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# Computational Buzz

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How about making a smartphone business card? That's what ConVal high school student Alex Chambers did as part of the Creative Computing Challenge this past fall. "I play basketball, so I jazzed up my business card to include some basketball animation and sound," says Chambers, a digital photography student.

Cosmetology students at Keene High School took on the challenge and paired up with computer science students to create smartphone hairdressing apps. Their apps provide images to hair

salon clients for specific styles along with instructions for the stylist on how to complete them. Some of the apps included text to speech so the stylist can listen to the steps while performing the service. Then the students tested the app by having the computer science students style the hair of cosmetology student “clients.”

“This was a great experience for my students,” says cosmetology teacher Dawn Lagace. “They said that knowing about apps was something they could refer back to during their entire careers.”

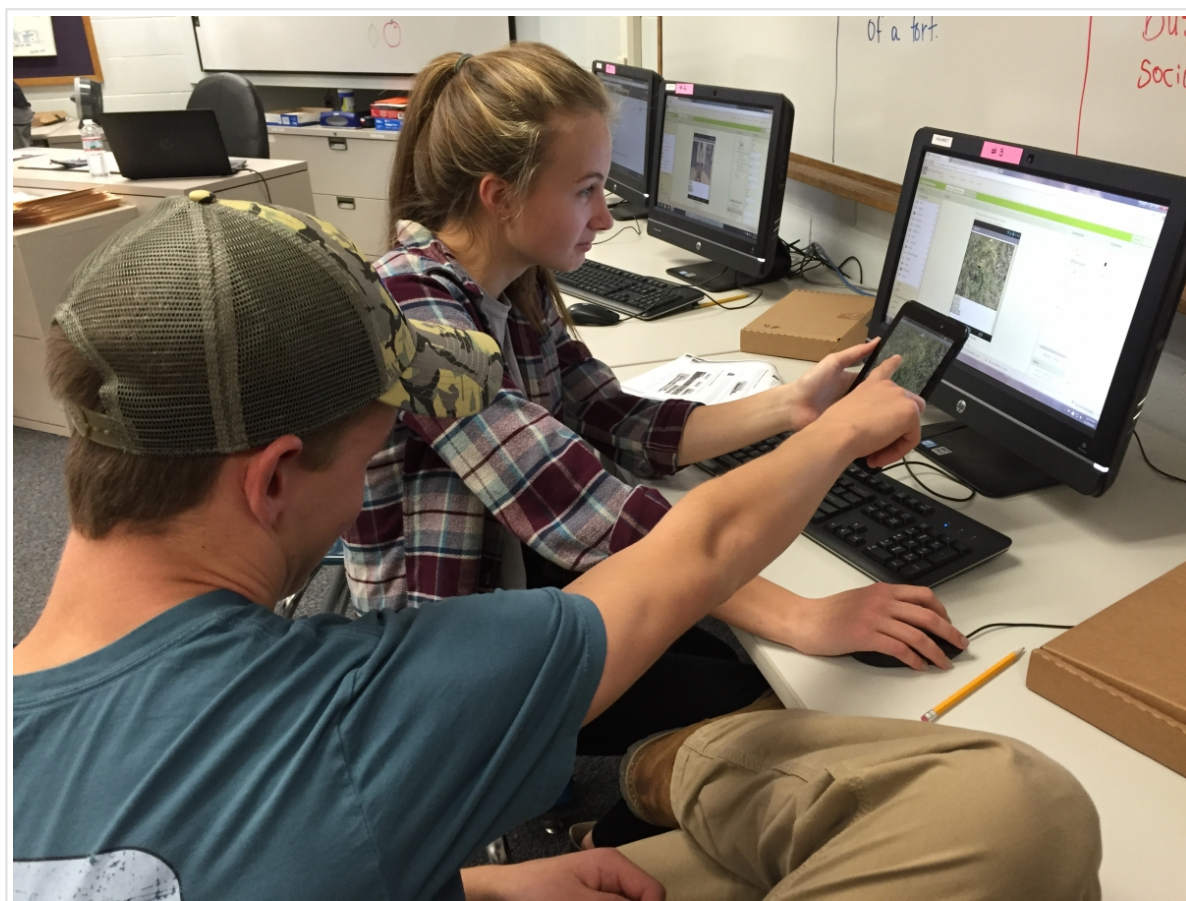
Today *all* students need to learn how to solve problems using computers. So whether it’s how to sign up customers for a photography studio or to run an efficient hair salon —smartphone apps and interactive computer presentations have become essential.

