Summary Report from the

National K-12 Cybersecurity Education Conference

December 3-5, 2017

Nashville, TN

2017 NICE K12 Cybersecurity Education Conference

Evaluation Summary

iKeepSafe was proud to host the 2017 NICE K12 Cybersecurity Education Conference at the Omni in Nashville, Tennessee on December 3-5, 2017.

The NICE K-12 Cybersecurity Education Conference supports the NICE Strategic Plan to expand the national effort to address the challenges and opportunities of cybersecurity education, training, and workforce development. The half-day pre-conference workshop and two-day event focused on strategies to accelerate cybersecurity learning and skills development and methods to best nurture a diverse learning community, and provided approaches to guide cybersecurity career development and workplace planning for today's youth.

The event brought together educators, faculty members, professionals, researchers, non-profit and government personnel, other K-12 curriculum specialists, and students to expand a national effort to document the K-12 cybersecurity education programs on-going throughout the country and to address the NICE mission: *To energize and promote a robust network and an ecosystem of cybersecurity education, training, and workforce development.*

The event was supported by the National Initiative for Cybersecurity Education (NICE), a program of the National Institute of Standards and Technology in the U.S. Department of Commerce, under Grant #12141710, with additional support from partners, to include IBM, two and four-year institutions with cybersecurity programs, and student and non-profit organizations, who participated in information sharing for all attendees to enjoy.

Three hundred and twenty-seven people registered for the conference event. Attendees participated in two full-day of events which included hands-on activities, keynote speakers, panels, concurrent and birds-of-feather networking sessions, and an evening networking social. Attendees had the opportunity to learn more about career opportunities, pathways in cybersecurity and program development that could be applied to their own local. The event included a diverse and dynamic group of speakers and panelists who provided in-depth insight, as well as, actionable and practical tools, programs and strategies that have worked in a wide range of locations throughout the U.S.
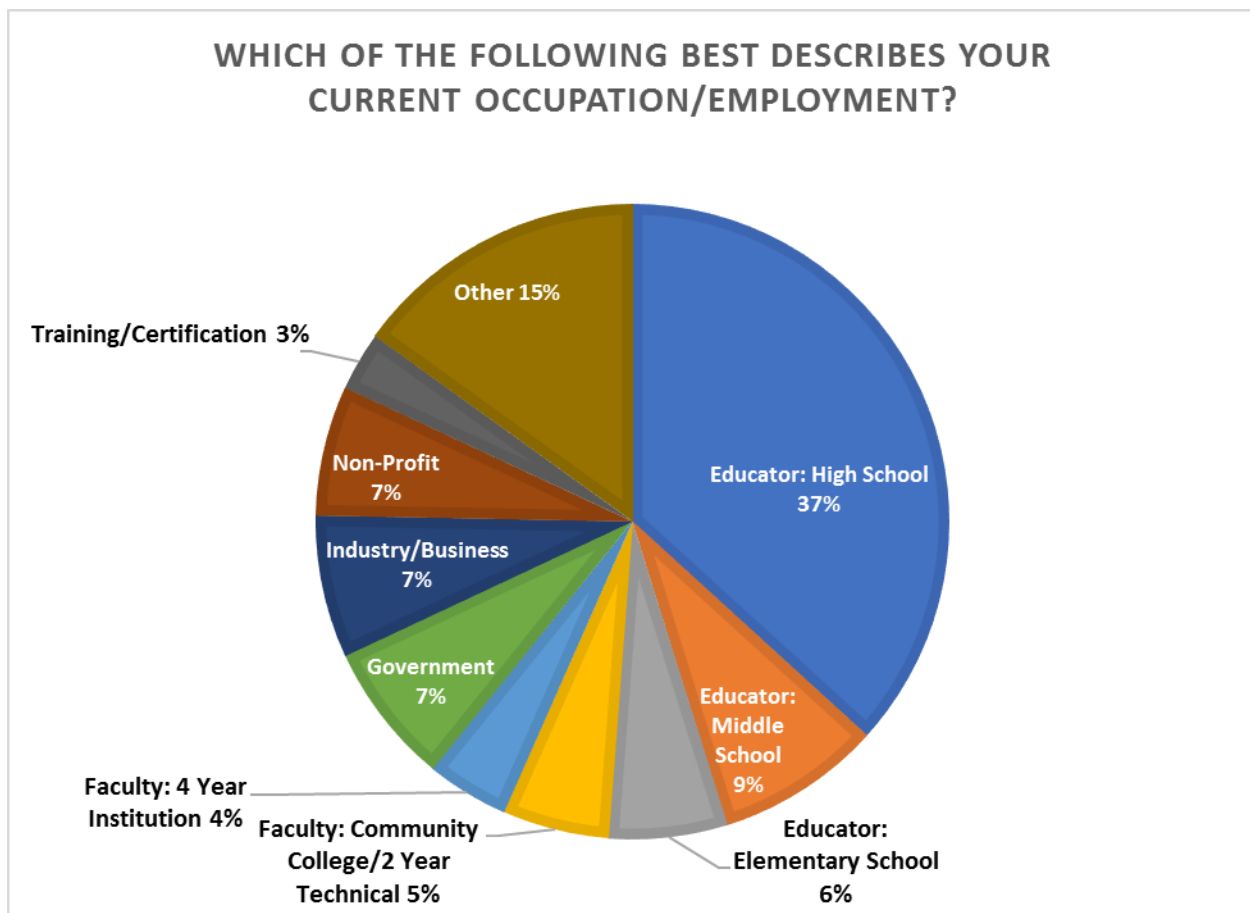
WHICH OF THE FOLLOWING BEST DESCRIBES YOUR CURRENT OCCUPATION/EMPLOYMENT?

- Other 15%
- Training/Certification 3%
- Non-Profit 7%
- Industry/Business 7%
- Government 7%
- Faculty: 4 Year Institution 4%
- Faculty: Community College/2 Year Technical 5%
- Educator: Elementary School 6%
- Educator: Middle School 9%
- Educator: High School 37%

Figure 1: 2017 Survey Responses of Conference Attendees to "Which of the Following Best Describes Your Current Occupation/Employment?"

Close to half (52%) of all attendees were directly employed in a K-12 educational setting, with the majority representing high school and Career Technical Education (CTE) programs. Other K-12 representation included administrators, classroom teachers, career counselors, district curriculum developers, and parents and students. The next largest group of conference participants consisted of two and four-year higher education representatives, representing about 1/10 of the audience.

2017 NICE K-12 CYBERSECURITY EDUCATION CONFERENCE REGISTRATIONS

K-12 ■ **Non-profit** ■ **Industry** ■ **Collegiate** ■ **Government**
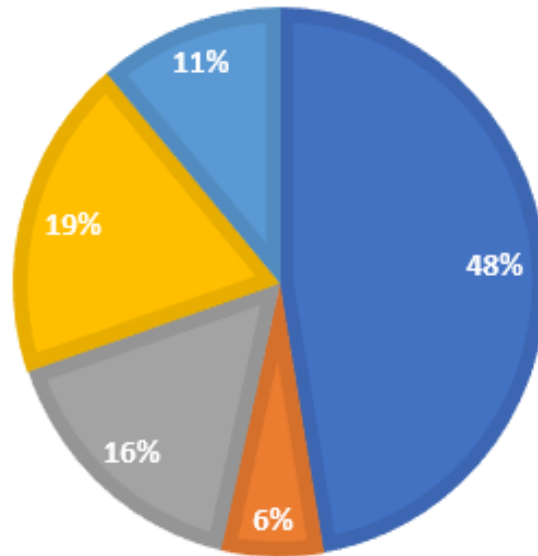

Figure 2: Demographics of 2017 Conference Registrants

In all, almost 50% of the registrants were directly from the K-12 setting, which was the audience the conference was targeting.

Other fun facts

- Fifty middle school girls participated in a *Cyber Day for Girls* pre-conference workshop
- There were 327 registered attendees
- 37 states were represented
- States with the largest representation were TN, VA, MD and CA
- Attendees traveled from long distances including Alaska, British Columbia, Hawaii, India, Japan, and Senegal
- A Czech Republic Embassy representative also was in attendance.
- Industry representation included: Merit Networks, Inc., Bahou Law, Mastercard, Quizlet, ACT/ The App Association, Hitachi, IBM, Northrop Grumman Corporation, and Cisco
- Non-profit representation included: the Boys and Girls Club, First Robotics, ITEEA, Cyber Security Savvy, Austitic Aspergers, TEALS, ISC2 Foundation, and Start Engineering

Attendees were invited to participate in the *Cyber Day for Girls* pre-conference workshop, sponsored by IBM and held off site at the Nashville Technology Council Headquarters. This free workshop was for girls in 6th-9th grade interested in building their knowledge of cybersecurity and hearing about exciting opportunities in STEM (science, technology, engineering, and math). The workshop was a fun day of

learning, games, and giveaways that helped them learn about protecting their online identity and the Internet of Things. They also met with female role models studying and working in the exciting field of cybersecurity.

On the following day, participants heard opening remarks from Rodney Petersen, Director of NICE, Davina Pruitt-Mentle, Lead for Academic Engagement for NICE, and Holly Hawkins, President and CEO of iKeepSafe. This was followed by welcoming remarks from Sandi Hoff, Chief of Staff for the Nashville Technology Council, and Bradley Jackson, President and CEO from the Tennessee Chamber of Commerce and Industry. Sheila Boyington, President of Thinking Media and Advisor to STEMconnector/Million Women Mentors served as the opening keynote. This was followed by 45-minute breakout sessions which addressedthe themes of the five tracks that aligned to the NICE K12 Implementation Plan which supports the NICE Strategic Plan. The five tracks were: *Increasing Cybersecurity Career Awareness, Infusing Cybersecurity Across the Educational Portfolio, Integrating Innovative Cybersecurity Educational Approaches, Designing Cybersecurity Academic & Career Pathways, and Promoting Cyber Awareness*. The Luncheon Keynote was Heather Ricciuto, Global Leader of IBM's Security's Academic Outreach Programs, who highlighted the industry perspective on the need for growing the number and diversity of the cybersecurity workforce. Day 1 also included several one-and-a-half hour workshop sessions.

The exhibitor floor was open for exploration during breaks between sessions and during lunch. It was noted that the ten minutes between sessions was not enough time for attendees to explore the booths. Some attendees also found the location of the exhibitor hall difficult to locate. The hotel staff was fast in accommodating our needs for additional signage to help attendees locate the exhibitor hall. The booth displays allowed attendees to meet with industry, government, non-profits, and academic institutions in an informal setting. They could explore and discuss content and learn more about degree programs and options from higher education institutions; what they entail, how to get there, and options after graduating. To help attendees understand the many options within the field of cybersecurity, several displays included hands-on activities, while others included materials and resources.

The first day ended with two special interest group meetings; the NICE K12 subgroup (open to all) and the CTE Pilot Project (by invitation). This was followed by an evening social. In sum, Day one of the conference included stellar content and presentations, which included a long and packed agenda.

The conference website can be found at: https://www.k12cybersecurityconference.org/past-conferences/ . Pictures and video archives can be accessed from this website. In addition, speaker presentations are linked, where available, on each day's session page.

Detailed Agenda

Sunday, December 3, 2017 Agenda	
	Pre-Conference Workshop off site at Nashville Technology Council Headquarters
Monday, December 4, 2017 Agenda	
7:00-8:00 am	**Registration/ Breakfast**
8:00-8:10 am	**Welcome & Opening Remarks** ● Dr. Davina Pruitt-Mentle - Lead for Academic Engagement, NICE ● Rodney Petersen, Director, NICE ● Holly Hawkins - President, iKeepSafe
8:10-8:20 am	Sandi Hoff, Chief of Staff, Nashville Technology Council
8:20-8:30 am	Bradley Jackson, President and CEO, Tennessee Chamber of Commerce & Industry
8:30-9:15 am	**OPENING KEYNOTE** ***Why Cybersecurity and STEM Career Awareness in Education?*** Sheila Boyington - President at Thinking Media/Learning Blade®, National Senior Advisor-STEMconnector®/Million Women Mentors®
9:15-9:20 am	**A National Perspective** Rodney Petersen for Tyson Meadors, Director for Cybersecurity Policy, National Security Council, The White House
9:20-9:25 am	**Conference Overview** Dr. Davina Pruitt-Mentle, Lead for Academic Engagement, NICE
9:25-9:40 am	**BREAK & Exhibitor Showcase**
9:40-10:20 am	**SESSION 1** **Track 1: Increasing Cybersecurity Career Awareness** ***NSA Does Cybersecurity for K-12. Find Out How You Can Benefit!*** Mark Wolkow, Director, Academic Outreach, National Security Agency (NSA) and Barbara Teraji, NSA, Hawaii Academic Outreach The National Security Agency offers a wide variety of programs to students and teachers, particularly in the areas of STEM and cybersecurity. Learn about these programs, how your students can participate, and what teachers can gain that will help you in the classroom **Track 2: Infusing Cybersecurity Across the Educational Portfolio** ***Integrating Cybersecurity Across All K-12 Disciplines*** Kevin Nolten, Cyber Innovation Center Jump on the "Cyber Interstate" and find project-driven, hands-on curricula, projects, and technologies that provide new, innovative ways to engage students in the classroom and to potential cybersecurity career fields. Building a strong foundation early in a student's academic career is the key to gaining interested in the cybersecurity workforce. In this session, teachers will learn innovative practices in cyber education and explore means to promote a culture of educational innovation. **Track 3: Integrating Innovative Cybersecurity Educational Approaches** ***The Governor's High School Cyber Challenge: Reaching Students in Under-Served Areas of Michigan*** William Adams, Merit Networks, Inc The Michigan Cyber Range ran an online cyber skills competition for 284 high schoolers in 2016 and 2017. In 2018, the Challenge will provide certification training and career awareness to participants. This talk informs the audience of the state of online competitions, with the emphasis on availability to underserved areas, both urban and rural, and examines how a competition platform can provide more tangible rewards, such as job qualification **Track 4: Designing Cybersecurity Academic & Career Pathways** ***PANEL: The Emergence of Innovation: Hawaii High School CTE Convergence of Cybersecurity Education*** Moderator, Randy Yamanuha, University of Hawaii Maui College,

