csta Voice

Collaborating for Success

The Voice of K–12 Computer Science Education and its Educators

IN THE NEXT ISSUE OF THE *VOICE*

Classroom Tools

The Great Divide

Or Are We in this Together?

Deborah Seehorn

AS WE STRIVE TO ACHIEVE CS10K (10,000 well-trained computer science (CS) teachers in 10,000 schools across the U.S.), I ponder who those teachers will be. I have perceived what at times seems like a great divide between career and technical education (CTE) teachers and non-CTE CS teachers (who may be math or science teachers, or may possibly have CS teaching certificates). This differentiation or divide is not in the best interest of students or of CS education. All of us believe that CS should be part of everyone's education, and all students should have an educational path to a career in computing.

CTE is authorized and funded by federal Perkins legislation. As a CTE teacher, I had great teaching resources (which I had also at a Department of Defense high school in my early math non-CTE teaching days). As a CTE teacher, I had access to an instructional management system (in North Carolina CTE we test every course that is taught; we report student successes in various categories to the federal government to justify our funding—things like academic attainment, technical attainment, non-traditional enrollment, etc.). I had equipment (that I didn't have to write a grant to receive).

As a CTE teacher, I worked with a co-curricular student organization and my students could see the relevance of what they were learning in class, apply it in real world scenarios, compete against other students—and possibly even travel both in-state and out-of-state to compete against other students.

Happily, CTE students in our state have experienced a higher graduation rate than the general high school population—perhaps because they do see relevance in what they are learning in class. Our students have focused instruction in a career pathway of their choosing. Life as a CTE teacher was good. When I was able to teach computer programming and introduction to computers in the CTE classroom, that was definitely the best of both worlds for me.

All of us want CS to be recognized as a discipline in its own right. We all want our students to learn and love the CS that we all know and love. We all want licensure/certification to be a thoroughly vetted and good process for our CS teachers. We all want good, relevant, readily available professional development for our teachers. We all want the general public to wake up and realize that everyone needs to strive to have CS available in every school for every student. It is very clear to me that we all need to work together to achieve these goals—together we will be stronger.

There are plenty of opportunities for working together. Many CTE teachers are teaching Exploring CS, CS Principles, and AP CS—just as many non-CTE teachers are. Many CTE teachers collaborate with the core/academic teachers to develop authentic, relevant applications to use in the classroom. CTE teachers can allow the non-CTE teachers to use the CTE classroom and equipment when it is not in use by the CTE teacher(s).

THE GREAT DIVIDE
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The similarities between us are greater than our differences. Many of our CTE teachers in North Carolina actually have a CS background. Many have been programmers or analysts and turned to teaching as a way to influence and motivate students and help prepare the next generation of computer scientists. The CTE teachers can involve the non-CTE teachers in working with the co-curricular student organizations, or the non-CTE teachers can volunteer to do so (it's actually fun and inspiring!).

We really are all in this together. To quote one of my favorite local CTE IT coordinators, "My goal is the same as yours, to provide the best possible education for our students."

We can work together, and we must do so for the benefit of our students and the CS profession. This will go a long way toward reaching CS10K. Let's all reach across the "great divide" to achieve our many shared goals.

LEARN MORE:

Career and Technical Education at a Glance *www.careertech.org/career-technical-education/glance.html*

Office of Vocational and Adult Education, CTE Current Facts *www2.ed.gov/about/offices/list/ovae/pi/cte/index.html*

Perkins IV (2006) Legislation Information *www2.ed.gov/policy/sectech/leg/perkins/index.html*

Tackling Challenges in CS Education

Time to Act and Work Together

Jean Westrick

IN 2012, REPRESENTATIVES FROM ACM, Google, Microsoft, NSF, NCWIT, and CSTA contracted with the University of Chicago with the goal to better understand the groundwork needed for scaling and expanding K–12 computer science (CS) teaching and learning opportunities. Our experience was not specifically with CS education, but with STEM education practice, research, and policy more broadly. We've spent the last 18 months listening and learning from the CS community, and have compiled our findings into an online report, *Building an Operating System for Computer Science* (*OS4CS*) which is available at *cemse.uchicago.edu/computer science/OS4CS/*.

The *OS4CS* study was designed as a collaborative research and communication effort to establish a more comprehensive understanding of our nation's current high school CS teaching population, the support they have, and the contexts in which they teach. The study had five major components, each of which can be examined independently. When considered together, they provide a broad view of the issues affecting CS education through the lenses of different stakeholders, including teachers, professional development providers, school administrators, and community leaders.