“Students need to see computer science as a more creative field where they can generate questions and identify problems,” says Eric Froborg, a UNH facilitator for the Creative Computing Challenge. “Then, using computational thinking, they can find ways to solve those problems.”

This year at ConVal, Keene, and Concord high schools in classes ranging from photography to business to cosmetology and, of course, computer science, students are learning how to write apps ranging from piano and Zombie apocalypse games, to running an online store with inventory, to more community-minded projects. For one project, Keene high school students are identifying 360 city fire hydrants, using Geo location and tagging. Eventually, students will be able to shovel out hydrants after a snowstorm for community service and log which ones have been done.

The teachers were trained during the summer in basic computer science with support from University of New Hampshire professors and staff. It's all part of the Creative Computing Challenge, a five-year program funded by a grant from the National Science Foundation EPSCoR program awarded to Mihaela Sabin, associate professor of computer science at UNH Manchester.

“We originally started with environmental- and natural resource-themed challenges, but the project is evolving,” said Sabin. “In order to really reach a diverse range of students, we need to draw upon learners’ creativity and personal interests when we introduce ways of thinking and practices that use computations and computing to tackle complex problems.”



At ConVal, the first two classes to do the weeklong unit in app making had 45 students. By the end of the year, 180 students will have made their own apps. The buzz at ConVal has begun—app

making is for everyone.

And the buzz is not just among students but also among teachers, administrators, and guidance counselors.

ConVal Career and Technical Education Center director John Reitnauer has found that the Creative Computing Challenge has been a catalyst for conversations with school counselors. “Last year we had 191 students in career and technical education courses,” he notes. “This year it has increased to 371. That has a lot to do with better understanding.”

ConVal principal Brian Pickering said, “We’re always open to looking for ways to develop inquiry and problem solving. There’s momentum now to develop more computer sciences courses.”

Just as there’s been a need to increase and diversify interest in computer science, such as girls and students with low economic status, there’s also been a need to attract more teachers from different backgrounds.

This project recruits teachers for a summer program to train them in how to teach the use of the App Inventor software. Selected students also attend so the teachers can have the experience of working with students immediately.

During the school year, teachers trained in the summer program are expected to use App Inventor in their classes.

Justin Bourque at Concord High School began his teaching career in social studies. Now, he’s a part-time tech integrator and part-time computer science teacher. With a boost from the summer

program, Bourque says, “I just fell in love with teaching computer science.” Now he’s thinking about going for a master’s degree in the field.



At ConVal, four teachers participated in the summer program. Two of them have engineering backgrounds and teach computer science. The other two, Amanda Bastoni (photography) and Deb Coyne (business) are new to technology. But with four teachers on board, they have been able to collaborate and build enthusiasm.

This translates into creating welcoming learning environments. For example, ConVal computer science teacher Gil Morris had a student ask if she could bring a friend to sit in on an after-school, extra-credit class. “I said sure!” says Morris. “Students can get an easy introduction to technical fields just by sitting in. They find out

about opportunities by word of mouth and then a little encouragement goes a long way.”

To help strengthen workforce connections, the computing project is exploring methods of integrating community volunteers so that students will have opportunities to meet and learn about jobs from professionals in the state’s high tech companies.

By Carrie Sherman

**Figure 1.** *High School students at ConVal write and design smartphone apps during photography class: (l to r) Hannah Johnson, Sienna Sorbello, Isabella Eliot, Keenan Wilson, Evan Coyne. Photo by Amanda Bastoni.*

**Figure 2.** *Jaden Smith (left) and Kelley Akerley write smartphone apps during class at ConVal High School. Photo by teacher Amanda Bastoni.*

**Figure 3.** *Con Val High School business teacher Deb Coyne uses new software and smartphones to show students how to be creators of technology and not just consumers. Featured Sienna Sorbello (left), teacher: Deb Coyne (middle), Isabella Eliot and Hannah Johnson. Photo by Amanda Bastoni.*

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