STATE OF NEVADA

GOVERNOR'S OFFICE OF SCIENCE, INNOVATION & TECHNOLOGY
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Steve Sisolak
Governor

Brian L. Mitchell
Director

PUBLIC MEETING MINUTES

Name of Organization: Computer Science Subcommittee

Date and Time of Meeting: Wednesday, July 31, 2019 @ 2:30 pm

Place of Meeting: Nevada State Library and Archives
                             Governor's Office of Science Innovation and Technology
                             100 North Stewart Street, Suite 220
                             Carson City, NV 89701

Please use the following numbers to join the conference Call:

North: 775-687-0999 or
South: 702-486-5260
Access Code: 70987 push #

1.   **Call to Order / Roll Call**
      Chair Mark Newburn

      The Computer Science Subcommittee was called to order by Chair Mark Newburn at
      2:30 P.M. on Wednesday, July 31, 2019, on the above conference line.

      Members Present
      Andreas Stefik
      Cindi Chang
      Dave Brancamp
      Glenn Krieger
      Heather Crawford-Ferre
      Jaci McCune
      Kimberly De Lemos
      Kindra Fox
      Mark Newburn
      Melissa Scott
      Robert Quinn

      Members Absent
      Irene Waltz

Jonathan Reynolds
Pavel Solin
Rob Sidford

Staff Present
Debra Petrelli

A quorum was declared

2.   **Public Comment** (No action may be taken upon a matter raised under public comment period unless the matter itself has been specifically included on an agenda as an action item.) Chair Mark Newburn

There was no public comment.

3.   **Welcoming Remarks and Announcements**
Chair Mark Newburn

Chair Newburn welcomed everyone.

4.   **Approval of the Minutes from the November 8, 2018 Meeting** (For possible action)
Chair Mark Newburn

Chair Newburn asked if there are any changes or corrections to the November 8, 2018 Minutes as written. Ms. De Lemos commented that on page 8, under VIII. "Update on Computer Science Progress," at the 4th bullet down the date of June 2018 should read June 2019. No other corrections were discussed. Chair Newburn asked for a motion. Ms. De Lemos made a motion to approve the November 8, 2018 Minutes to include the correction above mentioned. Mr. Brancamp seconded the motion. The motion passed unanimously.

5.   **Update on Computer Science Progress and Senate Bill (SB)313** (For possible action)
Chair Mark Newburn and Cindi Chang

Chair Newburn commented that SB 313 passed in the 2019 legislative session and an additional appropriation of $1.6 million to support K-12 computer science. He said SB 200 laid the groundwork for the computer science standards and requirements. He added the bottleneck was the availability of trained teachers in computer science. He said SB 313 was the attempt to expand the availability of teachers. He commented that a big thanks goes out to Senator Joyce Woodhouse for her mastery in getting this bill through the legislature.

He said the big items on SB 313, especially for the appropriation, is it continues to fund grants to school districts to help with initial in-service teacher professional development. He said it creates a special funding account with $100,000 that can be used for two purposes; 1) to incentivize teachers to earn the new computer science endorsements by reimbursing the costs of the college classes for those endorsements; 2) can be used as grants to incentivize colleges and universities to develop new pre-service teacher training

in computer science and help to develop courses needed for the new teacher license endorsements. He added the bill now requires Nevada System of Higher Education (NSHE) to provide pre-service training for all pre-service teachers in computer science. He said the bill has a $100,000 appropriation for the Regional Professional Development Program (RPDP) to provide computer science teacher training. He added that $12,588 was also appropriated to the Nevada Department of Education (NDE) for the purpose of monitoring computer education on a statewide basis.

Chair Newburn pointed out in the legislative process, SB 313 was merged into another, almost identical, computer science bill sponsored by Senator Moises Denis. He said several items from that bill were also included into SB 313 that were not originally recommended in SB 313. He said they included; 1) develop and make professional development available to school districts, charter schools and university schools for profoundly gifted pupils an Internet repository of resources for providing instruction in computer science to pupils in all grades. The repository must contain, without limitation, resources for providing instruction concerning computational thinking and computer coding. He said NDE will need to put together a repository of these materials to assist school districts, schools, and charter schools as necessary to establish these programs of instruction, by providing technical assistance and instruction to standup their computer science programs.