The *OS4CS* report, written by a team

of researchers from the University of Chicago's Center for Elementary Mathematics and Science Education (CEMSE) and Urban Education Institute (UEI), identified five major challenges. The order of these challenges presented below is not an indication of importance or priority; all are necessary to improve the state of K–12 CS education.

1. *The CS education community does not agree on what constitutes quality CS education.* The CS education community has not agreed on what is worth knowing in CS, how it should be measured, when it should be learned in a student's academic career, or what quality CS teaching and learning looks like. While there are learning standards, they have not been embraced by all members of the community—and standards are but one piece of the overall quality puzzle.

2. *There is a need for more comprehensive, quality, instructional resources.* "Instructional resources" refers to coherent sets of curricula and pedagogical resources to inform instruction and teachers' knowledge of student progress. CS teachers do not have access to the range of quality instructional resources that teachers of other subjects enjoy.

3. *CS is not prioritized in schools.* There is little incentive for schools and districts to include CS courses. There are no requirements at the college level, few state requirements, and the basic course materials (computers) are expensive to purchase and maintain. CS courses also tend to be ephemeral, disappearing from schools if funding is reduced or if CS teachers leave the school. Coupled with a lack of instructional materials, this can result in vastly different experiences for students across the country.

4. *CS teachers are isolated.* CS teachers don't have colleagues in their schools with whom they can share ideas and information or who can provide instructional support and coaching. This makes improving instruction more difficult and can affect teacher motivation.

5. *There is a need for more CS teachers.* There are few viable pathways to becoming a CS teacher. Furthermore, there is little incentive for pre-service teachers to commit to teaching CS, as schools and districts generally don't prioritize CS coursework. Individuals with CS experience have other career options, and those with an interest in teaching will find more resources, education leading to certification, and support in other related subjects, such as mathematics.

So what's to be done? We share the vision that all students should have access to robust, high quality CS education. And, we are convinced that there is tremendous energy and talent currently working within CS education to realize that vision. With that in mind, we offer the following three suggestions to the field:

Coherence is Essential: History shows that destructive debates about the content and pedagogy of mathematics teaching and learning stifled progress for schools and students. The CS community can avoid a similar history by delivering clear, coherent messages to the public, stakeholders, and decision makers. A unified voice and coordinating action from all aspects of the community—teachers, researchers, universities, foundations, and corporations—is essential.

Attention Doesn't Guarantee Quality: CS education is benefitting from a population enamored with parts of the technology industry—much like science education was moved into the public consciousness with Sputnik. This may make it easier to convince districts and states to give CS education more attention. More attention, however, does not mean higher quality. It's essential to define what quality CS education looks like, develop shared ways to measure it, and establish a common language to communicate about it. Otherwise, others will bring their own meanings and agendas to the discussion.

Now is the Time: There is a groundswell of energy, commitment, and momentum for CS teaching, learning, and leading. This offers an unprecedented opportunity to establish norms

Voice

TACKLING CHALLENGES IN CS EDUCATION
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for CS education for all. Given the newness of the discipline, setting the right foundation can pave the way for tremendous gains in the future—something that the contemporary mathematics and science education communities never had the opportunity to do.

We have learned an incredible amount by being part of the CS education community for the past 18 months. We hope our research helps propel things forward—and we're excited to stand alongside so many of you in the years to come to help realize the day when all students have access to high quality CS learning.

The project team includes (alphabetically): Jeanne Century, Baker Franke, Courtney Heppner, Heather King, Michael Lach, Sarah Rand, and Jean Westrick.

Community Leadership Committee

A Strategy for Strengthening and Sustaining CS Activities

Jacob Martinez and Jill Denner

AFTER-SCHOOL SETTINGS have become popular for making computer science (CS) classes available to K–12 students who have few other opportunities. In the lowest performing schools, a focus on standardized testing and core subjects has left little time for students to use computers during the school day for anything other than math and language arts intervention programs and electronic testing. Efforts to fill this void are using after-school time, including extended learning programs that are held at school and include some academic work.

There are many great examples of innovative programs that are effective in sparking an initial student interest in CS. However, the vast majority of these efforts are not sustained. They disappear, due to lack of funding, or because the individual educator or administrator behind the program moves on to another site. In this article we offer some lessons learned about sustaining after-school programs to engage underrepresented youth in CS.