	PANELISTS: ● Brent Yamagata, Lellehua High School ● Jodi Ito, CISO-University of Hawaii ● Shawn Nakata, Lellehua High School Learn more about how the Hawaii State Department of Education is implementing a high school CTE cybersecurity program, mapped to the NICE Framework, in collaboration with local higher education institutions, is promoting a robust network and an ecosystem of cybersecurity education, training and workforce development in Hawaii. **Track 5: Promoting Cyber Awareness** *Sexting: Changing the Focus from Criminalization to Harm Reduction* Darren Laur, Personal Protection Systems, Inc. Sexting continues to be a topic of concern and disciplinary challenge for educators and youth professionals responsible for teaching teens to use technology responsibly. This presentation provides an educational paradigm shift to this challenge, based upon peer reviewed research, to move from an abstinence/criminalization risk reduction approach to an educational, harm reduction approach. This presentation will provide attendees with information, real world examples and advice that will allow students to be safer emotionally, psychologically and physically regarding sexting instances.
9:40-1:20 pm	**DROP IN SESSION** *Integrating Cybersecurity into STEM, Cyber Innovation Center* Students are beginning to explore career and degree opportunities earlier and earlier. Stop by to learn how cybersecurity concepts are being integrated into Science, Technology, Engineering and Mathematics classes. Attendees will learn how to introduce a variety of concepts into the classroom by building flashlights to discuss cyber-attacks, learning about various encryption and decryption methods, the security challenges around artificial intelligence, and more!
10:20-10:30 am	**BREAK & Exhibitor Showcase**
10:30-11:10 am	**Session 2** **Track 1: Increasing Cybersecurity Career Awareness** *Addressing the Cybersecurity Skills Gap with a "New Collar" Approach* Heather Ricciuto - Global Leader, IBM Security's Academic Outreach Programs and David Jarvis, Security & CIO Lead, IBM Institute for Business Value There is continued high demand for cybersecurity professionals and an ongoing shortage of talent. Organizations are pursuing many ways to close the talent gap in both the short and long term — including early education, non-traditional education methods, and more. Many cybersecurity jobs can be filled through a "new collar" approach that involves hiring people who may not have a traditional college degree but do have the needed technical skills and aptitudes. In exploring this approach, we look at IBM as a case study to understand how it is beginning to pursue this path. **Track 2: Infusing Cybersecurity Across the Educational Portfolio** *CyberSTEAM - Cybersecurity, a career that touches every part of STEAM!* Rebecca Onuskanich, Cyber Warrior Princess The Cyber Warrior Princess Program has been developed with the female learner in mind. Attendees will get an overview of the curriculum available to them for free, and will learn more about the blended training environment to educate female's in grades 6-12 on cybersecurity in a fun and interactive manner! The CWP teamed up with the Dayton Regional STEM School and Lebanon Jr. High School to create the first chapters of the Cyber Warrior Princess Programs. Learn how to set up your own successful local CWP chapter. **Track 3: Integrating Innovative Cybersecurity Educational Approaches** *Closing the Gap: DHS K-12 Curriculum and Resources for Cybersecurity Education* Princess Young, DHS DHS Cybersecurity Education and Awareness Branch (CE&A) will discuss current cybersecurity efforts and their impact in the education realm to help fill government and private industry cybersecurity positions with highly capable cybersecurity professionals. Opportunities and resources will be shared. DHS is leading efforts through its Cybersecurity Education and Awareness Branch (CE&A) by offering several free resources to support cybersecurity education, from providing cybersecurity course materials to middle and high school teachers; designating elite cybersecurity degree programs as Centers of Academic Excellence; and building a public-facing training catalog of cybersecurity courses at institutions across the country. Come learn more and walk away with great resources.

	Track 4: Designing Cybersecurity Academic & Career Pathways *PANEL: Developing a Statewide Cybersecurity CTE Pathway Program* Moderator, Albert Palacios, DoEd **PANELISTS:** ● Cyndi Millns, Pinckney Cyber Training Institute ● Deborah Knoll, STEM Division of TN College, CTE This session will walk you through how three states: Michigan, Tennessee, and Virginia, developed their statewide Cybersecurity CTE program. Panelists will discuss course content, industry certifications, instructor training, recruitment, advisory boards, utilization of competitions, dual/articulated credit options, and much more. **Track 5: Promoting Cyber Awareness** *Creating a Safe Environment for Student in an Era of Omnipresent Technology* Eric Green, CyberadAPT, and Winn Schwartau, The Security Awareness Company Technology should protect students both from themselves as well as from cyber attackers. This presentation will feature a conversation between the audience, a cyber risk educator and author Winn Schwartau, and mobile security strategist Eric Green. The panel will discuss how proper training and implementation of technology can: promote and enable a safe working environment for students, secure devices to keep student's external interaction safe, and secure school and school district networks to keep PII secure.
11:10-11:20 am	**BREAK & Exhibitor Showcase**
11:20-11:50 am	**Session 3** **Track 1: Increasing Cybersecurity Career Awareness** *Puzzle-Based Learning in Cybersecurity Education* Dr. Dipankar Dasgupta,University of Memphis Center for Information Assurance This project developed innovative games to teach cybersecurity concepts, enabling critical thinking through solving complex puzzles in a gaming platform using specialized software to help students learn the cryptography concepts and approaches. A multi-level PBL game is developed using Unreal Engine, a platform for creating encryption/decryption exercises. The outcome of the research is producing intelligent learning tools/techniques for cybersecurity education which is gradually being used for basic cybersecurity education and training. Learn how to use the game format in your classroom instruction. **Track 2: Infusing Cybersecurity Across the Educational Portfolio** *Hacker Highschool* Kim Truett, Institute for Security and Open Methodologies, (ISECOM) An introduction to teaching teens about the profession of cybersecurity through Hacker Highschool. Our twenty-two lessons include original material, demonstrations, exercises, testable segments, Feed Your Head, Game On, teacher segments, live labs, bootable Linux CD and head-to-head challenges. **Track 3: Integrating Innovative Cybersecurity Educational Approaches** *Pinckney Cyber Training Institute and Sentinel Center: Serving the CTE and Professional Communities* Cyndi Millns, Pinckney Cyber Training Center, Pierrette Templeton, Merit Networks, and Sarah Tennant, Michigan Economic Development Corporation The Pinckney Cyber Training Institute and Sentinel Center, a hub on the Michigan Cyber Range, serves multiple functions. It provides high school and college students, as well as IT professionals, a site to take cybersecurity courses, earn government recognized certifications, and engage in cybersecurity training exercises. High school students can earn 12 to 18 college credits toward a cybersecurity degree or program, with credit transfer agreements with a number of local community colleges and 4-year institutions. Courses are offered in various formats such as 7-week, 5-day boot camp, and online options to meet the needs of all customers. Come learn about this successful CTE and Community Based Model. **Track 4: Designing Cybersecurity Academic & Career Pathways** *CyberStart: Noteworthy Data from the $25 Million UK and US Pilot Program* Alan Paller, SANS Institute The United Kingdom's nationwide, $25 million CyberSchools program was just launched, giving students and their teachers, access to CyberStart and other proven tools and support for discovery, motivation, problem solving, and learning, to launch them on assured paths to cybersecurity careers. Seven U.S. state governors also tested CyberStart this past summer with 3,500 students in their

	states, and with more than 100 more at five GenCyber camps. In this session, you'll see the data and results from the CyberStart pilot programs that led to the UK nationwide rollout, as well as data from the U.S. pilot programs and how CyberStart complements CyberPatriot. **Track 5: Promoting Cyber Awareness** *The Many Faces of Privacy* Kelly Misata, Open Information Security Foundation For many digital citizens, defining what privacy means is overwhelming and complicated. This talk maps the different "faces" of privacy we use every day and how to keep pace with technology advances.
11:50-1:30	**LUNCH & Exhibitor Showcase**
12:45-1:30 pm	**Lunch Keynote** Heather Ricciuto, Global Leader, IBM Security's Academic Outreach Programs With a projection of 1.8 million unfilled cybersecurity jobs expected by 2020 (Frost & Sullivan, 2017), the cybersecurity skills gap simply cannot be ignored. While hackers are growing in number and sophistication, those fighting back are facing empty seats on the other end of the wire – putting our businesses, data and even critical infrastructure that our society depends on at risk. IBM is taking action, and you can too. Building interest and awareness of cybersecurity careers at a young age is a critical part of this equation – in fact many students don't even hear about cybersecurity as a career option prior to graduating high school. Learn about the many ways that academia and industry cybersecurity leaders can partner to help build the pipeline of cybersecurity talent that will help protect our digital futures.
1:30-1:40 pm	**BREAK & Exhibitor Showcase**
1:40-2:30 pm	**Session 4** **Track 1: Increasing Cybersecurity Career Awareness** *Presentation 1 - Using Competitions and School Challenges to Create the Next Cyber Workforce* Thomas Scott, South Carolina Cyber Center; Bill Littleton, Capitol Technology University; Cyber Forensics Integrated Product Team Lead, Space and Naval Warfare Systems Center Atlantic; and Hank Osborne, US Navy's Space and Naval Warfare Systems Center Atlantic NSA's Day of Cyber offers the possibility of creating a competition amongst schools to further the discussion on the cybersecurity workforce. Explore SC Cyber's successful launch and implementation. *Presentation 2 - Business Professionals of America - Workforce Skills Assessment Program* Patrick Schultz, Chairman of the Board of Trustees, Business Professionals of America (BPA) Professionals of America is a premier co-curricular CTSO (Career and Technical Student Organization) providing programs in business management, office administration, information technology and other related career fields. The Workplace Skills Assessment Program (WSAP) assesses the real-world skills and problem-solving students in the areas of finance, business administration, management, and information technology. Come learn more about this exciting CTSO and its offerings in Cybersecurity and Informational Technology fields. **Track 2: Infusing Cybersecurity Across the Educational Portfolio** *Presentation 1 - K-14 Cybersecurity Career Awareness, Exploration and Skills Development* Ann Wright-Mockler, Senior STEM Education Consultant, Pacific Northwest National Laboratory's Office of STEM Education Participants will explore the lessons learned and strategies with proven success for helping a diverse population of K-14 students build awareness of and interest in cybersecurity careers in one community. Engaging activities used in these efforts will also be shared. *Presentation 2 - CyberSecurity: The Year in Review* Dr. Gary Border, Bowling Green State University The holiday season seems an appropriate time to reflect on the many cybersecurity events that continue to challenge our abilities to leverage developing technologies while avoiding the role of a victim. Join BGSU's Gary Border for some entertaining and informative highlights of the cybersecurity developments of the past 12 months. From the dismantling of the Avalanche Network to the Equifax Hack, the highlights (and lowlights) of the year will be presented with reference to material from the IEEE Computer Society, NIST, Black Hat Conference, DefCon Conference and the professional CyberSecurity media. **Track 3: Integrating Innovative Cybersecurity Educational Approaches** *Presentation 1 -Closing the Confidence Gap: Busting the Myths of Cybersecurity Job Skills to Prep the Next Generation of Workers* Randi Parker, CompTIA and Eric Larson, IT Futures Labs

Much has been made of the growing skills gap that tech professions are facing, but we are also facing a troubling confidence gap, where young people do not believe they are smart or capable enough to enter the field. CompTIA and the Creating IT Futures are creating innovative new programs designed to bridge the confidence gap and get more students interested in a future tech career such as cybersecurity. CompTIA and Creating IT Futures are promoting tech career paths beginning in middle school with in-school STEM education programs, extracurricular program, mentor engagement, and summer internships. Come learn more.

Presentation 2 - Cyber Threat Defender: Hooking Students in to Cybersecurity!
Josef Klein - Information Security Specialist, Center for Infrastructure Assurance and Security (CIAS)
Learn how to introduce and teach cybersecurity concepts by using a fun and engaging card game, Cyber Threat Defender. Developed by the Center for Infrastructure Assurance and Security (CIAS) at the University of Texas San Antonio (UTSA). The CTD analog card game provides a turnkey solution for teachers introducing cybersecurity concepts to students, without the need for expensive technology tools. During the presentation, we will provide practical tips for educators, share schools' experiences and take participants through the game.

Track 4: Designing Cybersecurity Academic & Career Pathways
Presentation 1 -Multi-faceted Cybersecurity Education
Doug Streit, Old Dominion University
Preparing a generation of skilled and knowledgeable cybersecurity professionals cannot happen quickly enough. ODU has embraced a multi-faceted approach, reaching out to high schools, partnering with community colleges, fostering a student community, and enhancing hands-on experiences. This presentation highlights the four corners of cybersecurity education and research at ODU.