Chair Newburn commented that SB 313 requires the State Board of Education (Board) to adopt some new regulations, which may begin with this subcommittee. Ms. Chang said the assistance the Board currently needs from this subcommittee is to determine what those new regulation documents look like and to determine approximately how many teachers will be coming forward to request reimbursement for computer science coursework this year. She added by knowing this, it will help the Board with the evaluation of the initial allocation of funding in this account. She said another question is which NSHE institutions will be developing pre-service teacher programs and/or curriculum for their elementary and secondary pre-service teachers, as well as those teachers that want to specialize in computer science education.

Chair Newburn commented the issue is the allocated $100,000 will need to fund two programs; 1) reimbursements for teachers for cost of computer science license endorsements; 2) grants to higher education to develop curriculum. He pointed out in determining how much can be allocated for the grants, it depends on how much goes to teachers for licensing reimbursement. Ms. Fox commented that Washoe County School District (WCSD) had a group cohort of teachers take classes this summer but will need to research the exact number seeking reimbursements. She said she would forward her findings to Ms. Chang. Ms. De Lemos said Clark County School District (CCSD) had approximately 15 – 17 teachers last year request reimbursement for computer science license endorsement costs but is currently not sure the number of teachers for this year. She said she would survey teachers to get a "ballpark" number from that population seeking reimbursement for computer science licensing endorsement costs. Ms. Fox commented she would do the same for WCSD.

Ms. Chang asked whether a timeline should be established for those teachers seeking reimbursement this year. Chair Newburn said he is not expecting any requests for

reimbursement until 2020. He added that at some point a decision will be made on the percentage of funding to be allocated for both programs, teacher reimbursement and higher education grants. He asked whether there will be two appropriations with one each year of the biennium. Ms. Chang responded the full amount appears to go into the first year and carry over to the second year. Mr. Brancamp commented that once the appropriation is spent it can be regenerated by gifts or grants from somewhere else, with no other funding from the State this biennium. He said the subcommittee will need to determine if the funding will be given out to "first come- first serve" for courses starting on a certain date, or some other rule of engagement. Chair Newburn agreed. He asked how many institutions of higher education currently conduct pre-service teacher training and what the appropriate level of computer science training would be. Dr. Quinn said, in general, both elementary and secondary levels, the University Nevada Reno (UNR) currently has no pre-service teacher training in place. He pointed out that last year UNR was looking to hire a K-12 computer science person but was unsuccessful. He said he believes there are currently two positions now available, one at the elementary level and one at the secondary level. He said those people would be integral in creating those courses. Chair Newburn added this subcommittee will initially determine what is appropriate for those courses and the individual institution's faculty will ultimately make adjustments as they see it. Dr. Quinn agreed that it would be helpful for this subcommittee to make those initial determinations, which would greatly assist computer science teachers on the elementary and secondary levels to be successful.

Chair Newburn said one item the subcommittee needs to address is the general rule of what pre-service teachers will receive from this training. He suggested that possibly, since Nevada is a member of the Expanding Computer Education Pathways (ECEP) Alliance, ECEP could assist. He said the subcommittee will need to reach out to ECEP for input of what the current national best practices on pre-service teacher training is within the alliance of states. He suggested that Code.org also be considered in assisting the subcommittee. Chair Newburn said the subcommittee will need to determine how to roll out the grant program, as well as how much funding should be held in reserve to reimburse teacher licenses. Ms. Chang pointed out that she is unaware of the optimal amount that is needed to create a curriculum for a pre-service teacher program in this manner. Dr. Quinn said he envisions stand-alone courses would need to be developed, each different for the different grade levels, i.e. middle school, high school and elementary school. He suggested one course being taught by an expert in computer science or computational thinking that all elementary school teachers be required to take. Chair Newburn referring to the Integrated Technology Standards, suggested it could be its own course, or perhaps even a part of another course. Dr. Quinn said the people teaching these courses know technology, but not necessarily the people teaching code, and they may need this training, which could be done by the person UNR hires. He further discussed the funding of the new, at least one if not two, position(s) at UNR and pointed out the position would be under the osprey of the State's manufacturing initiative.

Chair Newburn said this item does not require decisions be made today, but rather this is notice that the subcommittee will be actively working on this item and subcommittee members need to give some thought on the impact of this account. Ms. Chang suggested that school districts get some surveys out in order to determine an accurate count of teachers that will be pursuing reimbursement costs of the college classes for those

endorsements. Chair Newburn suggested the subcommittee reach out to ECEP on this agenda item, as well as the next agenda Item 9 "Computer Education and Technology prior to 6th grade" and Integrated Technology Standards update." He said this will give the subcommittee information on where Nevada is nationally with these items and answer questions on requirements for teachers at each grade level.

