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Minutes

Name of Organization: Advisory Council on Science, Technology, Engineering and Mathematics (STEM)

Date and Time of Meeting: July 25, 2016, 2:00 PM

Place of Meeting: Blasdel Building
209 E. Musser Street, Room 105
Carson City, NV 89701

This meeting will be video conferenced to the following location:

Grant Sawyer State Office Building
555 East Washington Ave,
Suite 5100
Las Vegas, NV 89101

- I. Call to Order/Roll Call
Mark Newburn, Co-Chair
Kelly Barber, Co-Chair

Ms. Barber called the meeting to order at 2:02 pm. She will run the meeting today.

Members Present: Mark Newburn, Shelace Shoemaker, Kristi Overgaard for Robert Elliott, Richard Knoeppel, Kelly Barber, Dave Brancamp, Cory Hunt, James Huckaby, Gerd Poppinga, Judy Kraus

Members Excused: Marcus Mason, Dr. Carl Reiber, Kristine Nelson,
Dr. Anne Grisham

Guest Present: Marisa Cooper, Garrett Kalt, Sean Hill

Staff Present: Brian Mitchell, Dale Ann Luzzi, Henna Rasul

A quorum was declared.

- II. **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.)

There was no public comment.

- III. **Welcoming Remarks**
Kelly Barber, Co-Chair

Ms. Barber thanked everyone for attending the meeting and said it should be a very productive meeting after the working day at the Discovery Museum in June. She thanked Mr. Mitchell for all the work he put into making the June meeting successful.

- IV. **Approval of the Minutes from the June 24, 2016 meeting** (For possible action)
Kelly Barber, Co-Chair

Mr. Huckaby made a motion to approve the minutes with the amendments that were noted by Mr. Hunt. Mr. Hunt seconded the motion. The motion passed unanimously.

- V. **Additional Discussion on STEM Survey Subgroups** (For information only)
Brian Mitchell, Director, Office of Science, Innovation and Technology (OSIT)

Mr. Mitchell said that all the data from the survey was aggregated and reviewed at the June meeting. During the June meeting the Council asked Mr. Mitchell to break the data down further (Attachment A). The data was broken into the four different demographic questions: grade level focus of the school, role of the teacher, location of the school and experience of the teacher. Mr. Mitchell said something he noticed reviewing the data was the question of “was science taught as a standalone subject in the schools”. He went on to say high schools skewed this, since science is taught as a separate subject and is required to graduate. He also noted the differences in the grade levels of the schools and the locations. Mr. Newburn said what really stood out to him was the rural areas are really struggling compared to the suburban and the urban areas. Mr. Hunt asked if there was a way to summarize the survey results and send the results to the survey participants. The Council would like to send out the results after

school has been back in session for several months. Mr. Hill commented that there is a lack of professional development reported in the elementary grades. Ms. Barber said that as an administrator she would like to know what her teachers feel are the barriers implementing STEM. Mr. Mitchell will assemble the data into graphs and send them out to the Council before the next meeting.

VI. Review of Initial Strategic Plan Feedback (For information only)
Brian Mitchell, Director, OSIT

Mr. Mitchell told the Council that he compiled all the discussion points from the last meeting and updated the strategic plan outline. He asked for feedback or anything that he might have missed. Mr. Newburn commented that on priority three, equity and access, none of the strategies actually mentioned females or underrepresented students. He said it needs to be mentioned in the plan. On priority two, quality and scope, Mr. Newburn didn't see anything that talked about scope. He thinks STEAM and computer science need to be added to expand the scope. Mr. Mitchell asked if he thought that it could go under goal four. Mr. Newburn agreed. Ms. Barber noted under priority two, quality and scope, under goal one, "increase the number of internships, job shadowing and summer research programs, and expand partnerships with local industry" this should also be included for goal two for teachers. Mr. Mitchell will update the draft with the comments that were made today, send it out and asked the Council members to circulate it to their network for additional feedback. Mr. Newburn suggested creating a cross reference guide, such as a matrix, to show who is responsible and what programs they provide. This would enable the Council to see the areas that are not addressed in the strategic plan, see the holes in the state STEM plan, and present that to the Legislature. Mr. Mitchell said he would draft a matrix. Mr. Mitchell received feedback from several educators that he sent the plan to. The feedback was to be more explicit and strong in the efforts to expand partnerships among schools, business and industry, in the areas where there is a need for a skilled workforce. Other comments were that elementary teachers are intimidated by STEM and professional development would need to start with that premise. Another comment was to promote and incorporate more program and problem based learning along with informal after school camps. This Council could serve as a means to vet projects that, for example, a PTA might want to fund. Ms. Kraus suggest putting this information on the STEM website. Mr. Mitchell said that the website would be a perfect place for this information. Someone else commented that schools might want to take an inventory of their existing equipment and supplies and figure out ways to use them. It was suggested that the Next Generation Science Standards implementation should be leveraged, particularly 3-D learning. Mr. Hunt said that in priority four, alignment and engagement, he would encourage including the Office of Workforce Innovation (OWINN), Governor's Workforce Development Board (GWDB) and the Workforce Innovation and Opportunity Act (WIOA)

