/Splash screens, instructions, score counters and different themes. We ended up with all sorts of games - some basic but many of them newly created games with great graphics. Some were good enough to offer in Apple's App Store. With still time left, I gave them another assignment of programming a calculator. Nearly all of them finished that assignment too, again, some beyond my greatest expectations. A few students added additional functions such as square roots, logarithms, logs, paper tapes, on/off switches, etc. Some of the more creative students made very colorful, interesting and themed ones. They too were professional looking apps that you might see on the App Store. They were proud and I was impressed with what they had accomplished in such a short time with LiveCode.

As a result of the class, most of them (even the female students in the class) have decided to go on to more difficult computer courses including the Advanced Placement (AP) JAVA course next year. LiveCode definitely got them interested in continuing on in computer science. They learned the programming concepts using Python but it was LiveCode that got them excited about programming. It increased their creativity, productivity and opened up a wider world of applications for them to write.

Word got around and enrolment for next year's classes has more than doubled and the number of female students has increased dramatically, mostly as a result of my LiveCode experiment, more and more students are getting interested in computer science as a result of LiveCode.

All good news and a tribute to a powerful product which is easy to teach and use.

The School Principal was so impressed with the results and the student's engagement that we will be requiring all incoming Science and Tech students (260+ students) to take a 9 week course in LiveCode to help increase interest in STEM careers (Science Technology, Engineering and Math) and give them exposure to computer science and programming.

As easy as LiveCode is, it still allows me to teach the fundamentals of programming, logic and program development. In addition, the students learn newer and more modern concepts as event programming, passing messages and writing handlers.

We just spend less time with the syntax and idiosyncrasies of a language. The students are more productive sooner and have a better understanding of what they are doing. They spend more time on program development and less on correcting syntax and typing errors. Their programs show more depth of planning, more finishing and in some cases, contain more complex code and algorithms than you usually see of high school students.

I have taught high school and university computer science for many years and have not been more impressed with the output and results than I have been this past year. With LiveCode, students seem to get so engaged that they go beyond the requirements of the assignments and produce more than I either asked for or expected. As an educator, I find that refreshing and very rewarding.

For the time being, the Intro Course will start with Python first, then move to LiveCode but much more time will be spent on LiveCode. Students need to walk before they run and LiveCode starts them on their journey.

This year we may get into Internet programming, interfacing with database servers and providing web services through LiveCode apps. There is so much that LiveCode can do and we can go in many directions. More importantly, there is such a short path to productive code that it suits our students so much more than traditional languages.

The following year, I may switch the sequence. LiveCode may not unseat Python, Java, C, C++ programming up through the college level but it will serve to attract the many students who may not necessarily be Computer Science majors. (But then, maybe after LiveCode, they will be attracted to computer science careers!!)

Teaching LiveCode has been interesting, fun and very rewarding for me as a teacher. I saw so many more students get engaged and excited over programming. I saw non-technical students get engrossed in the creative aspect of programming and design without being turned off by the mechanical nature of writing code, dealing with syntax errors, program constructs, and reserved words and the many rules and procedures of a language.

Look for more sophisticated apps from my students in the App Store over the next year....