6.   **Computer Science Curriculum Review Committee** (For possible action)
Chair Mark Newburn and Cindi Chang

Ms. Chang said, as an overview on computer science progress, the Integrated Technology Standards were just passed by the Academic Standards Council on June 27, 2019 and will go before the Board on August 28, 2019. She said the review committee (writing team) decided to change the name from "Educational Technology" to "Integrated Technology," because it is, at this point, integrated throughout all subject areas. She said the writing team also decided to mirror the Computer Science Standards in that each grade level in elementary (K-5) receive their own set of standards and 6th to 8th grades and 9th to 12th grades be grey-banded, making the standards very compatible with each other.   She said another focus area added is Global Collaborator, along with Computational Thinking, and rather than create another standard for that focus area, they referred to the Computer Science Standards. She pointed out the two sets of standards, Computer Science Standards and Integrated Technology Standards, are now housed within the same document, and the writing team is now going through the process to make the document known as the Nevada Academic Content Standards for Computer Science and Integrated Technology. She pointed out the standards are separate but will be in the same document. She added that an instructional guidance manual will be coming out shortly by the writing team for educators and administrators on how to utilize those standards in the classroom.

Ms. Chang referring to Senate Bill (SB) 200, Section 4.5, effective July 1, 2018, said this subcommittee has been charged with the following; 1) Review all instruction in Computer Education and Technology submitted to the State Board for approval pursuant to section 3 of this act; and 2) Make recommendations to the State Board concerning whether the instruction should be approved. She said, as a committee, a process needs to be put together where curriculum and instructional materials can be reviewed for computer science and integrated technology as it comes through. She pointed out that a process is in place at the state-level for all other core subject areas and folks are pulled from the districts for that team, however only so many core subjects can be reviewed at a time and added that computer science will not be coming onto the docket for a couple of years. She asked the subcommittee for volunteers to come up with a plan or process to develop an application.

Ms. Chang commented that CodeHS, an interactive online learning platform offering computer science and programming instruction who have been so impressed with the progress in Nevada surrounding computer science education and with the advancements made in Nevada in such a short time, reached out to her to announce they created an online course which they believe satisfies Nevada's standards developed by this subcommittee, for the one-half credit computer science graduation requirement. She pointed out how important it is that a process be developed by the subcommittee to be the

first to review material in computer science for Nevada, prior to its release, and to allow Nevada's school districts time to evaluate whether Nevada's computer science standards are being met. Ms. Scott suggested the committee look at the pilot processes NDE is doing in other subject matters and use forms already in place, thereby paralleling those processes already in place for instructional material. Ms. Chang agreed and said she has a rubric used by NDE in other core subject areas, which she is currently adapting for computer science. She added this type of task could be further developed by a smaller task force and then presented to this subcommittee.

Chair Newburn said the Board sets the standards and the curriculum is chosen by the school districts after getting approval from the Board who makes the determination whether the curriculum actually meets the standards. He said this is the problem the NDE runs into with these groups and organizations that offer curriculum and pointed out that Nevada does have a process wherein the Board asks whether curriculum meets the standards, and as a subcommittee of experts in computer science, it is our role to be reviewing computer science curriculum to assist NDE in making that determination. Ms. Chang agreed and added, as outlined in SB 313, this subcommittee is required to have this repository of resources and will at some point need to post the approved resources and curriculum to be used. Chair Newburn pointed out Nevada's advantage is that both computer science and integrated technology standards are based on national standards, which allows this subcommittee to ask whether incoming curriculum is based on national standards.

7. **Computer Science Summit 2020 Planning Committee** (For possible action)
    Chair Mark Newburn and Cindi Chang

    Ms. Chang said, also in SB 313, there is funding allocated which could be used for a computer science summit for professional development (PD) and currently RPDP is very much involved with the PD planning for a summit. She said the first computer science summit in 2018 was very successful in getting the word out, now it is important to follow up with the support for school district's administrators and educators. She said the target date for a summit would be in February or March 2020. She suggested a separate planning committee be put together to assist RPDP. She added an online conference meeting has been set for August 7, 2019 from 9:00 am to 11:00 am to go over details in putting this summit together. She said she envisions this subcommittee being in charge of the global look of things by making arrangements with RPDP and focusing on the content, courses and classes available.