in some of the areas, goals and strategies. The Sector Councils can also assist with identifying gaps. Mr. Mitchell said this could be included in the matrix.

VII. STEM vs. STEAM- An Initial Fact Finding Discussion (For information only)
Brian Mitchell, Director, OSIT

Mr. Mitchell told the Council that from the direction at the last meeting regarding STEM vs. STEAM (Science, Technology, Engineering, Art and Math) he met with Susan Boskoff from the Nevada Arts Council. Ms. Boskoff's perspective was that the discussion should be less focused on STEM vs. STEAM and more on having a well-rounded, comprehensive education. Mr. Mitchell then introduced Marisa Cooper, Education Director from the Nevada Museum of Arts and Kristi Overgaard from SWITCH to share their thoughts. Ms. Cooper said first and foremost STEM vs. STEAM is problematic. She said STEAM education does not exist without STEM education first. STEAM is one more iteration of STEM and not each one is taught every day. It captures a different audience and moves toward innovation. She went on to say that STEM education allows students to solve problems. The next step is the inclusion of creativity, design and innovation that we get through arts design and education which allows students to identify new problems and come up with new solutions. It is one step further and it is a valuable tool to make sure that our students are well versed to succeed in a community that we cannot define right now. Ms. Cooper provided the Council two handouts which the Nevada Museum of Art uses to define STEAM and outlines what they do with STEAM. Ms. Cooper went on to ask: how do we do more with less? How do we create exciting, innovating, pioneering educations opportunities without overwhelming the teachers with all the work they already have to do. Ms. Cooper finished up by saying STEM/STEAM is a collaborative effort and seeing all the familiar faces around the table was encouraging.

Ms. Overgaard said it was important, at some level, to show up at the table on a collaborative stand point. The kids that are in school now are going to be in a very different world and hopefully they are deeply rooted in the innovation economy. The future is going to look a lot different than any of the jobs have in the past. Ms. Overgaard said that the CEO of SWITCH is STEAM. He is both an engineer and an artist. She went on to say that SWITCH would not be as successful as they are if he was just an engineer. She said the "A" is the gateway.

Ms. Overgaard said that SWITCH doesn't just hire engineers, they hire engineers who can communicate. She said the curriculum needs to support the teachers. The Council went on to have a lengthy discussion on the issue of STEM vs. STEAM. Mr. Mitchell said that this may seem basic, but it is important to a lot of people. The Governor's goals are that kids who have the skills, talents, ability and knowledge to be able to meet the workforce demands of the future which includes science, technology, engineering and math. How do we go about getting there? The Council agrees on the overall goals, it's just

the details getting there. Mr. Mitchell did note that the law calls it STEM and in order to change it to STEAM the law would have to be amended. The STEM Advisory Council is an advisory body that can make recommendations. Mr. Hunt suggest looking at the strategic plans action items and strategies to see how they would be applied. Mr. Newburn commented that one of the key reasons that priority two: quality and scope, is included in the Strategic Plan is because STEAM is envisioned under scope. Using scope as a mechanism anything could be intergraded with STEM. He said that this an important part of the Strategic Plan. Mr. Mitchell said that he will present the updated draft of the Strategic Plan at the next meeting, based on the discussions today and the feedback received.