Presentation 2 - CyberExplorers: The Struggles and Success of Starting a Cybersecurity Summer Camp
Lisa Ross, School of Business, UAlbany and David Hernandez, Arizona NICE RAMPS Grant Project Coordinator
Come learn how to launch your own Cybersecurity Summer camp experience. UAlbany will talk about their local Digital Forensics program, and Arizona NICE RAMPS Grant project will share insight into starting a regional effort. Learn about the planning, content development, barriers to recruiting, staff training, and how to start your own program- building upon lessons learned from two different geographically located projects.

Track 5: Promoting Cyber Awareness
Presentation 1 -Equipped & Empowered: Ensuring Student Data Privacy & Security in Education
Jonathan King, i-SAFE Ventures
This presentation will underscore the importance of cybersecurity and data privacy in education, while encouraging K-12 educators to rethink how they teach students privacy, security and online safety strategies. Information on CIPA, COPPA, and FERPA, common privacy and security pitfalls, ways to mitigate risk and liability, best practices for administrators and classroom teachers, and parent and family engagement will all be covered.

Presentation 2 -Basic Tools in Cybersecurity Social Engineering to Disseminate to Students; a Non-Technical, Non-Geeky Career Path for Those Interested in Human Behavior
Dr. Daria M. Brezinski, President, Integrated Learning Systems
This presentation will introduce attendees to social engineering behaviors and preventative techniques, latest devices to thwart hackers; how to encourage students to build a positive online footprint for future employment; protection techniques for online hacking; ramifications of sexting, texting, and Facebook uploads, and trolling techniques used by psychopaths. Social Engineer Careers options will also be briefly discussed.

2:30-2:40 pm	**BREAK & Exhibitor Showcase**
2:40-3:20 pm	**Session 5** **Track 1: Increasing Cybersecurity Career Awareness** ***The GenCyber Program*** Tina Ladabouche, GenCyber, NSA The *GenCyber Program* (sponsored by NSA and NSF) is making great strides in reaching/teaching students and teachers about cybersecurity; teaching online safety, increasing interest in cybersecurity and improving teaching methods for delivering cybersecurity content in K-12 curricula. The session will provide information about the program, how attendees can benefit, and how you might start your own GenCyber Camp!

	Track 2: Infusing Cybersecurity Across the Educational Portfolio *Innovation in STEM Education: Training Teachers to Integrate Cybersecurity* Jessica Ivy, Mississippi State University and Dr. Sarah Lee, Mississippi State University Participants will learn strategies for integrating cybersecurity across disciplines in secondary classrooms and key ideas for engaging secondary teachers from a myriad of disciplines in a collaborative effort to integrate cybersecurity. Participants will engage in a task that will reinforce the importance of cybersecurity education as a relevant life skill. **Track3: Integrating Innovative Cybersecurity Educational Approaches** *Remote Virtual Lab Access: A Model to Building K-12 Career Pathways in Cybersecurity* Joanne Sexton, Augusta University Learn how to build K-12 Career Pathways in Cybersecurity using corroboration and shared technology resources between a public university and its public high schools. **Track 4: Designing Cybersecurity Academic & Career Pathways** *Academic & Career Cybersecurity Pathways that Work: Pikes Peak, CO Case Study* Bill Tomeo, CO Springs School District and Patty Bonvallet, Boecore, Inc. This presentation describes how our Colorado Springs high school students' participation in a cybersecurity focused program of study, that includes academic courses, a six-week long summer cyber internship work experience, a week-long cyber summer camp, and Career and Technical Education Student Organizations (CTSO) activities, influenced the student's choice of which areas of cybersecurity to pursue in both the cybersecurity academic and career pathways.. **Track 5: Promoting Cyber Awareness** *Liability for Schools & Administrators Related to Cybersecurity, Cyberbullying, and Student Information* Larry Teverbaugh, CareerSafe Inc, Lisa London, CareerSafe Inc, and Paula Dewitt, Attorney This session will increase awareness of student's cyber awareness activities at school, on school networks and beyond the official school infrastructure boundaries. The goal is to equip administrators to manage cybersecurity risks more effectively. This panel session will cover the legal and ethical concerns faced by school administrators related to the online activities of students; at school, on school networks and beyond the official school infrastructure boundaries. This session also features legal cases and primary survey results from 40,000 students.
3:20-3:30 pm	**BREAK & Exhibitor Showcase**
3:30-5:00 pm	**Workshop Sessions** **Track 1: Increasing Cybersecurity Career Awareness** *Introducing Cybersecurity with Hands-On Activities: Cyber Defense Against the Dark Arts* Dr. Ambareen Siraj, Tennessee Tech Director, Cybersecurity Education Research and Outreach Center; Katie Burks, Undergraduate Mathematics Student, Tennessee Tech; Jacob Strickler, Undergraduate Computer Science and Cybersecurity Student, Tennessee Tech *Cyber Defense Against the Dark Arts* uses fictional characters and themes from the popular Harry Potter books by J.K. Rowling to teach cybersecurity principles. The paper and pencil based hands on activities can be used in classrooms to teach cybersecurity concepts to students from middle to high school. **Track 2: Infusing Cybersecurity Across the Educational Portfolio** *Introducing Big Ideas of Cybersecurity through Integrated Science, Technology, Engineering, and Math Activities* Kirsten Manning, Virginia Space Grant Consortium This session will share some big ideas of cybersecurity and how these can be integrated into your STEM classroom. Come learn how to design a scientific experiment that can be run using Sense HAT sensors, an add-on board for Raspberry Pi, by writing the computer code needed to execute an experiment. **Track3: Integrating Innovative Cybersecurity Educational Approaches** *CyberPatriot: Attracting Students to STEM and Cybersecurity Education and Careers* Bernie Skoch, CyberPatriot National Commissioner Learn how *CyberPatriot* -- The National Youth Cyber Education Program is motivating K-12 students toward careers and STEM and cybersecurity through a variety of programs. Walk through activities from our summer camps and exercises to prepare for the *CyberPatriot Competition*.

	Track 4: Designing Cybersecurity Academic & Career Pathways *Growing the Cybersecurity Workforce: The Cybersecurity CTE Pilot Program* Moderator, Albert Palacios, DoEd **PANELISTS:** ● Alice Shaffer, NSA ● Jake Mhevc, Mohawk Valley CC ● John Sands, CSSIA ● Rob Honomichi, Dakota State University ● Nancy Jones, Coastline CC Experts from the National Security Agency, National Initiative for Cybersecurity Education (NICE) and OCTAE's Department of Education will join leaders from the Cybersecurity Regional Resource Centers to discuss the current efforts to develop a robust cybersecurity CTE Program of Study that articulates to Cybersecurity Centers for Academic Excellence and aligns to the NICE Framework. Hear about program development, content and resources, and teacher professional development. **Track 5: Promoting Cyber Awareness** *Data Privacy in Education: An iKeepSafe Educator Training Course* Holly Hawkins, iKeepSafe Growing concerns about student data privacy can create hurdles for K-12 educators working to expand access to tech and digital innovations. Teachers and administrators need to understand how student personal information is used and improve student privacy protections. This training course provides all K-12 teachers, administrators, and school board members with the tools they need to be aware of privacy concerns and keep students safe.

5:00-5:45 pm	**Poster Sessions, NICE K-12 Subgroup Planning Meeting, National Cybersecurity CTE Pilot Program Meeting**
	
	NICE K-12 SUBGROUP 2018 PLANNING MEETING
	Come learn about the NICE K-12 subgroup and help us prepare for the 2018 NICE K-12 Cybersecurity Education Conference, The National Cybersecurity Career Awareness Week (NCCAW), and help us prioritize projects for 2018.
	
	NATIONAL CYBERSECURITY CTE PILOT PROGRAM MEETING: BY INVITATION
	
	POSTER SESSION
	The Poster Sessions are research presentations given in a turn-style format. Walk by presenters to learn more about their research or join a discussion. The Poster Session allows attendees to study information in a poster format and discuss it with the presenter one-on-one.
	Session and Presenter list:
	● **Title:** *Bit-by-Bit Program:* Increase participation of young women in cybersecurity in schools within rural and remote locations in the southern Utah region.
	    ○ **Presenter:** Dr. Shalini Kesar - Associate Professor, Information Systems
	    ○ **Description:** This poster showcases the tools and successful outcomes of various outreach efforts to increase participation of women in STEM including cybersecurity. The target audience of this program are girls from high schools located within the 12 rural counties of southern Utah and parts of Nevada. It highlights the importance of building a strong network of collaborators including educators, local community, and parents while raising awareness of education and career opportunities for young women in rural and remote locations where challenges such as lack of skills and role models, and limited resources exist.
	
	● **Title:** *Creating Cybersecurity Awareness and Learning*
	    ○ **Presenter:** Thomas Scott - Executive Director, SC Cyber
	    ○ **Description:** Students from the University of South Carolina's Integrated IT degree program designed and developed a citizen learning portal. The portal, labeled "SECURESC" includes best practices in cybersecurity along with links to free online cybersecurity courses

	offered through TEEX. Students will complete the portal as part of a Capstone project in Spring 2018 semester.
	
	• **Title:** *First Annual National Cybersecurity Career Awareness Week (NCCAW)*
	  ○ **Presenter:** Chuck Garner, Director of Curriculum, Cyber Innovation Center
	  ○ **Description:** Come learn more about the first Annual National Cybersecurity Career Awareness Week and how to get involved with NCCAW 2018.
	
	• **Title:** *The Center for Innovation: A Model for School-Industry Collaboration*
	  ○ **Presenter:** Martha Cunningham - Director of Information Services, Rocky Hill School; Meg Stowe - Director of Innovation, Rocky Hill School
	  ○ **Description:** Learn about how Rocky Hill School's Center for Innovation builds learning experiences for our students with industry innovators.
	
	• **Title:** *The National Initiative for Cybersecurity Education (NICE) Cybersecurity Workforce Framework: NIST Special Publication 800-181*
	  ○ **Presenter:** Bill Newhouse, Deputy Director, NICE
	  ○ **Description:** Learn about the National Initiative for Cybersecurity Education (NICE) Cybersecurity Workforce Framework: NIST Special Publication 800-181, it's updates, and how you might use the NICE Framework as a reference to develop curriculum, courses, seminars, and research that cover the KSAs and Tasks described.

6:00-7:30 pm	**Wine & Breadboarding Social** Drop in any time between 6:00-7:30pm and join the Cyber Innovation Center and NICERC for an evening of networking and interfacing with cybersecurity tools! Attendees will be able to experience hands-on activities with Boe-Bots, Micro:bits, and Raspberry Pis and explore ways to integrate cybersecurity fundamentals into the K-12 classroom. Light appetizers provided. Cash bar.

Tuesday, December 5, 2017 Agenda	
7:00-8:00 am	**Registration, Check in and Breakfast**
7:00-8:00 am	**Birds-of-a-Feather Networking and Breakfast** The Birds-of-a-Feather sessions are interactive, informal, group-driven discussions. They are a non-commercial, dynamic venue for conference attendees to openly discuss current topics of focused mutual interest. Pick your topic and engage in a lively discussion over breakfast. • **Diversity in Cybersecurity**: How can we encourage the diversity that's needed? • Teacher Professional Development and CTE Instructor Training: What does the general classroom teacher need to know about cybersecurity and how do they learn? How can we increase the number of trained instructors to teach within the CTE Pathway programs? • **Alternative Programs:** Apprenticeships, mentorships, early college models. What else is out there? • **The Value of Speakers and Site Visits**: Share your insight. What have speakers and site visits others tapped? • **Competitions:** Are there other events outside of Defense Competitions to excite and engage students? • **Informal Education Opportunities:** 4H, Boys & Girls Clubs, Girl Scouts & Boy Scouts, Robotics Clubs, Coding Camps- What are other out-of-school settings where we can engage?
8:00-8:15 am	**Opening and Announcements from NICE K12 Subgroup Co-Chairs** Carlos Garcia, Cybersecurity Lead Instructor, Business and Computer Technology Department, Jackson College Patrick Schultz, Chairman of the Board of Trustees, Business Professionals of America (BPA)
8:15-8:30 am	**NICE Program Office Overview and Updates** • Rodney Petersen, Director • Bill Newhouse, Deputy Director • Danielle Santos, Program Manager • Clarence Williams, Lead for Government Engagement • Marian Merritt, Lead for Industry Engagement
8:30-9:15 am	**OPENING KEYNOTE** ***How to Encourage Students to Pursue a Degree and Career in the Cybersecurity Field?*** Paul Vann - 11th Grader, Founder and CEO, Vanntech Cyber As the cybersecurity industry grows larger, a growing number of students in primary and secondary schools will need to be educated on the inner workings of the field, and gain the expertise it entails to prepare students for the cybersecurity careers of tomorrow. Paul will be discussing the opportunities and resources that he's been given that have helped him grow into a cybersecurity leader, and how to provide these resources to other students all across the country. He will also discuss the avenues that other students can take towards entering the cyber field, and how to motivate children to be interested in a cybersecurity profession.
9:15-9:25 am	**Tennessee Department of Education Welcome** Deborah A. Knoll, Career Cluster Consultant, Advanced Manufacturing, Information Technology, and STEM Division of College, Career and Technical Education, Tennessee