8. **Computer Science Equity and Diversity Advisory Team and Admin Training Guide**
    (For possible action)
    Chair Mark Newburn and Cindi Chang

    Ms. Chang said SB 200 Section 2, has the effective date of July 1, 2022, which reads as follows; "The board of trustees of each school district, the governing body of each charter school that operates as a high school and the governing body of each university school for profoundly gifted pupils shall: 1. Ensure that a course in computer science that has been approved by the State Board is made available to pupils enrolled in each public high school within the school district or in the charter school or university school for
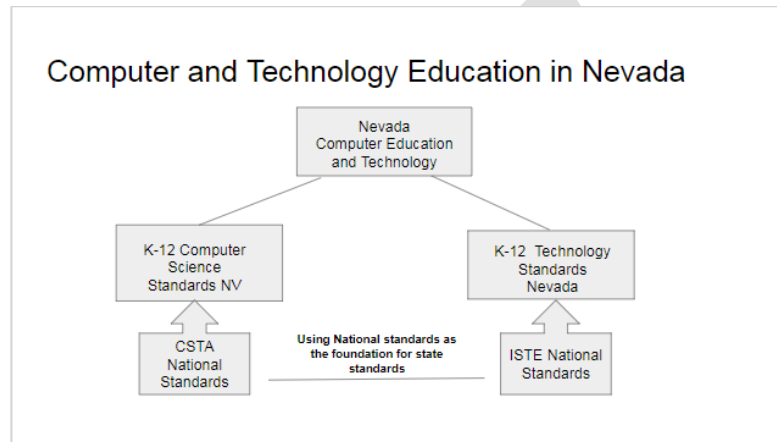
profoundly gifted pupils, as applicable. The course may be a course of distance education that is approved by the State Board and included on the list prepared by the Department pursuant to NRS 388.834. 2) Make efforts to increase the enrollment in the course of female pupils, pupils with disabilities and pupils who belong to ethnic and racial groups that are underrepresented in the field of computer science, as identified by regulation of the State Board." She referred the group to the publication, *CS Equity Guide – An administrator's guide to implementing equitable K-12 computer science education in California,* which is put together by the State of California as a model and suggested this subcommittee build something similar for Nevada to provide support for Nevada administrators. She pointed out that Nevada administrators will be responsible, in a very short time, to have these courses offered in their high schools and thereby increasing enrollment of students with disabilities, students of color and female students and how they should accomplish this. She said she is looking ahead to plan some type of guidance and preparing a model of how it looks. She said she is putting together a team that could explore, build and create a similar guide for Nevada administrators. She said this team can anticipate four to five meetings as well as working offline for a period of approximately six to nine months. She commented it would be ideal to have the guide available to provide instruction and training at the computer science summit discussed earlier, but the goal is a quality product. She said in conjunction with the guide, an administrator guide, in general could be developed to help those administrators in all levels, elementary and secondary, to implement computer science education in their schools. She said several people have stepped up from Nevada rural areas to assist with the administrator training guide and once completed, state-level training can be conducted with administrators, which will walk them through these documents. She added this guide will assist administrators with information on why certain decisions have been made, which are not only tied to a legislative bill and regulations but actually are beneficial for students. She pointed out if students do not have a natural progression of foundational skill year to year, they will not have the skill sets needed to graduate, and added it is important to let administrators know how they can be supported in implementing K-5 standards as the foundation for the future secondary years standards into their schools with the least amount of disruption to their already hectic curriculum schedules.

Ms. Crawford-Ferre offered her assistance to work on the equity piece. Ms. De Lemos said from her perspective this is consistent with the focus of CCSD's superintendent, which is equity and access. She said he believes it is much more than just CTE, computer science or STEM. She added that for this effort, CCSD is focused, and a training guide would be in-line with what they are already doing and offered to participate and assist with preparing a guide. Ms. Fox agreed that a training guide would be good information and said WCSD has recently been having discussions on the topic of equity and access in general. Ms. Chang pointed out the goal is that school districts have the support they need. Chair Newburn said high schools are not only required to offer computer science, but also to make the effort to recruit these underserved groups. He said this guide will serve as instruction on how schools can accomplish this.