VIII. Update and Discussion Regarding the OSIT STEM Marketing Plan
(For possible action)
Brian Mitchell, Director, OSIT

Mr. Mitchell told the Council that he has been working with the Governor to design a yearlong STEM marketing plan to raise awareness of STEM and the different opportunities for learning and jobs available. The marketing initiative will start in September with a launch event and conclude with the school recognition events in May. Each month there will be a different theme targeting a industry sector. Mr. Mitchell reviewed the marketing plan in a PowerPoint (Attachment D). He asked the Council if he was missing any industries. Mr. Newburn suggested mining. Mr. Knoepfel said that October is construction careers month. Mr. Mitchell said as this moves forward he needs assistance identifying and planning the initial events. He asked Council members to provide him with schools and businesses that could participate in the initial events. Then other schools could duplicate the events. Second, existing events need to be identified and posted on the website. Mr. Mitchell would like to have very specific plans in place before the launch event. Ms. Barber suggested having a virtual teacher competition around manufacturing. It was suggested to include students so everyone has a vested interest. Mr. Mitchell told the Council that the State has quite a few challenges such as drought and incorporating renewable energy which are priorities of the Governor. He suggested that possibly making a competition around these real-life problems. Mr. Hill asked if there was any way to highlight educators for one of the months. Another suggestion was teacher Tuesday which would highlight a teacher though social media.

IX. Review of STEM Achievement Research (For information only)
Marcus Mason, Principal,
Kermit R. Booker Sr. Innovative Elementary School

This item was tabled.

X. Update on Federal and State STEM Legislation and Grants (For information only)
Brian Mitchell, Director, OSIT

Dave Brancamp, Director, Standards and Instruction,
Nevada Department of Education (NDE)

Mr. Mitchell provided the Council with a PowerPoint handout (Attachment E) Mr. Mitchell said a big part of the strategic plan is funding. He went on to say that the Governor has recommended to all his departments and agencies flat budgets with the possibility of a five percent reduction. This needs to be considered when we are making recommendations that there would not be any new money to put new programs in place. There is a significant amount of federal, state and local money currently existing. One of the values that the Council can provide the state, is to recommend better use of the money to match the goals it identifies for the state. He gave a brief overview of the federal legislation. Mr. Mitchell told the Council that Every Student Succeeds Act (ESSA) was signed by the President in December of 2015. It provides much of the federal money to schools. Several of the big changes to No Child Let Behind is ESSA gives the states more flexibility and STEM is either an eligible or a priority use of funding. States are permitted to use the funding to integrate engineering and technology into state science assessments. There is new funding available for preparing and training teachers. There is also a new grant program for the state to develop a STEM Master Teachers program. During No Child Left Behind there was only \$150 million for all the states for STEM. Under ESSA there is about \$4 billion in federal funding for states that could be used for STEM. Each state, along with the Governor, has the responsibility to put together a plan for review and approval. Mr. Brancamp gave the Council an overview of Nevada's state STEM funds. Of the \$150 million for the now-discontinued Math-Science Partnership federal grant just under \$1.5 million came to Nevada. There were five institutions that applied for the money and all five were funded. The Nevada Legislature funded the College and Career readiness grant with \$3 million for the first year and \$5 million for the second year and STEM is an eligible use of that funding. The second round of funding was just awarded. There were 16 applications and ten were funded. Mr. Newburn asked for a list of funding sources. Mr. Mitchell said a list would be compiled.

- XI. Discussion of the future STEM Council Meeting Schedule (For possible action)
Brian Mitchell, Director, OSIT

After a short discussion it was decided that Mr. Mitchell would send out a poll to the Council to determine the best day and time for the future meetings. He will keep the Council posted on the possible dates for the in person September meeting.

- XII. Consider Agenda Items for the Next Meeting (For possible action)

The standing agenda items will be on next agenda.

- XIII. Next Meeting Date is August 22, 2016. The meeting will be video conferenced between the Blasdel Building, in Carson City and the Grant Sawyer Building in Las Vegas.

This was discussed in agenda item 11.

- XIV. **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.)

There was no public comment.

- XV. Adjournment

Ms. Barber adjourned the meeting at 4:31 pm.