	Department of Education
9:25-9:40 am	**BREAK & Exhibitor Showcase**
9:40-10:30 am	**Student Panel** • Jake Officer, 8th Grade Student, White County Middle School • Jacob Strickler, Undergraduate Computer Science and Cybersecurity Student, Tennessee Tech • Katie Burks, Undergraduate Mathematics Student, Tennessee Tech • Nick Moore, High School Student, Stratford STEM School • Alexia Sychareune, High School Student, Stratford STEM School • Paul Vann, High School Student, Commonwealth Governor's School in Virginia
10:30-10:40 am	**BREAK & Exhibitor Showcase**
10:40-11:20 am	**Session 1** **Track 1: Increasing Cybersecurity Career Awareness** *STEM in Action: Building a Student Pipeline Toward a Public Service Mission* Lori Gordon, Director of the Women in Homeland Security (WHS) STEM Program and Coordinator for Infragard's CyberCamp Program and Kalyna White, Women in Homeland Security Youth Ambassador Experiential learning opportunities are key to spurring the interest of a broad, diverse set of students in technical and non-technical cybersecurity careers. The presentation will discuss a STEM program model that provides immersive learning modules at homeland security agencies, a leadership speaker series, and an ambassador program to bring students directly to cybersecurity missions, technologies, and mentors. The model - which complements the NICE Framework and aligns to the Next Generation Science Standards (NGSS) and individual school curricula - is an effective way to help build a highly-skilled cybersecurity workforce. **Track 2: Infusing Cybersecurity Across the Educational Portfolio** *Spatial Thinking and Cybersecurity Education in Preschoolers and Early Elementary Students* Lemi-Ola Erinkitola, Educator, The Critical Thinking Child LLC Spatial skills is an important predictor of achievement in STEM Careers. This presentation will highlight the opportunities for spatial thinking in cybersecurity education among early elementary students. Participants will explore effective teaching strategies that can be readily implemented in the classroom or at home to help preschoolers and early elementary students develop and expand their spatial thinking. Participants will also discuss creative opportunities for developing children's cyber safety and cybersecurity career awareness through the use of spatial activities. **Track3: Integrating Innovative Cybersecurity Educational Approaches** *Michigan Initiative for Cybersecurity Education (MICE)* Carlos Garcia, Jackson College, Patrick Schultz, Bay-Arenac ISD Career Center, and Dennis Klass, Warren Career Preparation Center The Michigan Initiative for Cybersecurity Education (MICE) was developed to progressively address cybersecurity education in Michigan. MICE provides interested institutions with curriculum resources and training access to individuals who have various experiences, from a fully developed program to those in the initial stages of development. Trainings will identify various content delivery systems being used in the classroom, including Cisco Networking Academy, as well as, other virtual delivery systems and competitions available to those interested in cybersecurity education. MICE has created a train-the-trainer system and a learning management system that will be used as models for replication across the United States. **Track 4: Designing Cybersecurity Academic & Career Pathways** *Pathways from High School to Cybersecurity Careers for First Generation College-Bound Students* Nicole Simon and Megan Banford, City University of New York, and Deanne Wesley, Forsyth Technical Community College In this session, panelists will discuss various programs aimed at improving the educational and career outcomes of first-generation college students. The session will discuss the City University of New York | John Jay College of Criminal Justice's Cybersecurity Initiative, which develops robust, industry-aligned pathways from New York City high schools and community colleges into John Jay, and then out into cybersecurity careers. Furthermore, panelists will discuss the Forsyth Technical Community

	College Cyber Crime Technology Program. Presenters will provide an overview of their individual initiatives and program funding, and then focus on the specific programs that their high school and college students have participated in. ***Track 5: Promoting Cyber Awareness*** ***National Cybersecurity Awareness Month (NCSAM) and Stay Safe Online - Gearing Up for 2018*** Michael Kaiser, National Cyber Security Alliance (NCSA) We need to create in the digital age a basic proficiency in cybersecurity so all students know how to use technology safely, securely, ethically and productively. How do we create a culture of cybersecurity that helps everyone navigate the connected world? What have we been doing wrong in conveying messages and how can we do better? How can schools, teachers and the community plug into existing awareness efforts like—National Cyber Security Awareness Month, Data Privacy Day, Safer Internet Day and the STOP. THINK. CONNECT. campaign and access the multitude of existing resources?
10:40 am-12:00 pm	**DROP IN SESSION** ***Capture the Flag*** Ambareen Siraj, Cybersecurity Education Research and Outreach Center Capture the Flag (CTF) competitions allow students to learn cybersecurity skills in a fun and engaging way. It is an effective platform to increase students' interest in cybersecurity and prepare them for defending against real cyber attackers. A typical CTF competition requires at least some basic technical security knowledge and months of diligent preparation. Inspired by the CS Unplugged project, the primary goal of the CTF Unplugged project is to teach students with little or no technical knowledge about the different cybersecurity challenges that a cybersecurity professional must address and the problem-solving skills needed for a cybersecurity career, all without direct use of technology.
11:20am -11:30 am	**BREAK & Exhibitor Showcase**
11:30am-12:00 pm	**Session 2** **Track 1: Increasing Cybersecurity Career Awareness** ***CCEI: A 'New' Partner in K-12 Cybersecurity Education*** Dr. Greg von Lehmen. University of Maryland University College and Mark S. Loepker, Cyber Center for Education & Innovation (CCEI), Home of the National Cryptologic Museum (NCM) Cryptologic Museum. This presentation will provide an overview of the Cyber Center for Education and Innovation - Home of the National Cryptologic Museum. As a partnership between the National Cryptologic Museum Foundation and the NSA, the Center will be a best-in-class integrated outreach complex that will house an enhanced National Cryptologic Museum, provide a peerless cryptologic research and rare books library, and offer classrooms and other space to support conferences and other functions. By design, the CCEI will promote an active program of educational outreach, including support for efforts to build the K-12 STEM pipeline. The University of Maryland University College (UMUC) is the lead higher education institution assisting CCEI with the development of its educational programming. **Track 2: Infusing Cybersecurity Across the Educational Portfolio** ***The NICE Challenge Project: Cybersecurity Workforce Experience Before the Workforce*** Tony Coulson, Cyber Security Center The NICE Challenge Project (NCP) helps people who are preparing to join the workforce to see if they are able to complete the tasks related to the job roles they may be seeking. Users of the NCP are presented with real world type scenarios and must apply their skills, knowledge and abilities to complete tasks in a multi-segmented, 13-device network. The NCP is federally funded and free for educational institutions to use. Find out more about the NCP and if it would be a good fit for your high school. **Track3: Integrating Innovative Cybersecurity Educational Approaches** ***Implementing National Standards in Your Cybersecurity Training*** Charles J. Brooks, Educational Technologies Group Inc Cybersecurity is one of the most talked about subjects in the world today. It is expansive – it crosses national borders and includes all types of actors. Creating effective training for this rapidly growing field can also be expansive, there are various vendor-specific network certifications to consider, different security practitioner certifications of all types to consider, and varying definitions of what cybersecurity is. So where do you start? Consider starting with the NIST Cybersecurity Frameworks as the standard. Join us to see what starting at this point does for designing a robust cybersecurity curriculum that addresses the full range of knowledge and skills cybersecurity employers are looking for.

	Track 4: Designing Cybersecurity Academic & Career Pathways *Exploring the Power of Storytelling for Cybersecurity Education* Laurin Buchanan, Applied Visions, Inc Learn how branching, interactive comic stories can be used to teach middle school students about cybersecurity. These stories can incorporate culturally relevant pedagogy, and therefore have the potential to reach a broader and more diverse body of students. This presentation will share initial findings from a two-year research project funded by NSF to evaluate how this approach can be used to achieve the following goals: 1) Attract a broad and diverse workforce to the field of cybersecurity, starting in middle school. 2) Use expert-created comics to evaluate a learner's knowledge, skill, and ability in cybersecurity. 3) Deepen students' understanding of cybersecurity challenges and consequences using a comic creation activity. Additional uses and applications of this story-based approach and future plans will also be discussed. **Track 5: Promoting Cyber Awareness** *Using Connected Learning to Promote STEM and Cybersecurity Awareness in the Classroom* Marialice Curran, Digital Citizenship Institute Learn about the many innovative ways to use technology to connect to educators and students across the world to teach students in new ways. Marialice will share about Global Maker Day and connect live with David Goutcher, former law enforcement officer and author of the book Spykids.
12:00-1:30 pm	**Lunch & Exhibitor Showcase**
12:45-12:50 pm	National Cybersecurity Career Awareness Week (NCCAW) Cybersecurity Challenge Winners Kim Paradise, LifeJourney
12:50-1:30 pm	**Lunch Keynote** **School Counselor's Panel** This panel will discuss the role of today's school counselor, which has evolved over the past two decades, and the innovative ways school counselors are ensuring students are equipped with information about all post-secondary opportunities, including expanding their awareness and familiarity about jobs in cybersecurity and other STEM related fields. Representatives from a public education career center, a school district, higher education and the American School Counselor Association will share best practices and examples that highlight how career development is fundamental to student success. Moderator, Jill Cook, American School Counselor Association (ASCA) **PANELISTS:** ● Liz Parker, Coordinator of School Counseling Programs, Williamsburg-James City County Public Schools ● Nicole Cobb, Senior Lecturer, Vanderbilt University ● Robert Officer, School Counselor, White County Middle School ● Terri Tchorzynski, 2017 School Counselor of the Year and School Counselor, Calhoun Area Career Center
1:30-1:40 pm	**BREAK & Exhibitor Showcase**
1:40-2:30 pm	**Session 3** **Track 1: Increasing Cybersecurity Career Awareness** *Presentation 1 - Building an Effective Cybersecurity Summer Camp: SC Model* Bill Littleton, Space and Naval Warfare Systems, Cyber Forensics Integrated Product Team Lead and STEM Cyber Security Outreach Team Lead Palmetto Cybersecurity Summer Camp in Charleston, South Carolina, starting out small, now enrolls over 150 students in a variety of different cybersecurity tracks. As the number of students began to grow, so did the courses including areas in programming, engineering, networking, operating systems, vulnerability scanning, digital forensics, espionage, encryption, and participating in a cyber network operations environment. This presentation will provide educators with resources, as well as a background and ideas on how to engage the school district and the community to best provide students with knowledge and skills that will drive them to be future cybersecurity warriors. Come learn

how to start or expand your own camp!

Presentation 2 - Cybersecurity Career Awareness for Educators and Administrators
Tonya Mead, CFE, CHFI, President, Shared Knowledge, LLC
Tonya will walk you through her path in becoming President of Shared Knowledge, LLC, a minority-woman owned cybersecurity, and investigations agency specializing in detecting, preventing, investigating and resolving fraud, white collar crime and identity theft in the educational setting. She is a Certified Fraud Examiner, Computer Hacking Forensic Investigator, Compliance Agent, and Private Investigator. Walk away with tips to share with other girls about the field.

Track 2: Infusing Cybersecurity Across the Educational Portfolio
Presentation 1 - Infusing Cybersecurity in the Computer Science Classroom
Dr. Amy Fox, Valhalla High School (VHS), New York
This interactive presentation is aimed at teachers who are interested in incorporating cybersecurity in their computer science curriculum, but do not have the expertise or experience to do so. We will discuss why teaching cybersecurity is so critical, types of training available, and various topics that can enhance a high school computer science curriculum. Dr. Fox will share her training experiences, as well as, topics/concepts she currently teaches in her Intro to Computer Science course.

Presentation 2 - The NICE Cybersecurity Workforce Framework (NICE Framework)
Bill Newhouse, Deputy Director, Senior Security Engineer, NICE, National Cybersecurity Center of Excellence
The NICE Cybersecurity Workforce Framework (NICE Framework) improves communication about how to identify, recruit, develop, and retain cybersecurity talent. It is a resource from which organizations or sectors can develop additional publications or tools that meet their needs to define or provide guidance on different aspects of workforce development, planning, training, and education. Come learn how this applies to the K-12 setting.

Track3: Integrating Innovative Cybersecurity Educational Approaches
The Virginia Cyber Range: Proving Cloud-based Resources for Cybersecurity Education
Sandra Schiavo, Lead Courseware Coordinator, Virginia Cyber Range
The Virginia Cyber Range provides a courseware repository for educators and a cloud-hosted virtual environment where students practice what they've learned in immersive, hands-on laboratory exercises. This presentation will demonstrate how the cloud-based approach allows fast deployment and scalability, and eases the burden on Virginia schools of providing infrastructure for cybersecurity labs, and discuss how The Virginia Cyber Range supports educational initiatives such as the NICE Framework.

Track 4: Designing Cybersecurity Academic & Career Pathways
Alternative Academic Pathways Moderator

Moderator, Albert Palacios, U.S. Department of Education
PANELISTS:
- Bill Tomeo, Cybersecurity Instructor, Early College High School Career Pathways, Colorado Springs School District 11 (CO)
- Harmony Paz, CTE Department Chair, Leilehua High School (HI)
- Shawn Nakata, Curriculum Coordinator/Coach, Leilehua High School (HI)
- Elerod Morris, Information Technology teacher, Carver High School and Instructor, Forsyth Technical Community College (NC)

This session will walk you through how three states: Colorado, Hawaii, and North Carolina, developed their statewide Cybersecurity CTE program. Panelists will discuss course content, industry certifications, instructor training, recruitment, advisory boards, utilization of competitions, dual/articulated credit options, and much more.

