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Rep. Robert Sanchez, Co-Chair
Sen. Douglas McCrory, Co-Chair
Rep. McCarty, Ranking Member
Sen. Berthel, Ranking Member
Education Committee
Legislative Office Building, Room 3100
300 Capital Avenue
Hartford, CT 06106

Regarding Raised Bill No. 957: An Act Concerning The Inclusion Of Computer Science Instruction In The Public School Curriculum, Programs Of Teacher Preparation And In-service Training Programs For Teachers.

Dear Distinguished Leaders,

My name is James Veseskis and I live in Wethersfield, Ct.

I would like to thank you for considering a bill that will make computer science a priority in Connecticut schools. I support Raised Bill No. 957 with the stipulation that it be strengthened considerably. The bill as currently written will do little to truly change the priority given to computer science education in our schools. Most importantly Connecticut needs to join 20 other states in providing Professional Development to our existing teachers to master computer science curriculum.

I did testify in 2015 in support of Public Act 15-94 in 2015. At that time computer science was struggling in Connecticut to even get recognized as a discipline appropriate for the K-12 curriculum. Having recognition as field even if the law stated computer programming was a step in the right direction.

Since that date, I have worked on computer science training and curricula for both teachers and students. As a full-time teacher, I wrote and was project coordinator for a Math and Science partnership grant for what ended up totaling $500,000 to train teachers in the Exploring Computer Science curriculum. The grant trained 55 teachers across 10 districts and 33 schools here in the state.

I am also a senior staff member of a National Science Foundation with Mobile CSP that is making their AP Computer Science Principles curriculum a concurrent enrollment class at Capital Community College for Connecticut high school students. I am also the Master teacher

for Hartford Public School AP Computer Science Principles course and have trained many teachers in the city and around the state. I am the lead facilitator for Exploring Computer Science group out of the University of Oregon and a member of the Computer Science Advisory Council. I am also a Hartford teacher.

Based on my personal experience in order to make our Connecticut workforce competitive in the global economy, we must start by training our public school teachers in computer science. Once the teachers have the training in computer science curricula and pedagogy then our students will have access to the knowledge and skills they need in the 21-century economy. Currently, only about 40% to 50% of Connecticut high schools offer what can be considered a legitimate computer science course.

Connecticut currently has a tech talent fund that is currently working to give our adult workforce the skills and knowledge they need in the high tech economy. But what of our students? Are we going to create another tech talent fund for them when they become adults because we are not providing the skills and knowledge they need to compete?

Currently, R.B 957 makes a modest effort in this direction:

> *Each local or regional board of education shall provide an in-service training program for its teachers, administrators and pupil personnel who hold the initial educator, provisional educator or professional educator certificate. (7) computer science, including, but not limited to, computer*
> *programming.*

Both paragraphs are well-intentioned efforts to provide pre-service training for teachers. But in my experience working with districts, administrators have trouble giving a basic definition for a computer, never mind providing a rigorous curriculum for computer science for the students they serve.

As the lead facilitator for Exploring Computer Science for the State of Connecticut, I train teachers for 84 hours to give them a complete picture of computer science. They get trained in computational thinking, inquiry-based instruction and equity issues in the computer science classroom. The training gives teachers the basic pedagogy and skills they need to be successful in the classroom. I am also the master teacher for Mobile Computer Science Principles and the training for that course is 100 hours for teachers to prepare them to teach students for the College Boards AP Computer Science Principles test.

I have takeaways from the over 4,000 students and 77 teachers I have help expose to computer science. As a teacher in Hartford I have watch the course change student lives. Students who

are not normally successful in an academic setting find success in a computer science classroom. Students with disabilities now have IEP's written with computer science as a pathway to earn a living wage.

