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Date: 02/06/2019
Time: 02:55 PM
Location: 229
Committee: Senate Education

Department: Education

Person Testifying: Dr. Christina M. Kishimoto, Superintendent of Education

Title of Bill: SB 0969 RELATING TO COMPUTER SCIENCE EDUCATION.

Purpose of Bill: Beginning in the 2022-2023 school year, requires each public elementary school or public charter elementary school to offer instruction in the basics of computer science and computational thinking. Beginning in the 2023-2024 school year, requires each public middle or intermediate school or public charter middle or intermediate school to offer instruction in exploratory computer science. Establishes reporting requirements.

Department's Position:

The Department of Education (Department) supports the intent of SB 969 as it includes initiatives supportive of our goals and objectives, and respectfully provides comments.

Aligned to the Board of Education (BOE) strategic priorities focused on equity and access, and staff professional development, the Department continues to advance innovation by expanding computer science learning opportunities for elementary, middle/intermediate, and high school students, including but not limited to the basics of computer science and computational thinking, and exploratory computer science.

During the 2017-18 school year, the Department collaborated with stakeholders to create a strategic multi-year computer science action plan focused on advancing innovative outcomes and learning experiences for all students.

In May 2018, the BOE adopted the K-12 Computer Science Teacher Association (CSTA) standards (https://www.csteachers.org/page/standards) designed to provide students with fundamental beginner through advanced concepts to prepare them for entry into the workforce. Building a progressive instructional design for computer science and computational thinking from the earliest years of school through post-secondary transitions into college is a critical element.

At the middle or intermediate school level, options deepen around *Computer Literacy*, advanced

courses in *Computer Science and Understanding Technology*. Partnerships with the military, industry, vendors, higher education and teacher colleagues expand in the middle and high school levels with a greater focus on workforce readiness, career pathways and cybersecurity. Additionally, all 34 Hawaii public high schools with a grade 9-12 structure offer at least one computer science course.

Further, a work group comprised of internal and external stakeholders has been established by the Department to ensure ongoing input and collaboration with schools, complex areas, post-secondary institutions and business partners. Other plans include the creation of a digital repository for sharing of quality computer science standards-based materials and resources for elementary and secondary classrooms.

A strong and concerted effort to grow computer science knowledge, skills and interests is evident across our tri-level system. Given the high priority to advance computer science initiatives across all Hawaii public schools, the Department respectfully suggests that legislation is not needed at this time.

Thank you for this opportunity to provide testimony on SB 969.

The Hawaii State Department of Education seeks to advance the goals of the Strategic Plan which is focused on student success, staff success, and successful systems of support. This is achieved through targeted work around three impact strategies: school design, student voice, and teacher collaboration. Detailed information is available at www.hawaiipublicschools.org.

February 6, 2019

Committee on Education
Senator Michelle N. Kidani, Chair
Senator Donna Mercado Kim, Vice Chair

State Capitol
415 South Beretania Street
Honolulu, HI 96813

Aloha Chair Kidani, Vice Chair Mercado Kim and Members of the Committee,

HawaiiKidsCAN supports SB 969, which requires each public elementary school or public charter elementary school to offer instruction in the basics of computer science (CS) and computational thinking beginning in the 2022-2023 school year; requires each public middle or intermediate school or public charter middle or intermediate school to offer instruction in exploratory computer science beginning in the 2023-2024 school year; and establishes reporting requirements.

Founded in 2017, HawaiiKidsCAN is a local nonprofit organization committed to ensuring that Hawaii has an excellent and equitable education system that reflects the true voices of our communities and, in turn, has a transformational impact on our children and our state. Last year, our centerpiece campaign sought to increase equity and access for STEM and computer science learning experiences. These opportunities expose students to skills connected with high-wage, high-growth industries, giving them more options upon graduation.

While Hawaii has made significant progress in terms of expanding access to CS learning opportunities, more work is required to increase equity and access throughout our state. Focusing on foundational CS skills through elementary and middle school will enable students to engage in advanced CS courses and activities such as app development and internships with local technology companies.

CS and other science, technology, engineering and math (STEM) knowledge will become increasingly important as our diverse economy evolves. Between 2017 and 2027, STEM-related occupations are projected to grow by 8 percent in Hawaii, compared with just 4 percent for all other occupations.[1] In particular, some of Hawaii's fasting growing occupations between 2014 and 2024 will require CS experience, including web development (26 percent growth), computer

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[1] "ECS Vital Signs: STEM Demand Hawaii." *Education Commission of the States.* http://vitalsigns.ecs.org/state/Hawaii/demand

systems analysis (20 percent growth) and software development (18 percent growth).[2] In 2016, these and other computer and mathematical occupations carried a median hourly wage of $35.87 in Hawaii, nearly double the median hourly wage of $19.24 for all jobs that year.[3]

These new skills are becoming increasingly important as our economy changes, with reports suggesting that automation may eliminate a third of our nation's jobs by 2030.[4] An initial investment in our students in these skills will be more than paid back as students become our workforce of tomorrow, ensuring that Hawaii is poised to not only survive this changing global economy, but thrive.

In addition to technical knowledge, the skills taught in CS courses can help students across a range of other school subjects, including math, science and the humanities.[5] As we look to close our persistent achievement gaps across our schools, we must continue to explore rigorous and relevant learning experiences for our diverse students.

The world around us is changing. We must embrace the challenge of providing our children with an education that keeps up with the world. For more data on the importance of CS education in Hawaii, please see HawaiiKidsCAN's *State of Computer Science Education in Hawaii 2018* report at https://tinyurl.com/StateofCS.

Mahalo,

David Miyashiro
Founding Executive Director
HawaiiKidsCAN

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2 Software development includes systems software and applications software. "Employment Projections for Industries and Occupations." August, 2016. *Hawaii Workforce Infonet*. https://www.hiwi.org/admin/gsipub/htmlarea/uploads/Long-TermProjections-2014-2024-State.pdf

3 "Occupational Employment and Wage Data - State of Hawaii 2016." August, 2017. Hawaii Workforce Infonet. https://www.hiwi.org/admin/gsipub/htmlarea/uploads/OES_2016_publication.pdf

4 "Jobs Lost, Jobs Gained: Workforce Transitions in a Time of Automation." Manyika, J. et al. *McKinsey Global Institute*. December 2017. https://goo.gl/GLShNP

5 "Trends in the State of Computer Science in U.S. K-12 Schools". Google Inc. & Gallup Inc. 2016. *http://goo.gl/j291E0*