Track 5: Promoting Cyber Awareness
Presentation 1 - Cyber Safety in the Classroom Speaker
Patrick Craven, Center for Cyber Safety and Education
This session looks at techniques and tools that you can use as an educator to keep abreast of the latest cyber threats targeting schools and families, and how you can share this knowledge amongst coworkers, administrators, and parents.

	Presentation 2 - How "Smokey The Bear Forest Fire", "Stop Drop and Roll", and "Quit Smoking" Campaigns Can Support the Cybersecurity Workforce Needs of the Future Loyce Pailen, Cybersecurity Policy and Technology Professor and Director, Center for Security Studies, UMUC Learn how to build a generation of cyber-ready workers. The participants will explore how the effectiveness of prior social impact campaigns can be used today for the cybersecurity workforce dilemma. This presentation is dedicated to supporting the cybersecurity workforce needs for the 21st century. Drawing on lessons learned from the earlier "Smokey The Bear – Forest Fire" campaign along with the more recent "Stop, Drop and Roll" and "Quit Smoking" initiatives focused on children between the ages of 8 and 12, (as well to adults who read to and teach them), we have an opportunity to make more cybersecure citizens, while exposing them to careers in the wide workforce field.
1:40 pm -2:30 pm	**DROP IN SESSION** *Hacker Resources* David Hernandez, Arizona NICE RAMPS Grant Project Coordinator Explore a plethora of exciting resources to supplement instruction; for both formal and informal classroom use. These will assist with current class material, but also allow self-lead students to progress much further than class material.
2:30-2:40 pm	**BREAK & Exhibitor Showcase**
2:40-3:20 pm	**Session 4** **Track 1: Increasing Cybersecurity Career Awareness** *Cybersecurity Career Exploration Platform Equips Our Nation's Educators to Prepare the Next Generation of Cybersecurity Professionals* Kimberly Paradise, LifeJourney The goal of this session is to share the available resources and insights that will make cybersecurity relatable to students. We will explore the plethora of tools and resources educators can access for free to help inspire students to become part of America's digital economy. **Track 2: Infusing Cybersecurity Across the Educational Portfolio** *Aligning Curriculum with Workforce Needs - Developing a Curriculum (DACUM) Chart for a Cybersecurity Analyst* Chris Carter, Virginia Space Grant Consortium (VSGC) The Virginia Space Grant Consortium (VSGC) led the development of a DACUM (Developing a Curriculum) chart for a Cybersecurity Analyst. Attendees will learn about the DACUM process and understand how the Cybersecurity Analyst DACUM chart can be used to develop courses and curriculum that align with workforce demand; even at the K-12 level. Attendees will receive the final DACUM chart developed by the VSGC. **Track3: Integrating Innovative Cybersecurity Educational Approaches** *CyberStart: An Online Aptitude and Attitude Game for Introducing Cybersecurity* Alan Paller, SANS Institute The United Kingdom's nationwide, $25 million CyberSchools program was just launched, giving talented British students, 14-18 years old, and their teachers, access to CyberStart and other proven tools and support for discovery, motivation, problem solving, and learning, to launch them on assured paths to cybersecurity careers. Seven U.S. state governors also tested CyberStart this past summer with 3,500 students in their states, and with more than a hundred more at five GenCyber camps. CyberStart resonated with the students, who sent their governors hundreds of personal notes saying how different it was from anything else and how much they learned, enjoyed and were motivated by CyberStart to enter cybersecurity careers. In this session, you'll see the data and results from the CyberStart pilot programs that led to the UK nationwide rollout, as well as data from the U.S. pilot programs and how CyberStart complements CyberPatriot. The session is a unique opportunity to get a head start on both understanding the UK Discovery and CyberStart programs and in identifying sources of support for your students and your schools as the program rolls out in the United States. **Track 4: Designing Cybersecurity Academic & Career Pathways** *The Center for Innovation: Building Partnerships Between Industry and Education* James Tracy, Head of School, Rocky Hill School, Rhode Island As technology continues to evolve exponentially, our K-12 educational experience must reflect the framework and skills required to prepare our citizenry to impact the world of work. As work becomes increasingly digitally driven by AI, Dr. James Tracy, will discuss how a K-12 independent school is

	responding to this phenomenon through a first-of-its kind partnership with a world class edtech accelerator. Rocky Hill School's Center for Innovation embeds edtech start-up companies, the founders, and their software within the learning experience. This model provides a unique opportunity for various sectors or industries to help schools deliver the skills and knowledge critical for humanity to address the world's largest problems. **Track 5: Promoting Cyber Awareness** ***Social Media Awareness, Cyber Bullying and The Internet; Navigating in the Digital Age, An Educational Update for K-12*** Melissa Straub, Director, High Impact Youth Training Solutions and STOP! In today's technological age, parents/educators face a daunting task of raising their children free of constant negative influence. Access to undesirable people and information is prevalent and extremely difficult to monitor. This presentation will share with participants the current apps and trends students are using, and will navigate through the challenges and the social media consequences youth face in today's digital world as viewed through a law enforcement officer, detective, and school resource officer lens.
3:20-3:30 pm	**BREAK & Exhibitor Showcase**
3:30-4:15 pm	**Closing Keynote** Diane G. Miller, CCP, Director, InfoSec Operations & Identity Management Director, Global Cyber Education & Workforce Development Programs, Northrop Grumman Corporation Finding qualified talent to address the cyber workforce shortage is a struggle for many organizations - and the gap continues to widen. To close the gap, we need to start considering pathways to get students into cybersecurity – now and in the future. Diversity and trust are critical to achieving this goal. First, we need students with a variety of academic backgrounds, various levels of education and training, and an abundance of assorted strengths, assets and talents. Paths to careers in cybersecurity are often dynamic with few direct paths and success being a result of collaboration, communication and the ability to think beyond the norm. Second, all business domains depend on cybersecurity professionals they can trust to protect and maintain their systems and information. We need to encourage students to behave ethically, responsibly, and safely in cyberspace such that their behaviors afford them the opportunity to pursue a career where they can feel good about making a difference every day to protect our nation's citizens, economy, and way of life. Diane will address these challenges and offer ideas to assist professionals, academic professionals and students in navigating the dynamics of education and workforce preparation in the cybersecurity field.
4:15-4:30 pm	**Closing Remarks** Feedback from Audience

2017 Conference Summary Evaluations from the Attendees

Unfortunately, only three attendees of the pre-conference workshop filled out the conference evaluation. A much larger sample size resulted from attendees of the regular sessions as indicated in Figure 3.
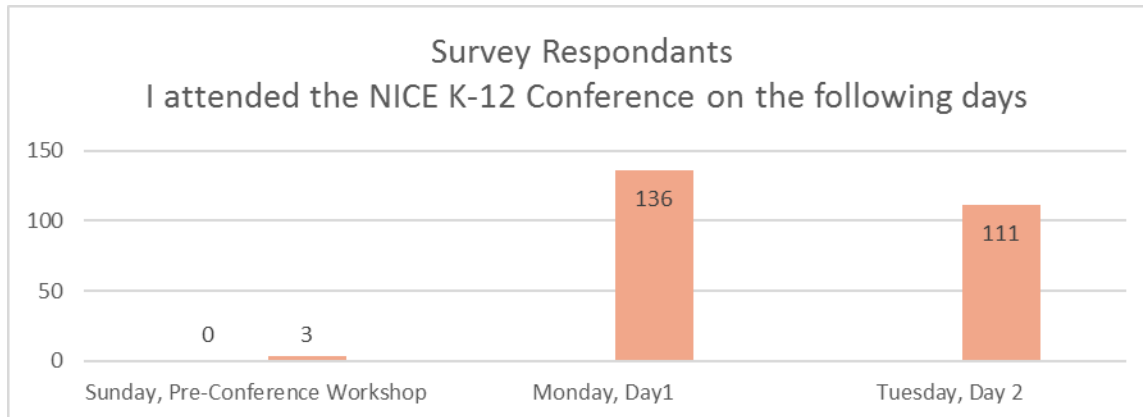

Figure 3: Daily attendance by Survey Respondent

There are some attendees who have come to past NICE conferences. For example, nine people attended the 2015 K-12 Cybersecurity conference in Linthicum, MD, and 13 have attended the 2016 Arlington, VA conference, and 9 attended both. Thus, by moving to a new location, many new participants joined as 133 respondents indicated this was their first K-12 conference. Additionally, 14 respondents also attended the NICE conference in Dayton, OH in 2017, and 13 respondents also attended the 2017 ACTE conference in Nashville, TN. This data can be found in Figure 4.
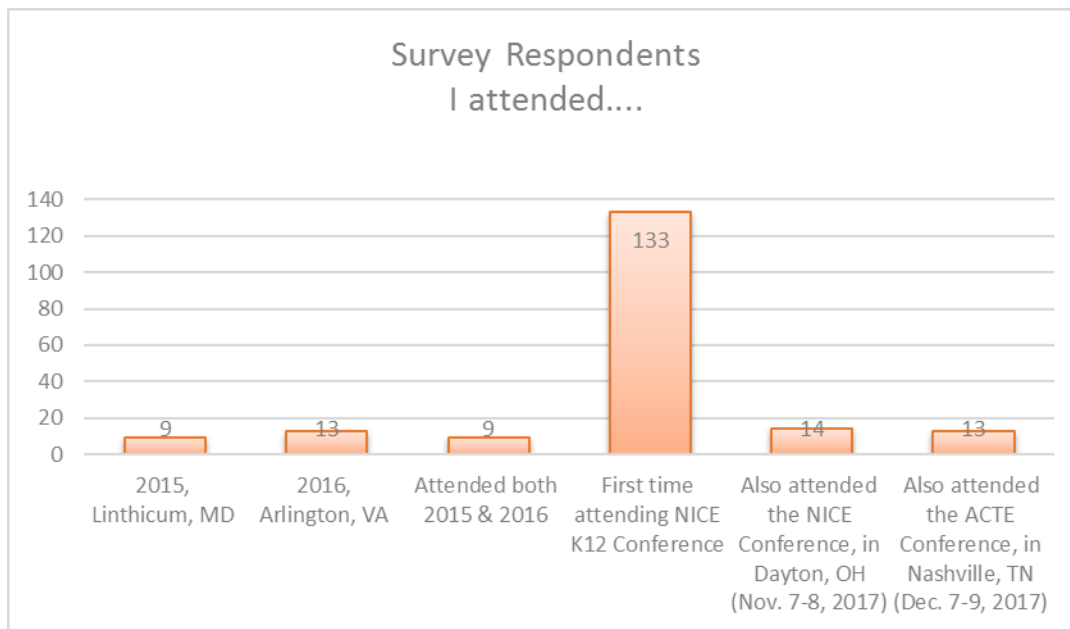

Figure 4: Conference attendance by survey respondents

Data from attendees who completed the survey indicate that slightly more attended the first day than the second. This is not uncommon for a multi-day conference. All those who attended the 2015 conference also attended the 2016 conference. Only around 10% of attendees attended the NICE and/or ACTE conference this year. More were first time attendees.

The survey included a list of questions regarding the effectiveness of the conference overall, as well as individual sessions. A Likert scale was used to capture the responses, and average responses for each question are shown in the table below.

