STATE OF NEVADA
GOVERNOR'S OFFICE OF SCIENCE, INNOVATION AND TECHNOLOGY
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MINUTES

Name of Organization: Informal STEM Learning Environments (ISLE)
Subcommittee

Date & Time of Meeting: Thursday, December 7, 2017 at 3:30 P.M.

Place of Meeting: Outside Las Vegas Foundation
919 East Bonneville Ave, Suite 200
Las Vegas, NV 89101

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   I.   Call to Order/Roll Call
            Aaron Leifheit – Co-Chair

   Co-Chair Leifheit called the meeting to order at 3:30 P.M.

   Members Present: Aaron Leifheit, Craig Rosen, Andy Hart, Kristoffer Carroll,
   Sean Hill, Jessica Snaman

   Members Excused: Amy Page, Judy Kraus

   Staff Present: Brian Mitchell, Debra Petrelli

   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 and Introductions (For information only)
          Aaron Leifheit – Co-Chair

Co-Chair Leifheit welcomed everyone. He said we have moved on from the ISLE's white paper to next steps and action items dealing with best practices, as well as a logic model which should assist this subcommittee in giving direction for informal STEM education within the state. Mr. Mitchell announced that a webpage has been created under the Office of Science Innovation and Technology's (OSIT) website at http://osit.nv.gov/STEM/NV_STEM_Advisory_Council/ for the ISLE subcommittee. He said this is a place the subcommittee can post materials, view meeting information, as well as other subcommittee's materials. He pointed out it will be a place ISLE can direct others to find out more information on the ISLE subcommittee. He also commented the next meeting of the STEM Advisory Council is not yet scheduled, but should be in January 2018, and that the ISLE subcommittee will be on the agenda to present the Informal STEM Learning in Nevada white paper.

IV.   Approval of the Minutes from the October 26, 2017 Meeting (For possible action)
          Aaron Leifheit – Co-Chair

Mr. Hill pointed out a change on page 3, item VI of the October 26, 2017 Minutes, "MaryJane Dorofachuk from Nevada Arts Council" should be replaced with "Mary Kay Wagner from Nevada Division of Environmental Protection." Co-Chair Leifheit made a motion to approve the Minutes of October 26, 2017 with this change.   Mr. Hill seconded the motion. The motion passed unanimously.

V.   Finalize Logic Model (For possible action)
          Sean Hill

Mr. Hill gave an overview of the logic model. He said this document will assist with outcomes for what an Informal STEM Learning Environment should be, by setting action steps and milestones. He suggested implementing a logic model to focus the strategic direction for ISLE. He said through that model the group could identify long-term impact, mid-term outcomes, the short-term outputs and activities and resources that are entailed in what ISLE wants to accomplish. He said it will serve as a map on what to do and how to get there. He suggested a group discussion on comments received to date on the latest version of the logic model. He pointed out that with one more round of suggestions and changes, possibly through email, the group could approve it at the next ISLE subcommittee meeting. He suggested the group discuss specifically "outputs" today which will directly impact the "outcomes." The group reviewed the three identified "Impacts", 1) Nevadan's understanding of science is measurably enhanced as a result of informal STEM experiences/Providers; 2) Nevada's informal STEM providers have a pathway to recognition, certification and funding; and 3)

Nevada has a formalized network for informal STEM education providers. It was suggested there be an addition to include informal science education, which was based on ISLE's white paper and how it discussed the integration of formal and informal education. Mr. Hill pointed out item 3 under "impact" could also include formal STEM education providers as a partnership element. Co-Chair Leifheit quoted from the ISLE white paper, "We envision a state in which informal STEM education is integrated into the system of formal public education in a thoughtful and systematic way," and pointed out this may help us out. It was suggested this may help with "impact" language in the logic model, perhaps using that as a fourth impact.