9. **"Computer Education and Technology prior to 6th grade" and Integrated Technology Standards update** (For possible action)
    Chair Mark Newburn and Cindi Chang

Ms. Chang, referring to SB 200 Section 3, effective date of July 1, 2018, said Computer Education and Technology should take place before 6th grade. She said it reads as follows; "Before beginning sixth grade, each pupil who is enrolled in a public school, the Caliente Youth Center, the Nevada Youth Training Center or any other state facility for the detention of children that is operated pursuant to title 5 of NRS, including, without limitation, each pupil with a disability who is so enrolled, must receive instruction in Computer Education and Technology approved by the State Board, …"

She referred the group to the following diagram;

She pointed out that Nevada Computer Education and Technology is basically the umbrella subject area that includes Nevada's Computer Science Standards and Integrated Technology Standards. She said when Computer Education and Technology is discussed, it is referring to those two sets of standards. She said a team has been assembled from the Integrated Technology Standards writing team and are working on instructional manuals for educators for these standards which will help to guide Nevada's educators.

Ms. Chang posed two questions to the subcommittee; 1) What assistance do school districts need to meet this bill requirement that prior to 6th grade all students must receive instruction in Computer Education and Technology? and 2) What additional support can this subcommittee, NDE, and others provide without overwhelming elementary teachers? She added that NDE is looking at these requirements to be in place by fall of 2020, thereby allowing one year for planning and preparation. She pointed out that digital literacy alone is moot prior to 6th grade, and when the Integrated Technology Standards were revised, keyboarding and introductory productivity tools such as Google Docs, Word, etc., have been added to those standards for each of those grade levels in elementary to provide extra support and guidance to build those foundations. She asked what impact school districts will have and how this subcommittee can support school districts in making those decisions. Ms. De Lemos commented that CCSD will have internal discussions and consult with others followed by a written document with their answers to these questions. Ms. Fox said from WCSD's perspective they may do the same, with time permitting. Ms. Chang responded she will advise the writing team

working on the instructional manual and impress upon them the need of school districts to have resources on integration into their existing data.

Chair Newburn pointed out when work first started on SB 200, it was determined that students were taking tests online as early as 3rd grade, but the one-half credit class that was supposed to teach keyboarding and tools didn't start until the 9th grade. He said this put school districts in a position of giving that instruction earlier in order to have students competent enough on the computer for those tests to take place, which is the driver for the work on this instructional guide; teaching students at an earlier grade level so they know how to take those tests on a computer as part of the regular testing process. Ms. Fox added that WCSD does teach computer keyboarding in computer lab time but believes it would be more beneficial to students to go deeper than just keyboarding to really help students be more prepared for AP and CST courses as freshmen. Chair Newburn agreed. Ms. Chang said she would take all suggestions back to the writing team and referred the subcommittee to the draft standards and suggested all subcommittee members review the elements and breakdown of the document. She added that RPDP's focus this year is to train elementary teachers on CS Fundamentals.

10.   **Reports from the Subcommittee** (For possible action)
        Chair Mark Newburn

        Ms. Chang reported on an International Computer Science conference called CSEdCon 2019 taking place in Las Vegas on September 11 through 13, 2019 at the Mirage Hotel & Casino, sponsored by Code.org and ECEP. Teams from different states will be in attendance, and the conference will include Strategic CSforALL Resources & Implementation Planning Tool (SCRIPT) training for school districts, as well as policy meetings. She said Senator Joyce Woodhouse has agreed to present a welcoming speech highlighting Nevada, which will be on a national stage, on everything being done with computer science in Nevada. She added that a panel will also present on behalf of Nevada to include Chair Newburn (NDE), Brian Mitchell (OSIT), Senator Woodhouse and one other representative from Nevada to speak on accomplishments in computer science with Nevada students.

        Ms. Chang reported that Jaci McCune has a SCRIPT workshop happening in Carson City on August 27 -28, 2019 at the Governor's Mansion and everyone is invited. She added that Ms. McCune requested an RSVP to allow for planning purposes. Ms. Chang said a SCRIPT workshop is basically something the CSforALL consortia is offering as a training to help school districts with strategic planning and implementing computer science in their schools.

        Ms. Chang reported that RPDP will be running week-long trainings all over the state simultaneously, throughout the year, for approximately 100 additional teachers from Washoe County, Carson City and Las Vegas for Computer Science Discoveries and Computer Science Principals training.

11.   **Future Agenda Items** (For discussion)
        Chair Mark Newburn and Cindi Chang

Chair Newburn said one future agenda item will be reports from the various task forces created today, as well as follow up on SB 313.

12.   **Public Comment** (No action may be taken upon a matter raised under public comment period unless the matter itself has been specifically included on an agenda as an action item.) Chair Mark Newburn

There was no public comment.

13.   **Adjournment**
Chair Mark Newburn

Chair Newburn adjourned the meeting at 3:41 P.M.