Eight years ago, we received a grant from NSF to develop and test an after-school program, Technology-Education-Community (TEC), to increase the confidence and skills of middle school girls to pursue and persist in CS. The school district that we work in is a low-income, predominately Latino/a community, which has seen numerous programs from universities and community-based organizations. However, these new and exciting opportunities disappear once the grants have ended. The program that we currently offer includes a combination of after-school computing classes, "bridging activities" that connect youth to CS in colleges and technology companies, and parent engagement activities. When we first started our program, we made a commitment to the school district to stay for the long term. Although we were initially unsure of how we were going to do this, we built in a number of strategies designed to sustain the program, and we tested and refined these strategies over the last eight years.

A key strategy was the formation of an advisory board to help promote the program in the community, encourage other parents to get involved, identify barriers in the community, and help sustain the program through fundraising. We initially recruited eight parents of students in our program, but home and work commitments prevented most from attending monthly meetings or taking action for the program. Additionally, many of parents did not have the experience of working on committees or serving in leadership capacities. After a few months of struggling to identify parents who could make the long commitment we expanded the committee and framed it as a board of directors whose members would have substantial influence on the program.

We also wanted to develop and sustain a Community Leadership Committee (CLC). While a community development approach is very common in efforts to address poverty and health issues, it is

less often used in efforts to engage under-represented youth in CS. Our goal was to create a community-driven effort to increase the number of youth who pursued computing fields. The strategy was to provide a forum where people who are truly invested in the success of the youth and the economic development of the community could gather and mobilize.

We recruited members who were passionate about creating opportunities for youth to engage with technology, cared about building a community of support around the youth, and believed that getting more local youth into computing fields would make a positive impact on economic status of the entire community. We also sought representatives from a range of sectors—education, healthcare, and technology. The committee included a lawyer from Mozilla and an engineer from Google who had similar backgrounds to many of our students and have gone on to navigate the pathways to success in large technology companies. It took a little over two years to recruit a solid committee but today we have 12 members, including two parents, one middle school student, one college student, two industry representatives, four community leaders, one school principal, and a TEC staff member.

The CLC meets on a monthly basis throughout the year and takes the lead on local sustainability, facilitates work-shops and events with parents of the youth in our CS classes, advocates for the program throughout the community, and hosts community gatherings at the beginning and end of the school year. One clear indication that the CLC has a sense of ownership of the program is that at every meeting the chair asks program staff, "What do you need help with?" That simple question sends a clear message that the program is now part of the community, and that it will continue beyond any individual grant.

Keys to recruiting and retaining a quality CLC:

1. Build diversity by recruiting members from different social and professional circles.
2. Start small and grow. Organize a few members, identify gaps in skills and knowledge, and grow to fill gaps.
3. Prioritize parents and students. Give students and parents a voice on the CLC.
4. Establish leadership positions for committee members to hold (e.g. chair, treasurer, and secretary).
5. Make sure members shine. Find opportunities that promote their involvement. Search out venues where they can speak and encourage them to include their involvement in their resumes.

Stellar Response to Shift to *Voice* E-Distribution

CSTA LEADERS are deeply gratified at the response of members to the September launch of the e-version of the CSTA *Voice*.

Members received the first notification of the impending shift from printed and mailed distribution on September 12, 2013, in a blog piece written by CSTA Chair Deborah Seehorn and Executive Director Chris Stephenson. In it, they noted that over the last two years CSTA had been receiving an increasing number of requests from members to "green" its practices by moving to on-line distribution of its flagship member publication.

Despite being convinced that this was the right path to take for the *Voice* and for the organization, Seehorn admits to having been concerned about the members' responses. "We are very member-focused and want to continue to meet the needs of our members. We know how important the *Voice* is to them and this is a big change for everyone—hopefully one for the better," says Seehorn.

The announcement of the change did bring a flood of responses from members. They were overwhelmingly positive! While some noted that they would miss the paper-based version, everyone supported the change wholeheartedly, including one member who noted: "Bravo to CSTA for the difficult choice they have made! Let's put the money to better use, like offering more training and promoting computer science!"

Meet the Authors

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Vichi is the West Coast Regional Manager for the TEALS program. Previously, she taught high school science in rural Eastern North Carolina with Teach for America.

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National Science Foundation
Maria works in public affairs for the NSF. Her area of focus is STEM education.