Mr. Mitchell asked what the purpose of the formalized network in the third "Impact" statement would be. Co-Chair Leifheit replied there is currently no state-wide organization for informal education with an effective means of communication. He said if we create something that unifies the state and speaks on a state-level rather than just a regional-level, it would greatly assist us. Mr. Mitchell suggested a collective voice to share best-practices, professional development and communication. He said he understands the suggestion is that there should be an impact showing informal education having an impact on students, or that there is some sort of partnership with formal education. There was discussion on using the term "utilization" rather than "integration" throughout the document.

Co-Chair Leifheit gave an overview on the three "Outputs;" 1) Informal educators create a regional set of standards they agree to adhere to. He pointed out this would be ISLE's "Best Practices." He said one of our "Output's" would be the creation of a set of standards or best practices. He discussed the second "Output;" 2) Standardized review process for providers, i.e. a rubric, which could be related to the ChangeTheEquation (CTE) rubric for their program endorsement process. He added the CTE rubric has already been adopted by the STEM Advisory Council. He pointed out ISLE could assist with this formal process, but also offer a less aggressive entry-step to the rubric on best practices within the state. This would allow offering services to people in a variety of different pathways on their way to excellence for their programs. Ms. Snaman suggested adding a self-assessment for groups to determine where they are on those pathways.

Co-Chair Leifheit discussed the third "Output;" 3) Identify and support the best informal and out-of-school STEM learning opportunities that challenge students to develop critical thinking, problem solving, collaboration, and teamwork skills. He said once we identify what our set of best practices are we could use those best practices to identify the state of informal education in southern Nevada. It was suggested that it would behoove the group to identify who is doing what and who the players are in informal education within the state, as well as what the different levels of informal education are within Nevada. Mr. Hill said this may be an opportunity to build a "heat" map for audiences being served. There was a discussion on identifying needs

throughout communities and which groups may benefit the most with a less intense STEM-program rubric to follow rather than CTE's rubric. Mr. Mitchell suggested as the group looks for ways to help certain communities, whether geographic, demographic, or underserved in STEM, this could serve as an asset map, allowing ISLE to direct people in the direction that best meets their informal STEM education needs and where to go to find these experiences. The group discussed the two "heat" maps having two outputs; one based on functions and service and one based on strengths and weaknesses. They further discussed rather than build a map on strength and weaknesses, there be a system in place where organizations can self-assess their own strength and weaknesses, giving them an option to apply for the higher level of rubric. This "output' would therefore identify gaps in the system. Co-Chair Leifheit said the last "output" is basically the creation of an inclusive statewide development learning community and whatever information we identify, whether it be services, strengths or weaknesses, that will then guide the learning community. With strengths, we will know what we are good at and what we need help with. Mr. Hill suggested a phone conversation between himself, Co-Chair Leifheit and any other ISLE members that would like to help organize all the notes and comments collected so far on the logic model, then re-present it to the group for another round of review.

VI.   Overview of Best Practices (For information only)
          Sean Hill

Co-Chair Leifheit took over the discussion for Sean Hill, on the best practices overview, as Mr. Hill left the meeting for a prior commitment. Co-Chair Leifheit pointed out the group had already flushed-out some of the issues, and further discussed the next steps to best practices. He gave a brief background to date. He said ISLE would like to have a set of best practices to informal STEM education that represents the State of Nevada that can be given to people within the community to help them gauge where they are. He pointed out that in past meetings the group has gone back on forth as to whether they should just adopt CTE's standards or create additional steps that are less intensive than CTE's standards for informal STEM education. He added with today's conversations regarding "outputs" he believes they will be identifying several different levels of best practices that people can engage in. This would give people different options of best practices for informal STEM learning that can be self-identified, as well as resources they can use to get them to the CTE standard level.

Ms. Snaman commented on organizations that may never arise to the CTE level, i.e. Girl Scouts and Boy Scouts. She added they play a crucial role in informal STEM education but feels these organizations will never attempt to complete a CTE rubric. She asked whether that would be leaving out a part of our community. Co-Chair Leifheit said that addresses the question of what the lesser level of best practices would look like. Mr. Hart commented that if CTE is already an option and is being endorsed by the Governor's office, he

is not sure of the advantage of ISLE presenting another option. He said self-assessment is something that informal educators do well and is a reflective process we use to replace formal evaluation in much of the programming. He suggested that ISLE, with its concept paper, distill that into what is expected from the informal STEM education community showing what the informal education community does for STEM in Nevada and get entities to address how they support that by demonstrating the quality and excellence of their program.