My training and the training of other teachers has changed equity practices in the classroom. When the Computer Science for All initiative was launched equity was a key issue because the industry is one of the most segregated industries in the country. Many researchers and educators looked at the issue of equity in the classroom, especially underrepresented minorities and women. Teachers are trained in how to address and reflect on all equity issues that arise in their classroom. This Includes on how we get ALL students to engage in the lesson. During the teacher training teachers are the students and they see the lesson from the student perspective. There are lessons in computer science that address gender and racial bias.

During the debriefing teachers from all walks of life discuss and reflect on how these groups feel and engage in the curriculum. The discussions can be heated and emotional but all teachers walk away with the ability reflect, take action and look at every single individual child in the classroom to meet their needs. It is no longer the approach of setting a standard norm for all and expecting every child to reach it. Instead a teacher meets each child's individual needs and work with what they bring to the table. The goal is to help them achieve the standard by reflecting on and meeting those individual's needs.

One third of the computer science training I offer is about equity issue in the classroom. Computer Science has taken the lead in addressing equity issue in our schools. With equity issues at the forefront in our society computer science tries to openly address these issues. How many other teacher trainings have their discipline focus ⅓ of the training on equity?

The way this current bill is written a 1 hour of computer science training is all a teacher needs to meet the state requirements. This will not give a teacher a solid foundation to teach a computer science curriculum. By not providing teachers with a comprehensive training in a research curriculum schools will not be able to provide the rigorous computer science courses students need. Students in Connecticut will just continue to be consumers of the technology and not the producers and innovators of technology that this state so desperately needs.

Public Act 15-94 made computer programming required in schools. For the most part most districts are not even aware of this law until I tell them. This new bill takes the existing bill and changes the wording from programming to science and then states that districts must provide training.
With respect to the in-service Professional Development, this bill will make computer science equivalent to enrichment program like DARE and not give students a rigorous course in computer science. All the training opportunities mentioned in this bill are topics like bullying, AIDS prevention, and school violence. These are all training opportunities that support staff undertake to help improve the school environment. The training mentioned in the bill are not for a rigorous curricula in core subjects in schools but training in issues a school may face. To put

computer science training in the same category marginalizes a discipline that has an impact on virtually every aspect of today's society.

If you look at that other states are leaving Connecticut behind. Twenty States have set aside state funding for computer science professional development. Thirty-Five states have certification pathways for Computer Science teachers. For example the State of Maryland includes $5 million dollars to fund computer science initiatives through the Maryland Center for Computing Education.

Districts have little guidance if a full time classroom teacher provides 10 school districts and 33 schools training in computer science. I still have other districts calling me up and asking about if there is more Exploring Computer Science training. Granted part of the plan was to create trainers here in Connecticut but if a full-time classroom teacher on his lunch and preparation period has to put together a training of this magnitude, what can one assume about the knowledge districts have about computer science curricula and pedagogy. An amendment needs to be added to this bill that at least vets and provides quality curricula and training for districts to choose from. The way the law is currently written a one day training and curriculum would meet state requirements.

Please help guide our teachers as they seek training in computer science. Please add an amendment to Bill # 957 that actual gives guidance to school districts to get their teachers trained in computer science. Help us create and nurture that talent in our public schools to make Connecticut competitive in the 21-century economy.

Thank You

James K. Veseskis

SECTION 7. INCENTIVES FOR PRE-SERVICE TEACHER PREPARATION.
Section 10a-6 of the general statutes be amended to create pre-service teacher preparation programs.

(a) The Connecticut General Assembly shall appropriate funds to eligible preservice education programs in the state to develop and implement pathways in computer science education. The pathways would prepare an enrolled pre-service teacher to add a certification or endorsement, as appropriate, to teach computer science education to their intended major and area of certification. The pathways would be open to pre-service teachers at both secondary and elementary levels, and may include collaborations among schools of computer science, schools of education, and non-profit organizations.

(b) The Board of Regents shall amend their statewide master plan to include goals and strategies that would require all pre-service teacher preparation programs to include a unit of computer science education.

(c) The Alternative Route to Certification (ARC) program shall be extended to include Computer Science education.