Professional Development

Host a Workshop for Your Chapter
Teaching about Data

Managing and interpreting data in a variety of ways—volume, types, and velocity—is part of the foundation of our information society and the economy. Skills for gathering data, creating new knowledge by analyzing data, and communicating the story that the data reveal are goals in Exploring Computer Science (ECS) and in Computer Science Principles (CSP) courses. New resources developed through the Mobilize Prime project at UCLA will support you every step of the way in adding data science strategies to your courses.

CSTA, in partnership with the Mobilize Prime project, is offering CSTA chapters an opportunity to host a **Data Science in the Classroom** workshop. Chapters who offer these workshops will receive registration support, teaching resources, and help with promotion. The workshops will be facilitated by Pat Phillips, a well-known and respected CS educator. Hosting a workshop will showcase your chapter as a leader in CS education and attract new members.

These workshops can be offered either as a half-day or evening event (3 hours) or a one-day event (6 hours) any time, February through May. Workshop participants will:
- Learn how to engage students in meaningful, real-world data explorations.
- Find new ways to include data science concepts and strategies in CS courses including mobile technology.
- Develop skills in data science that are directly applicable to classroom experiences.
- Discover readily-available, easy-to-use, student-friendly, yet powerful data tools.
- Explore new data science curriculum resources created by UCLA.

Hosting chapters will be responsible for providing a computer lab; promoting the event to CS, math, and science teachers in their areas; and ensuring a minimum number of 15 attendees. Chapters can apply for a **Mobilize Prime: Data Science in the Classroom** PD workshop by January 31, 2014 (*docs.google.com/forms/d/1jQ8iQ0i_XrHE72oUc8GZJOufRIxvGLkaqCqKrHXSDTA/viewform*). The Mobilize Prime project is funded by the National Science Foundation.

More Professional Development

Join Us at SIGCSE
Kris Nagel and JD Dougherty

The SIGCSE community is excited to invite CSTA members to SIGCSE 2014. The conference, themed "Leveraging Computing to Change Education," brings professionals from around the world together to present education research and share practical experience in the form of papers, panels, workshops, and other informal sessions. The annual SIGCSE Technical Symposium will be held in Atlanta, Georgia, March 5–8, 2014.

The Symposium provides a forum for sharing ideas at all levels of instruction. While the full symposium should be of interest to CSTA members, sessions on Friday and Saturday have been designed to be of particular interest to the K–12 community. Friday morning begins with an Alice breakfast, followed by a keynote from Hadi Partovi, founder and CEO of code.org. Paper sessions on Friday cover a variety of topics including sessions with a focus on middle school and elementary school, and sessions on informal education, curriculum, and robots. There are also panels discussing tips for high school teachers and the CS Principles course.

On Saturday there are sessions on K–12 outreach, computational thinking, Alice 3, and a public/private partnership for expanding CS in schools. The Symposium Program can be found at *sigcse2014.sigcse.org/attendees*.

There are special one-day and two-day registration rates available to K–12 teachers. SIGCSE 2014 offers a one-day (Friday or Saturday) registration rate of $80 for early registration ($110 for late or onsite) and a two-day (Friday and Saturday) registration rate of $150 for early registration ($180 for late or onsite). Both registration options include access to all keynote presentations, sessions, and the exhibit hall. A Saturday registration includes the conference luncheon. There are a numerous optional workshops as well on both Friday evening and Saturday afternoon. You may choose to enroll in a workshop for an additional fee of $75 for early registration ($90 for late and $100 onsite). Register online at *sigcse2014.sigcse.org/attendees*.

Please join us in Atlanta in March, where we hope the weather will be warm; at least we know the people will be.

Curriculum in Action

TEALS
A Partnership for Building CS Teacher Capacity

Vichi Jagannathan

In May 2013, over 1000 high school students gathered on Microsoft's main campus in Redmond to attend a computer science (CS) college and internship fair and participate in mock professional interviews. They were invited as part of the CS class that their school was offering through TEALS (Technology Education And Literacy in Schools). As recently as five years ago, none of these students had the opportunity to even take a CS class, since 92% of the schools in the U.S. do not offer Advanced Placement CS.

What began in 2009 with one Microsoft engineer teaching first-period CS in a Seattle high school before work has now grown into 280 professional software engineers working with over 60 teachers in 70 high schools across 12 states to teach rigorous CS courses.