Mr. Mitchell commented on the CTE rubric, and pointed out this is the ideal route for programs to follow. He asked whether they are now proposing a how-to-guide or manual to flush out some of the elements to assist those programs in the progress of meeting the guidelines in the CTE rubric. He suggested the group prepare a how-to-guide on best practices and provide examples. It would be very helpful to the larger and the smaller informal STEM programs within the state. If a program never makes it all the way and never applies for a formal designation, they could at least incorporate some of the information provided in a how-to-guide. Mr. Hart asked how we will recognize the important role that organizations play that are not taking a holistic approach to informal STEM education. Further discussion on rubric structure ensured. Mr. Mitchell said the CTE rubric is aimed at the K-12 market, in terms of age group, but said the principles of the rubric can apply to any program. He pointed out there is a significant number of informal programs already in the CTE database. Co-Chair Leifeit suggested the group use information from the white paper, which this group has already spent a lot of time distilling some of these points, along with some practices that could come from CTE's rubric. We would not have to adopt all of their practices.

Mr. Mitchell commented that the STEM Advisory Council plans to continue to use STEMworks CTE rubric and Nevada specific questions to designate both formal and informal education programs. He added one of the charges for the ISLE subcommittee is to help improve and provide resources to the informal STEM learning community of Nevada. He suggested rather than create a new, separate rubric, other than STEMworks CTE rubric, perhaps ISLE should focus on the how-to-guide as previously discussed, which would provide a guide for an informal STEM provider, with not only information on each of the STEMworks principals, but to also identify other important principles a provider should be doing. He said ultimately this would give assistance to providers to make their programs even better.

VII.   Discussion on Providing Information on How to Assist Programs (For information only)

                Aaron Leifheit – Co-Chair

Co-Chair Leifheit said there is not much information on this topic, as it is dependent upon the outcome of the best practices. He pointed out that as ISLE identifies the best practices then we also need to identity information on

how we would assist other organizations in meeting those best practices. He suggested this item be tabled until further development of ISLE's best practices and logic model are completed.

VIII. Begin Conversations on Statewide Informal Conference (For information only)
Aaron Leifheit – Co-Chair

Co-Chair Leifheit asked for any suggestions. The group agreed that with Amy Page and Craig Rosen not in attendance this item will be tabled.

Co-Chair Leifheit pointed out the Nevada State Science Teachers Association Conference is taking place on February 10, 2018 in Southern Nevada with another taking place in Northern Nevada, in October 2018. He asked whether the group would like to play a part in that conference. Mr. Mitchell said one of the members of the STEM Advisory Council currently is the President of the Nevada State Science Teachers Association. He suggested connecting a member of ISLE with her and have a conversation regarding a possible plenary session on informal STEM education, or perhaps a workshop before or after the conference. It was mentioned that Sean Hill is also on the Board for the Nevada State Science Teachers Association as an informal education representative. It was pointed out that there should be no issue in getting this group involved in the February 2018 conference, however, the conference in October, 2018 will be a national conference in our region and catering to a much larger audience, which may prove to be more difficult for this group to get involved.

IX. Consider Agenda Items for the Next Meeting (For possible action)
Aaron Leifheit – Co-Chair

Co-Chair Leifheit suggested that agenda items for the next ISLE meeting include the logic model, continue best practices discussion and a presentation by Jessica Snaman on ISLE's draft How-to-Guide.

X. Next Meeting Date Will be Determined at this Meeting (For possible action)
Aaron Leifheit – Co-Chair

Co-Chair Leifheit said he would send out a Doodle-poll with dates in late February and March, 2018 for the next ISLE meeting.

XI. 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.

XII. Adjournment

Co-Chair Leifheit adjourned the meeting at 4:57 P.M.