Evaluation and Feedback	
1 - 5 scale, with 5 being strongly agree, 1 being strongly disagree (6 NA – not included in calculation)	Average
General Questions About the Conference Overall	
The conference goals were clear.	4.53
The conference content/topics were timely.	4.60
The two-day length of the conference was sufficient to cover the subject matter.	4.51
Overall, the conference speakers were effective.	4.55
The conference materials were/are useful.	4.59
I learned new information through this conference.	4.80
I will use the information that I learned at this conference in my current position.	4.69
I would recommend this conference to others.	4.67
Considering what I learned in the conference sessions, the cost was reasonable.	4.68
The facilities were sufficient.	4.87
The food was satisfactory.	4.87
AVERAGE	**4.67**
Workshops **Presentation I enjoyed… (N/A 0 Strongly Agree 5, Agree 4, Neutral 3, Disagree 2, Strongly Disagree 1)**	
Increasing Cybersecurity Career Awareness Track: Introducing Cybersecurity with Hands-on Activities: Cyber Defense Against the Dark Arts. Ambareen Siraj, Tennessee Tech	4.79
Infusing Cybersecurity Across the Educational Portfolio Track: Big Ideas of Cybersecurity through integrated	4.76

STEM Activities. Kirsten Manning, VA Space Grant Consortium	
Integrating Innovative Cybersecurity Educational Approaches Track: CyberPatriot. Bernie Skotch, CyberPatriot National Commissioner	4.69
Designing Cybersecurity Academic & Career Pathways Track National Cybersecurity CTE Pilot Program Albert Palacios (DoED), Davina Pruitt-Mentle (NICE), Alice Shaffer (NSA), Jake Mihevc (Mohawk Valley CC), John Sands (CSSIA), Rob Honomichl (Dakota State), & Nancy Jones (Coastline CC)	4.75
Promoting Cyberawareness Track: Data Privacy in Education, an iKeepSafe Educator Training Course. Holly Hawkins, iKeepSafe	4.77
AVERAGE	**4.75**
Presentations	
Day 1 Opening Keynote Speaker, Sheila Boyington, Thinking Media: Why Cybersecurity & STEM Career Awareness in Education?	4.68
Day 1 Lunch Keynote, Heather Ricciuto, IBM Security's Outreach Program	4.42
Day 2 Morning Keynote, Paul Vann, 11th grader and Vanntech Cyber	4.67
Day 2 Student Panel, Moderated by Davina Pruitt-Mentle, NICE	4.51
Day 2 School Counselor Panel, Moderated by Jill Cook, ASCA	4.46
Day 2 Closing Keynote, Diane Miller, Northrop Grumman Corporation, Industry Perspective	4.86
AVERAGE	**4.60**
I really enjoyed the following Drop-in Hands-on Sessions (upstairs on the 4th floor)	
Day 1 morning DROP IN Session: Integrating Cybersecurity into STEM with the Cyber Innovation Center	4.57
Day 2 morning DROP IN Session: Capture the Flag with Ambareen Siraj and students from TN Tech	4.59
Day 2 afternoon DROP IN Session: Hacker Resources with David Hernandez	4.50
AVERAGE	**4.55**
Extras	
The Exhibitor Showcase/Tables	4.34
The Day 1 Wine & Breadboarding evening social	4.38
Visiting the Poster Sessions (in exhibitor table room)	4.23

Networking & meeting new people at the Day 2 Birds-of-a-Feather Breakfast	4.32
Learning about local efforts from the Nashville Technology Council, TN Chamber of Commerce, & TN Department of Education	4.32
Learning about NICE and NICE K-12 efforts and how to get involved (NICE K-12 sub-chairs Carlos Garcia & Patrick Schultz and the NICE Program Office Staff)	4.44
AVERAGE	**4.34**
Would you like to provide feedback on the conference concurrent sessions? Yes, I understand it will take a few more minutes to complete, but it important to provide feedback to prepare for next year's NICE K-12 Conference Select choice for the sessions you attended. Presentations on Day 1 (Session 1) I really enjoyed. 1 - 5 scale, with 5 being strongly agree, 1 being strongly disagree (6 N/A I did not attend this session – not included in calculation)	
NSA Does Cybersecurity for K-12: Mark Wolkow & Barbara Teraji, NSA	4.56
Integrating Cybersecurity Across All K-12 Disciplines: Kevin Nolten, Cyber Innovation Center	4.40
The Governor's High School Cyber Challenge: Reaching Students in Under-served Areas in Michigan: Joe Adams, Merit Network, Inc	4.67
PANEL: Hawaii High School CTE Convergence of Cybersecurity: Randy Yamanuha, Univ. of Hawaii-Maui College, Moderator. Panelists: Brent Yamagata, Leilehua High School, Jodi Ito, CISO, Univ. of Hawaii, Shawn Nakata, Leilehua High School.	4.20
Sexting: Changing the Focus from Criminalization to Harm Reduction: Darren Laur, Personal Protection Systems, Inc	5.00
Presentations on Day 1 (Session 2). I enjoyed…	
Addressing the Cybersecurity Skills Gap with a "New Collar" Approach: Heather Ricciuto & David Jarvis, IBM	4.60
CyberSTEAM: Cybersecurity -A Career that Touches Every Part of STEAM!: Rebecca Onuskanich, Cyber Warrior Princess	4.00
DHS K-12 Curricula & Resources for Cybersecurity Education: Princess Young, DHS	4.44
PANEL: Developing a Statewide Cybersecurity CTE Pathway Program: Albert Palacios, DoED, Moderator. Cyndi Millns (MI), Deborah Knoll (TN), & Judy Sams (VA)	4.29
Creating a Safe Environment for Students in an Era of Omnipresent Technology: Eric Green, Cyber asAPT & Winn Schwartau, Security Awareness Company	5.00
Presentations on Day 1 (Session 3). I enjoyed...	
Puzzle-based Learning in Cybersecurity Education: Dipankar Dasgupta, University of Memphis	3.33
Hacker Highschool: Kim Truett, ISECOM	4.83

Pinckney Cyber Training Institute & Sentinel Center: Cyndi Millns, Pinckney Cyber Center	4.00
Cybersecurity Job Skills to Prep the Next Generation of Workers: Randi Parker, CompTIA & Eric Larson, IT Futures Lab	4.67
The Many Faces of Privacy: Kelly Misata, Open Information Security Foundation	3.67
Presentations on Day 1 (First part of Session 4). I enjoyed...	
Using Competitions & School Challenges to Create the Next Cyber Workforce: Thomas Scott, SC Cyber Center	5.00
K-14 Cybersecurity Career Awareness, Exploration, & Skills Development: Ann Wright-Mockler, Pacific Northwest National Lab	4.00
CyberStart: Noteworthy Data from the $25 Million UK & US Pilot Program: Alan Paller, SANS Institute	3.50
Multi-faceted Cybersecurity Education: Doug Streit, Old Dominion University	3.00
Presentations on Day 1 (Second part of Session 4) I enjoyed...	
Business Professionals of America: Workforce Skills Assessment Program: Patrick Schultz, BPA	4.50
Cybersecurity: The Year in Review: Gary Border, Bowling Green State University	4.00
Cyber Threat Defender: Hooking Students into Cybersecurity!: Josef Klein, CIAS	4.50
CyberExplorers: The Struggles & Success of Starting a Cybersecurity Summer Camp: Lisa Robb, UAlbany & David Hernandez, Arizona Ramps	5.00
Basic Tools in Cybersecurity Social Engineering to Disseminate to Students: Daria Brezinski, Integrated Learning Systems	4.00
Presentations on Day 1 (Session 5). I enjoyed...	
The GenCyber Program Tina Ladabouche, NSA	4.33
Training Teachers to Integrate Cybersecurity Jessica Ivy & Sarah Lee, Mississippi State University	4.00
Remote Virtual Lab Access: A Model to Building K-12 Career Pathways in Cyber Joanne Sexton, Augusta University	4.33
Academic & Career Pathways That Work: Pikes Peak, CO Case StudyBill Tomeo-Colorado Springs School District 11, Chelsy Harris-Pikes Peak Community College, & Patty Bonvallet-Boecore, Inc.	4.57
Liability for Schools & Administrators Related to Cybersecurity, Cyberbullying, & Student Information Larry Teverbaugh & Lisa London-Career Safe, Paula DeWitte, Attorney	4.40
Presentations on Day 2 (Session 1). I enjoyed...	
Building a Student Pipeline Toward A Public Service Mission: Lori Gordon & Kalyna White, Women in Homeland Security	4.67

Spatial Thinking & Cybersecurity Education in Preschoolers & Early Elementary Students: Lemi-Ola Erinkitola, The Critical Thinking Child, LLC	4.50
Michigan Initiative for Cybersecurity Education: Carlos Garcia (Jackson College), Patrick Schultz (Bay ISD Career Cluster), & Dennis Klaas (Warren Career Preparation Center)	4.60
Pathways from High School to Cybersecurity Careers for First Generation College-Bound Students: Nicole Simon & Megan Banford (City University of NY), Deanne Wesley (Forsyth Technical CC)	4.33
National Cybersecurity Awareness Month (NCSAM): Michael Kaiser, NCSA	4.57
Presentations on Day 2 (Session 2). I enjoyed...	
A New Partner in K-12 Cybersecurity Education: Greg von Lehmen & Mark Loepker, Cyber Center for Education and Innovation	4.43
The NICE Challenge Project: Tony Coulson, Cyber Security Center	4.80
Implementing National Standards in Cybersecurity Training: Educational Technologies Group, Inc	4.25
Exploring the Power of Storytelling for Cybersecurity Education: Laurin Buchanam, Applied Visions	4.20
Using Connected Learning to Promote STEM & Cyberawareness in the Classroom: Marialice Curran, Digital Citizenship Institute	4.00
Presentations on Day 2 (First part of Session 3). I enjoyed...	
Building an Effective Cybersecurity Summer Camp: SC Model: Bill Littleton, Space & Naval Warfare Systems	4.83
Infusing Cybersecurity in the Computer Science Classroom: Amy Fox, Valhalla High School	4.50
The VA Cyber Range: Sandra Schiavo	4.50
PANEL: Alternative Academic Pathways: Albert Palacios (DoEd), Bill Tomeo (CO), Harmony Paz & Shawn Nakata (HI), and Elerod Morris (NC)	4.50
Cyber Safety in the Classroom: Patrick Craven, Cyber Safety & Education	4.67
Presentations on Day 2 (Second part of Session 3). I enjoyed...	
Cybersecurity Career Awareness for Educators & Administrators: Tonya Mead, Shared Knowledge	4.50
NICE Workforce Framework: Bill Newhouse, NICE	4.57
How Smokey Bear & Stop, Drop & Roll Campaigns Can Support the Cybersecurity Workforce Needs of the Future: Loyce Pallen, UMUC	4.00
Presentations on Day 2 (Session 4). I enjoyed...	
Day of CyberKim Paradise, LifeJourney	4.57

Developing a DACUM Curriculum Chart for a Cybersecurity Analyst: Chris Carter, VSGC	5.00
CyberStart: An Online Aptitude Course Alan Paller, SANS Institute	4.80
The Center for Innovation: Building Partnerships Between Industry & Education James Tracy, Rocky Hill School, RI	4.67
Social Media Awareness, Cyberbullying and the Internet: Melissa Straub, High Impact Youth Training Solutions	4.75
Average of Concurrent Sessions	**4.48**

All presentations were positively viewed. A score of 3 would be a neutral opinion. A score of 4 indicated the attendee agreed they enjoyed the presentation. The top score that could be received was a 5; indicating the attendee strongly agreed they enjoyed the session. General impression overall was a 4.67, with the lowest score being a 4.51 indicating insufficient time to cover the subject matter. The highest rated items were the facilities and food, both with a score of 4.87. The average score for conference workshop sessions was 4.75. Opening, closing, luncheon keynotes and panels scored an average of 4.6. The highest score was 4.86 which was given to the closing keynote, Diane Miller, from Northrop Grumman Corporation. This year we held drop-in hands-on sessions. The average score for all three of these hands-on drop-in sessions was 4.55. Data collected from open ended questions, indicated that some attendees were unable to find the location of the hands-on sessions. A few indicated they did not like the sessions being so far away from the rest of the conference. The average of concurrent sessions was 4.48, indicating a high level of satisfaction with the sessions.

Open-Ended Feedback

What is/are the most important thing(s) you learned at this conference?

There are large resources available to me as I help develop a cyber security curriculum for my district	New Resources available to teachers	How far behind educators are in cybersecurity
Resources that educators currently feel they have and what they need to better recruit students to the field	Implementation framework, lessons, and strategies for teachers to get started.	NICE Challenge Website of Content & Experiential Learning
The increased need to offer Cybersecurity education courses to our middle and high school students.	That Cybersecurity education needs to be addressed across the board in the USA	Resources
The different programs available to start up K-12 STEM programs	Various Agency responsibilities	Deficit of pipeline to fill cyber security jobs
Concrete Idea about Cybersecurity education	How to get a cyber security program started at my school	The growing need for people in the profession
Guidance (now 'school') counselors are a very important target for promoting cybersecurity STEM	All the resources that I gathered.	That educators need more free resources vs. vendors selling products
Paul Vann's presentation on who to seek youth interest in cybersecurity	new K-12 initiatives	It was reassuring that the country is working together to build a solid cyber curriculum to better our students.
TN initiatives	Networking, resources	Materials/Resources that I can use with my students.

The workforce gap in cybersecurity	Career awareness, standardization of high school/middle school curriculum	Getting the word out to all students about the opportunities in Cybersecurity.
role of K12 career counselors	broad array of resources available/being developed for cybersecurity education	Pathway information.
Policy	the opportunities and resources available to teach cyber security	The importance of CyberSecurity and places to look for resources
networking with others	Products and services currently available	The connections and strategies
Our district needs a more cohesive CS program and student awareness of cybersecurity careers	Enjoyed the NICERC presentation and demonstration of micro-bit	Two things: some really great hands-on resources for teaching cyber, and the general realization that cyber at the k-12 level is a real effort
need for cyber in k-12	Places to go and people to connect with to acquire interactive, relevant curricular resources for our teachers.	CyberStart program; secondary cybersecurity programs in place; resources available for secondary; future opportunities for schools
Cyberstart Program	How many careers are in the Cyber Security field.	How EdTech can partner with cybersecurity organizations
Importance of cyber security & job opportunities for students	Vermont is not alone in cybersecurity education	How imminent it is to offer Cybersecurity education in the K-12 realm
How critical the need for employees with cyber security training.	the importance of career awareness & all of the great resources available from various organizations	Resources and meeting new people
PTech programs	CTE efforts	Challenge Project
Resources	Cyberseek website	how to measure competency based activities
Many other states are further ahead	NICE resources	scholarships for students

Answers were codified and analyzed. Survey respondents revealed the most important thing they learned at the conference was finding out about available resources. Other items commonly noted included the need to make stakeholders aware of both the need for a workforce in this area and the wide range of career options in the field. Respondents also indicated they learned about different programs including CTE, how to start a program at their school, and the importance of partnering/networking with other groups.

What are you going to do with the information gained at this conference?