TEALS is a nonprofit organization incubated within Microsoft as part of its YouthSpark program. TEALS has two major aims: 1) help schools bootstrap a rigorous CS program, and 2) provide high-quality professional development to teachers who wish to learn the skills required to teach CS. It currently supports an introductory course based on UC Berkeley's Beauty and Joy of Computing and Advanced Placement CS with a curriculum based on the University of Washington's CSE 142 first-year course.

In order to bootstrap a CS program and build teacher capacity, TEALS places a team of four software professionals in the classroom alongside a partner teacher. The partnership is a symbiotic relationship of sorts; initially, the TEALS volunteers handle the majority of instruction, lesson planning, grading, and labs. The partner classroom teacher assists the volunteers with classroom management and pedagogy. As the year progresses and the teacher begins to master the content, his/her role shifts into that of a teaching assistant and then a co-teacher until, eventually, the course can be handed off entirely and the

teacher can independently teach CS. This equates to 144 hours of in-classroom professional development per year alongside volunteers who not only convey content knowledge, but also have industry experience to share. Teachers can also attend several accredited summer professional development programs to augment their curricular and content knowledge.

Our goal is for a teacher to take full ownership of a course within two years. As of the start of the 2013 school year, five teachers have "graduated" from the TEALS program and are now offering CS at their schools. Furthermore, seven teachers are currently on track for handoff at the end of this school year, and 33 more are two years away.

Our volunteers and teachers are working together to build a class of well-rounded graduates who are poised to continue their studies in CS and eventually fill technical positions in every professional sector. This school year, 3,200 students are enrolled in a TEALS course with 25% of those students being female and 23% underrepresented minorities. These figures are on par with, or above, the industry average representation, and amount to 800 girls and 700 minority students who otherwise would not have had the opportunity to enroll in a CS course. Furthermore, 58% of students enrolled in TEALS CS courses this year play at least one sport and 22% are members of the band.

TEALS serves as a catalyst, but it takes a community to build a sustainable program. We have seen employers, teachers, volunteers, superintendents, career and technical education directors, principals, guidance counselors, parents, and community members join together to advocate for CS education for their students.

TEALS is currently accepting applications for new school partnerships for 2014-2015. Visit *www.tealsk12.org* to apply.

Spotlight

Presidential Awards Includes CS

Maria Zacharias

Each year the Presidential Awards for Excellence in Mathematics and Science Teaching (PAEMST) program recognizes outstanding teachers from around the country and many teachers do not realize that this award includes computer science (CS) teachers.

Administered by the National Science Foundation (NSF), the PAEMST program is celebrating its 30th anniversary. The 2014 Awards will honor K–6 teachers of mathematics and science

(secondary and K–6 teachers are recognized on alternate years)—including CS, in recognition that CS has become more and more important in all areas of education.

According to Peter DeCraene, a 2011 PAEMST awardee, "CS is an area where the students get to dig into generalizing an idea to write an algorithm—where algebra comes alive." DeCraene teaches mathematics and CS at Evanston Township High School in Evanston, IL. DeCraene, who has a bachelor's degree in mathematics and a master's in CS, notes that the immediate feedback students get when they compile and run a program is valuable in keeping them motivated.

DeCraene also uses CS to make connections that show students the importance of CS concepts. "Sometimes programs that make tasks for other classes easier, such as a quadratic formula program that helps with math problems or a program that converts units or portion sizes for a culinary class, provide a way to demonstrate how useful CS is", says DeCraene.

Elisabeth Jaffe, a CSTA member and mathematics teacher at Baruch College Campus High School in New York City, was also a 2011 PAEMST award recipient. "My background in CS allows me to describe processes in a very detailed manner," says Jaffe. "I think I can more easily foresee misconceptions because I am already trained to see errors in logic. I can also follow students' thinking more easily and determine where in the process they got stuck."

Jaffe works to make her teaching relevant to students' lives. "I find something in the world that my students can relate to in every unit," she says. "In exponents we talk about interest rates and different bank accounts. In logarithms we discuss how long it takes to spread a rumor. In trigonometry we discuss sound, and students play glasses of water, making their own music. In statistics we search the newspapers looking for biased data. My students may not use mathematics in everything they do, but they will see it in everything they do."

NSF is continuing to seek nominations of outstanding mathematics, science, and CS teachers. Nominations are open. Anyone—principals, teachers, parents, students, or members of the general public—may nominate exceptional teachers who are currently teaching grades K–6 for the 2014 award year. Teachers can also nominate themselves. Just complete the nomination form available on the PAEMST website. The nomination period closes on April 1, 2014.

LEARN MORE:
PAEMST *www.paemst.org*

Congratulations CSTA Members

Andy Kuemmel for his successful advocacy effort to make CS count as graduation credit in Wisconsin.

Kelly Powers for receiving the Massachusetts STEM Teacher of the Year Award.

Eric Roberts (CSTA Advisory Council) for being named among top 10 professors at Stanford.

SHOW ME THE NUMBERS
UNDER WHAT DEPARTMENT(S) IS CS OFFERED IN YOUR SCHOOL?

CSTA member responses in the CSTA National Secondary School Computer Science Survey (2013)	
Business	34.4%
Technology	33.8%
Math	27.9%
Computing	19.6%
Science	3.2%

Learn more about CS in members' schools at: *csta.acm.org/Research/sub/Projects/ResearchFiles/CSTASurvey13Results.pdf*

Membership News

A K–8 Virtual Binder is Now Available

Patrice Gans

Computer science (CS) educators can access classroom resources and information from a variety of sources including Google+, Facebook, and Twitter, as well as a variety of listservs, journals, and newsletters. The volume of information available can be staggering and difficult to navigate. Thankfully, the CSTA Virtual Binders provide a way to manage the information overload. The K–12 binders, which can be accessed from the CSTA website (*csta.acm.org/Resources/sub/VirtualBinders.html*), provide members with access to select scholarly articles on K–12 CS education from the ACM Digital Library.

Recently, CSTA Board members and volunteers reviewed the resources and updated the collection to include a new binder— the CS K–8 Virtual Binder. This binder, curated by the K–8 Task Force, contains 16 articles from the ACM collection relevant to teaching CS in elementary and middle school. Topics range from the exploration of social media in *Social and Technical Challenges in Parenting Teens' Social Media Use* by Sarita Yardi and Amy Bruckman to the challenges of computer programming with Scratch as described by John Maloney, Mitchel Resnick, Natalie Rusk, Brian Silverman, and Evelyn Eastmond in the article, *The Scratch Programming Language and Environment*.

Additional K–8 highlights include *Computational Thinking for Youth in Practice* by Irene Lee, Fred Martin, Jill Denner, Bob Coulter, Walter Allan, Jeri Erickson, Joyce Malyn-Smith, and Linda Werner, as well as research from Shannon Campe, Jill Denner, and Linda Werner, *Middle School Girls + Games Programming = Information Technology Fluency*.

There are now five theme-based Virtual Binders (CS K–8, Equity, Teaching Strategies, Careers, and Computational Thinking). To access the Virtual Binders, members must set-up their CSTA web account using their CSTA membership number, which can be found at *csta.acm.org/Membership/sub/MyMemberInfo.html*. In addition to checking out the contents of the CSTA Virtual Binders, members can create their own binders by searching and selecting articles from the ACM digital library. There is a wealth of information waiting to be explored.

MARK YOUR CALENDAR

Chapter Mini-grants Proposals
Round-two deadline: January 6, 2014
Contact your chapter leader

Application Deadline: Chapter Data Science Workshops
January 31, 2014
docs.google.com/forms/d/1jQ8iQ0i_
XrHE72oUc8GZJOufRIxvGLkaqCqKrHXSDTA/viewform

TCEA
February 3–7, 2014, Austin, Texas
www.tceaconvention.org

ACSL Contest 2
February 14, 2014
www.acsl.org

ACSL Contest 3
March 14, 2014
www.acsl.org

Consortium for Computing Sciences in Colleges (Southwestern)
March 14–15, 2014, San Marcos, California
www.ccsc.org/southwestern

2014 CSTA Annual Conference
July 14–15, 2014, St. Charles, Illinois
csta.acm.org/ProfessionalDevelopment/sub/CSTAConference.html

Check the most recent CSTA events on the CSTA website
csta.*acm.org/ProfessionalDevelopment/sub/TeacherWorkshops.html*
List your CSTA event by contacting *l.clayborn@csta-hq.org*

2014 CSTA Annual Conference
July 14–15 in St. Charles, Illinois

*csta.acm.org/ProfessionalDevelopment/sub/
CSTAConference.html*

Keep up with CSTA!

The CSTA conference, advocacy efforts, CS education news, chapter events—you name it and you'll find it on Twitter (@CSTeachersA and #csta13), Facebook (Computer Science Teachers Association), and soon, LinkedIn.

Join the conversation with the connection of your choice.