Create a cyber security course	Prepare a Cybersecurity presentation to my CTE Director to persuade him to create a Cybersecurity education pathway to offer to students in our county for the 2018-2019 school year.	Advocate for additional programs
Connect with some of those I met at the conference and learn more about the needed resources	Integrate it into nonprofit STEM programming	leverage contacts to work within the CCEI
share with colleagues	I am sharing this information with elementary schools in my districts and partnering with organizations to help build a job pipeline and bring cybersecurity awareness to the	incorporate it into my current curriculum

	classrooms.	
Prepare our plans for CS implementation and provide support (resources) to schools to begin.	Follow up with people I met	Help to push the topic in my Diocese
Sure it with students and faculty	I am going to attempt to start teaching cybersecurity	Build a curriculum for my county.
make contacts for collaborations	Share with statewide CS education network in Texas	Not sure. Try acquire or develop a course that can be used in middle school.
use or share with colleagues	Apply it to my class	Share with Community College Faculty and Partner High Schools
Share with appropriate constituents at school	Encourage students to consider cyber security careers	Steer my students in the cybersecurity field with a better knowledge and tool kit on how to make it not sound intimidating.
Apply to our STEM outreach program.	As a classroom teacher, try to convey the topics and ideas of the importance of cyber education to my superiors.	Implement the information into my curriculum immediately.
Will be teaching Introduction to Cybersecurity next year.	Help guide our schools.	coordinate SRO protocol and response improvement plans
share with colleges teaching STEM	I plan to implement some in class and in an after school program	work on writing a K-12 Cybersecurity Education Program for school systems
Connect with individuals for mutual collaboration	Better my career options	Meeting with key players in our district to move this conversation forward
Review to see about purchasing for our students and/or [extracurriculuar] K-12 outreach	Apply it to my classroom and program development	I've already begun disseminating it amongst our district teachers.
work to develop a secondary program in Utah; build on network contacts made; research how current programs were established; we lost out on the CyberStart program due to procedural politics	Incorporate in current position	Share with the teachers at my school.
See if we can set up some partnerships	use in my classes	Already passed to [Goverors] cybersecurity committee
Help start Cybersecurity pathway in K-12 education in Nevada	Take it back to my school and implement a focused pathway to build a program for cyber security education	train K-12 teachers on how to integrate cyber security in their classes
create a course	share resources	I am going to use the information to encourage my school district to start a CTE program of study
Train CTE Educators to Develop Curriculum	Work with parents and students	Develop content modules
Share content and resources	Increase awareness in my school system	Share with teachers

Answers were codified and analyzed. Survey respondents revealed the conference gave attendees numerous ideas for the future. The largest numbers of respondents stated they planned to share resources with others, integrate content into existing programs or content or develop a course or curriculum. Others planned to advocate to start a new program/CTE tract and follow up with contacts.

Before attending this conference, in your opinion, how much knowledge did you have about… Note: Due to rounding, totals might not add to 100%

	Percentage			
	Nothing	Not Much	Some	A lot
How much did you know about the scope and breadth of K-12 Cybersecurity Education efforts taking place throughout the U.S.? [N=105]	20	35	**38**	**7**
How much knowledge did you have about the current curriculum and other materials and resource offerings available regarding K-12 Cybersecurity Education? [N=100]	10	**41**	**43**	6
How much knowledge did you have about strategies to increase cybersecurity career awareness? [N=100]	22	**31**	**36**	11
How much knowledge did you have about designing a formal Cybersecurity Career and Technical Education (CTE) Program of Study? [N=92]	18	**37**	**39**	5

Attendees were asked what their previous levels of knowledge of cybersecurity education and workforce development.   As shown above, less than 10% felt they had a lot of knowledge about cybersecurity education, curriculum, and CTE. In fact, over 50% of the respondents felt they had either no knowledge, or not much knowledge about all these topics.

What effect, if any, did this conference have on your…

	Percentage			*Average*
	No change (0)	Increased Some (1)	Increased Greatly (2)	
Knowledge about K12 Cybersecurity Education [N=60]	0	47	**53**	*1.53*
Knowledge about resources available related to K12 Cybersecuity Education [N=60]	2	30	**68**	*1.66*
Interest in learning more about the current and future K12 Cybersecuity Education trends [N=60]	2	42	**57**	*1.54*
Ability to educate other teachers, administrators, parents, leaders and students about the importance of K12 Cybersecuity education [N=60]	5	42	**53**	*1.48*
Interest in participating in future events related to K12 Cybersecuity education [N=60]	7	28	**65**	1.58
Ability to talk and share information with others about K12 Cybersecuity Education [N=57]	2	40	**58**	1.56
Ability to identify others to collaborate with to improve K12 Cybersecuity Education efforts [N=59]	3	34	**63**	1.60

As shown above, in all categories at least 93% of the people said they learned something new at the conference, with all but two categories showing at least 97% of the people increasing their knowledge base. In fact, all categories showed at least 53% of the people felt their knowledge increased greatly. The fact that attendees indicated they were able to learn new concepts indicates that there is a need for additional sources for collaboration and information exchange, and the conference was able to bring together diverse group of stakeholders with new information to share. Thus, despite the fact that cybersecurity is increasingly in the news, there is still a lack of information about cybersecurity education, resources, and programs which needs to be addressed. This is a primary goal of the NICE K12 Cybersecurity Education Conference.

Opened Ended Questions

What topics would you like to hear more about in the future?

internships for students	curriculum to use in the classroom for cyber security	Resources beyond educators to reach students and promote cyber careers (e.g. parents, counselors, mentors)
Lessons & strategies for teachers to use	Cybersecurity education programs of study across the U.S.	How to stimulate interest in cybersecurity careers
More hacker resources	what certifications are good for high school [stsudents]	Digital Forensics
Provide a workshop that describes varies cybersecurity job titles such as Ethnical Hacking	CTE courses presently available	Site visits to STEM-related organizations stimulating interest in cybersecurity careers
Technical schools and community college offerings	What are the technical schools and community college offerings	what career options are in cybersecurity
drones and how to teach	List of tours and speakers we can use in our classrooms	Digital Forensics
Lessons, strategies for teachers.	CTF	How states started their CTE program
How school systems include cybersecurity content in their classrooms	more from teachers in a classroom currently	socialization of K-12 cybersecurity education
career pathway options in the CTE programs	Additional resources, how other states incorporate K-12 Cybersecurity education requirements, alignment in [there] states	K-12 course implementation
Metrics to quantify impact/success of various efforts. How do we know what is working to encourage students to follow academic	pathways to cybersecurity careers.	Central warehousing of links to CS [curriculae]; lesson plans.
Hands on training for educators	VR	How to use the NICE framework in the K-12 setting--or at least high school
Games to introduce cyber security in non-core classes	Lesson plan collaboration	I would like to hear about the progress other states are making in cyber education
are their materials we can share with students	Implementing a curriculum.	What vendors can do to make it easier on school IT staffs
Protecting self while online	Job openings in Cybersecurity Education nationwide	Educational software (games, websites, other resources)
Pentesting and the social side of	Evolving trends within cybersecurity that	Case Studies on K-12 cyber

Cybersecurity Best practices for teaching advanced security topics	we should be aware of More free resources	
Specific programs that put high school juniors and seniors into internships which lead to jobs after graduation.	free resources for public education; cyber security program development; challenges/contests; cyber security integration into CTSOs	Cyberstart
Not certain	Topics related to EdTech	Networking & Network security at a personal and business level
Good work Holly!!!	How to get students involved in internships in Cybersecurity	What actual software programs students need to be trained in to be successful in the cyber security field.
Great conference	What specifically does the curriculum cover? What technical requirements are there for the classroom?	do the same
resources for counselors to use to share with students and parents	More student [prespective]	Toolkit and resources teachers can use for FREE!
Great conference!	Resources	resources to help parents and students understand the career options in this growing field
CTE resources for our teachers to use	how to increase students going into this field	I loved the sessions. Keep the same format and [themese]
Programs in cybersecurity education	States use of cybersecurity content	tours of cybersecurity programs
professional development for educators	how to integrate into the classroom	how to start a cybersecurity charter school
how to teach without background in cybersecurity	Protecting and securing students online	professional development opportunities online for teachers
data about job [opportunities] in cybersecurity to share with students and parents	Cybersecurity educational software & apps	Pentesting
[Latestest] cybersecurity policies and trends	The social and ethical side of cybersecurity	Case Studies in cybersecurity applicable to K-12 in cybersecurity
Best practices for teaching cybersecurity topics	How do we recruit more students?	How to access free resources and labs
How to connect elementary and middle school classes to encourage students to go into CTE programs in HS	Cyber security events and opportunities in CTSO competitions	CTE Cybersecurity curriculum development
How cyber topics can protect student privacy	I was so impressed with all [thr] presentations. Please provide a wide collection of topics.	Basics on how to teach cybersecurity topics in regular classes
Freebies for educators	Not certain	Practical cybersecurity topics we can use
different curriculum ideas. For free	Material for teaching.	Curriculum exemplars
More hands on	Activities that make learning about cybersecurity FUN and exciting for students	Great Conference. The same-continued topics and focus on K-12 cybersecurity
I have told everyone about this great event. Please keep the same themes and topics.	internships for students and teachers	Job options and opportunities
Pedagogy for teaching this topic ethically	more on why students should go into this field and resources we can use to show	Protecting students and data online

	them and their parents	
scholarships and internships [scholarshops] for college	Integrating content into the classroom professional development for teachers	Materials for specialized STEM schools Content! Content! Content!
what we should cover at each grade level.	hands-on application of security concepts	More specific presentations about Cybersecurity
How to design programs at all levels	all the opportunities careers in cybersecurity	Pen testing--what is it
what schools students can go into	The connection between CTE and higher education	content and resources
Training [opp[ortunities] for teachers	training for teachers	CTE and pathway options
what can informal programs do to help attract students into this field	stats and trends in careers in this area	IoT
Where to find funding to develop content from the resources provided so it meets our district needs.	Cyber Forensics	

Answers were codified and analyzed. The topics that were listed the most by respondents for further training in the future included curriculum, resources and instructional strategies, how state and local school districts have implemented programs or created CTE programs, how to increase interest to encourage students to enter post-secondary programs and careers, explanations of the jobs and pathways for a career, and scholarship and internship opportunities. Thus, there is still a great need to inform with respect to educational program and career information.

What workshop topics/information would you be interested in?

hands on application of security concepts	More specific curriculum based presentations relating to Cybersecurity	How to design programs
Darkweb, Ethical hacking	kindergarten classroom curriculum	Cybersecurity courses
Teacher resources including assessments	Computer science/ cybersecurity. How to strengthen K-12 pathways and help teachers integrate (so it is not MORE work for them).	IoT Security
Virtual Reality and security concerns	tips and tricks for a successful high school program	special research
Additional resources, how other states incorporate K-12 Cybersecurity education requirements, alignment in [there] states	K-12 course implementation/standardization	Python training
Basics on how to teach cyber security	Freebies for educators	Practical cybersecurity resource building
different curriculum ideas.	More regarding material for teaching	Curriculum exemplars.
Would love to see more hands on for participants at the conference.	Activities that make learning about cybersecurity FUN for students	Pen testing
Anything to do with developing a robust K-12 Computer Science and Cybersecurity curriculum and career path	Tips for recruiting more girls/women into STEM/K-12 Cyber	How to embed free labs and CTF into classrooms as assessments
Pre-IT programs for elementary and middle schools that feed It savvy students into high school Cybersecurity programs.	cyber security program successes; challenges/contests; cyber security events in CTSO competitions	CTE Cybersecurity curriculum development
Not certain	How EdTech can protect student privacy	Networking & Hacking

Hands on activities	More advanced k-12 training curriculum and needed skills for the work force, many of the sessions focused only on base level interest curriculum.	examples of what teachers are doing related to cyber security in their classes—can you have examples of writing prompts for English or how we can use in an AP history class. A whole workshop on how to integrate topics of interest.
careers/internships	Learning outcomes assessment	Cyber security and current forensic systems
Internet Security Software, Academic Honesty, privacy issues	how and lessons to use in the classroom	What a great conference
Barriers to Implementing it into schools	Classroom resources for the general classroom content—can they map to standards?	student and teacher programs, scholarships and camps or professional development opportunities
Performance-based assessments	Excellent!! Food was stellar	Careers in cybersecurity and the pathways to get there. Maybe a special workshop just for school counselors
Summer internship experiences/options for High School students	Where and how to use resources	We should have a workshop or special session to [detemine] standards or guidelines for grade levels
You out did yourself!	There seem to be many excellent resources, a workshop on how to integrate into the classroom setting would be terrific.	How to start a CTE program from scratch
Have a workshop for school counselors so we can learn about the career options and resources to share with parents and students	How to start a program and get administration by in and central office	More on careers what are the careers and what are the programs we should steer our students towards
I would like to attend a workshop that would allow me to develop content for my classroom with all the wonderful resources already out there	Host a workshop on the NICE categories and what these jobs actually are. I was totally lost on the jobs or work roles. I'm not sure I can share information with my students in an intelligent manner	How to increase awareness about the need for cybersecurity workers, what this person does, and what background and experience they need.
Integrating content into my classroom would be the best type of workshop—also if included hands-on applications or exercises	How to use all these resources in the CTE pathways	I would like to learn how to expand our CTE options to include cybersecurity and how we can get more students signed up
More on how to teach elementary and middle school students about cyber awareness and internet safety		

Answers were codified and analyzed. Workshops that respondents indicated they would be most interested in, included learning how to use resources and how to integrate/teach cybersecurity curriculum. They were also interested in learning more about hands-on activities and how to explain the career options and pathways to students.

Please indicate in the space provided comments and/or suggestions on how we can improve our conference?

Do not speak only about how local areas are working this issue.	The conference schedule was a bit confusing - especially when there were changes	perhaps a [differnet] layout of the workshops and schedule times
I thought the planning and logistics	More exhibits	provide a special event night where

were well done!		teachers can meet and do something unique to the area together to build bonds and feel like they have established a relationship
Location Location Location	Have you considered aligning your efforts with ISTE as a pre or post conference option?	Increase presentation time - sessions were rushed and ultimately cut off when session facilitator was late starting the session.
It was awesome. Everybody did a great job.	Space was good.	A lot of information to digest!
Consider having it in the west... Denver? Colorado Springs (the center of cybersecurity).	More exhibitors	As an exhibitor we were very disappointed with the area. It was off the beaten path and we didn't get much traffic.
Interested in possibility of adding before or after NICE	Less "[success] stories" about local areas. While they are interesting, I felt like I didn't have a lot of takeaway other than "oh cool, that's nice--but my admin and state is not like that so...."	The conference was very focused on commercial products and some of the speakers were to focused on their companies' efforts rather than speaking broadly.
The one and only thing I can say about this event, as you plan for next year and beyond, is that it needs to be a longer event. 2 days isn't enough. I'd like to see a 3-day event (minimum) where you offer the same number of session, but extend each of them by 30 minutes or so, so that the presenters can slow down and take questions and comments at the end of each. Also, maybe have less sessions going on at once, so that a person can hit more of them through a 3 or 4-day conference. Other than that, I am hoping your exhibitor Hall will get bigger. I was surprised to NOT see contingents for all branches of the military there with information at booths.	Open up to more 1, 2-yr college faculty	Having pre or post with ACTE is a bonus! Only way I was able to attend being out of state
Repeat workshops; because of the newness of the topic to many participants, I would have attended numerous workshops each session because of the wonderful relevance to a newly developing program in Utah	Use conference app	Not certain
Make it more inclusive to EdTech	Tape/video lectures	Have training sessions for new k-12 educators that involves hands-on time with popular cyber security software.
Someone should invite PLTW - they produce cyber curriculum as well	Fantastic conference. I'm going back and sharing with the rest of my county.	Continue to have the success stories. These cases are important for those of us starting. We can take what works and have others we can tap now for advice
I like having it separate from the other conferences and with the new attendees (k12) this was a different group I was not fully aware of	Besides the sessions being longer and maybe an app, stay the same! The venue and sessions were brilliant.	Have more student participation if possible
Appreciate associating it with the	Video sessions for those who can't come	The hands-on how-to workshops are the

ACTE conference.		best. Keep those.
Having during the winter can be risky with weather, but if held in a warm location it is a good time for teachers. I personally would enjoy seeing more industry or workforce involvement. It would be nice to hear their perspective on what they are looking for in employees. There was a lot of discussion around different career options but most sessions I attended focused on technical track. We have a hard time encouraging students to go into computer science and engineering programs, so are there other stories we can share?	Have you reached out to museums or other non-profit organizations? What role can they play?	Involve CTSO's. They have programs or are developing programs and should have been involved.
IoT or examples of how IoT can be attacked. Not sure how could do. Maybe host at a local museum?	Fold it into the CSTA conference	Continue to share resources. At this point it is the [post] important thing for teachers to have.

Answers were codified and analyzed. It is important to listen to all the comments. Unfortunately, sometimes there are conflicting statements. Some attendees enjoyed the conference focusing on local success stories while others wanted the case studies focused on a national effort. Some respondents liked the conference scheduled back to back with the ACTE conference, while other suggestions included aligning the conference with ISTE, NICE, and CSTA. Some suggestions have been recorded, but will be difficult to address. For example, some location recommendations are difficult due to the timing of the conference, as winter weather can make travel difficult. Having sessions video-taped and a conference app are difficult due to funding limitations. However, all recommendations will be considered. This does highlight the need to make sure sessions include a variety of presenters and the location should rotate around the country to give the opportunity for a variety of attendees.

Lessons Learned:

The conference was a great success. The location was excellent as it tapped into an audience that hadn't been served previously. The sessions were well received, the speakers stellar, and the topics filled a need. The attendees enjoyed getting tangible information about how to start programs, learning about emerging careers, hearing success stories, and getting information about programs and curriculum that were working. Future sessions should continue to expand on the current successes. This includes more hands-on demonstrations, lectures from successful programs, and explanations on how to set up CTE and cybersecurity STEM initiatives.

As the conference has grown in size, there is an opportunity to expand the exhibit hall to include additional vendors and programs. Previous conferences have provided an opportunity for exhibitors, but it hasn't been a primary focus. Rather than an afterthought, exhibitors and attendees have asked to be closer to the main hall and have more opportunity to browse. Additionally, attendees have asked for more hands-on materials, and more curriculum that they can implement. The addition of several school counselor sessions was well received. Student perspectives, both the panel and keynote, were an audience favorite. Both school counselor and student viewpoints should be continued. From all the feedback, the conference is definitely attracting the desired audience and successfully delivering material of interest. Choosing Nashville was a great success, and the San Antonio conference next year should continue the trend.

A great addition to this year's conference was the use of social media. A frame was created for Facebook, that people could use for their profile picture. Additionally, the hastag #NICEK12 was used for Twitter (https://twitter.com/hashtag/NICEK12?src=hash) which resulted in many comments and pictures from the conference. People tweeted about the great sessions, the information they learned, how much they enjoyed presenting, and the importance of career awareness. Social media use should be continued next year as the conference's reach continues to grow.

Would you be interested in serving on the conference planning committee?

Percentage	
Yes	No
20	29

I would be interesting in serving on the conference planning committee and I could serve...

- helping to plan workshops-17
- helping to plan or select presentations-21
- helping to find/select keynote speakers-5
- helping to plan or select panel presentations-14
- helping to plan or select birds of feature sessions-3
- helping to plan or select round table sessions-6
- helping to plan or select research paper sessions-7
- Other. Please explain
    a. I am not sure how much time I would have or be able to meet but I would be open to this idea
    b. any or all above
- I am typically overbooked with coaching and leading Scouts, etc. but would love to help how I can. :D

Social Media Coverage

Twitter

https://twitter.com/hashtag/nicek12?f=tweets&vertical=default&src=hash

#NICEK12 was used over 250 times on Twitter between December 3-7th (not including use prior to the conference)

Top tweet on the @iKeepSafe Twitter: Can't end the conference without another huge shout out to all our wonderful **#NICE12** sponsors and exhibitors! **@IBMSecurity**, **@ISSA_MidTN**, **@ciascybersec**, **@sc_cyber**, **@SecAwareCo**, **@RootCellarTech**, **@CIC_NICERC**, **@ISC2Cares** (3066 Impressions)

Top Tweets using #NICEK12:

Kevin Smith @kevinsmithsd 5 Dec 2017

Key takeaways from **#NICEK12** 1) Raise awareness of Cyber Security careers. It isn't just about skills, but about making sure Ss know what opportunities exist. 2) There are a lot of great resources/partners out there to help. @ciascybersec @hackerhigh @nistcyber @CIC_NICERC

The White Hatter c] @DarrenLaur 5 Dec 2017

It was so refreshing to see an adult centric conference include thoughts and ideas from teens and young adults specific to STEM and cyber security. I find that at most of these types of conferences its the other way around. Way to go **#NICEK12** #thewhitehatter

David Jarvis @dajarvis 5 Dec 2017

A very deserved "well done" to **#NICEK12** for a great conference in #Nashville, it couldn't have been NICEr (ha ha). @IBMSecurity proud to be a sponsor.

DSU College of ED @DSUteach 6 Dec 2017

Cyber security education and awareness can and should be integrated into all content areas. Unlock a future for kids! **#nicek12** #dsuteach

Articles

http://warwickonline.com/stories/tracy-of-rocky-hill-school-to-present-at-national-cybersecurity-conference,129935

http://blogs.edweek.org/edweek/DigitalEducation/2017/12/cybersecurity_education_K12_NICE.html?cmp=soc-twitter-shr

https://www.google.com/amp/s/edtechmagazine.com/k12/article/2017/12/k-12-schools-universities-boost-cybersecurity-education-close-skills-gap%3famp

https://securedecisions.com/laurin-buchanan-to-present-at-nice-k-12-cybersecurity-education-conference/

https://www.cyberadapt.com/events/nice-cybersecurity-education-conference/

https://nicerc.org/2017/12/when-should-cybersecurity-education-start/

Conference year to date web traffic includes:

- 927 site visits (unique visitors)
- 1857page views (total of all of the views of any pages to the site/Squarespace analytics does not break down views per page)

Visitors between September 1 and December 31, 2017 off the NICE website included:

- 860 page views for https://www.nist.gov/itl/applied-cybersecurity/nice/events/nice-k-12-cybersecurity-education-conference
- 1,105 page views for https://www.nist.gov/news-events/events/2017/12/nice-k-12-cybersecurity-education-conference-nashville-tennessee

NICE K12 Cybersecurity Education Conference
2017

CONFERENCE SUCCESS

OVERALL
97% OF ATTENDEES INDICATED THEY LEARNED NEW INFORMATION

ATTENDEE FEEDBACK

- Effective Speakers
- New Content
- Timely Topics
- Outstanding Resources
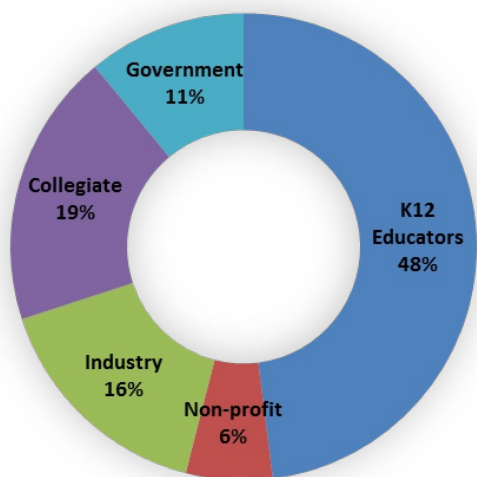- Innovative Sessions
- Great Networking

CONFERENCE OVERVIEW

The event brings together educators, faculty members, professionals, researchers, non-profit and government personnel, curriculum specialists, and students to focus on strategies to accelerate learning and skills development, methods to best nurture a diverse learning community, and provide approaches to guide cybersecurity career development for today's youth.

ATTENDEES

Government 11%
Collegiate 19%
Industry 16%
Non-profit 6%
K12 Educators 48%

- **37 states were represented.** Highest representation was from TN, VA, MD and CA .

- **Farthest locations** attendees traveled: Alaska, British Columbia, Hawaii, India, Japan, and Senegal.

- **K-12 representation** included administrators, teachers, district curriculum developers, and counselors.

WHAT EFFECT, IF ANY, DID THE CONFERENCE HAVE ON YOUR...
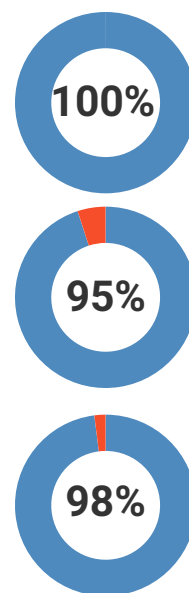
100% Survey respondents indicated an increase in their **knowledge about K12 Cybersecurity Education and Programs**

95% Survey respondents indicated an increase in their **ability to educate other teachers, administrators, parents, leaders, and students about the importance of cybersecurity education.**

98% Survey respondents indicated an increase in their **knowledge about resources available for teaching cybersecurity education topics in the K12 classroom setting.**
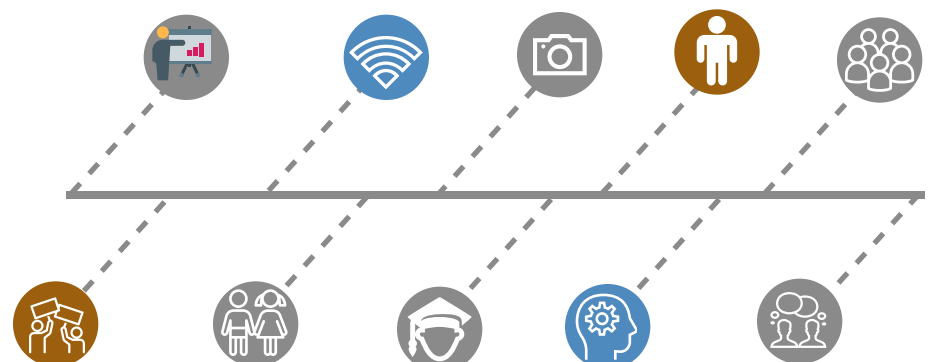
2018 PLANNING

The 2018 NICE K12 Cybersecurity Education Conference planning is underway. Join us December 3-4, 2018.

San Antonio, TX   **Youth Engagement**   **Hands-on Sessions**

Four keynote speakers, a student panel, a counselor panel, workshops, poster sessions, exhibitor hall, birds-of-a-feather networking opportunity, an evening social, and over 50 concurrent sessions.