Evaluation of the Idaho, Nevada, and New Mexico NSF EPSCoR Track 2 Project

Q2 Report

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Section 1. Executive Summary

1.1 Overview

On September 1, 2009 Idaho, Nevada, and New Mexico NSF EPSCoR joined projects forming a consortium of EPSCoR states with similar research agendas related to climate change and water resources. The consortium model significantly increases opportunities for scientific collaboration and enhances each state's ability to secure competitive funding and tackle complex climate change research agendas. Project leads, scientists and educators from the three states met in New Mexico, November, 2008 and Idaho, December, 2009, to create a coordinated Cyberinfrastructure (CI) research and development plan to serve both as a platform for future climate change research collaborations and the foundation for the Tri-state NSF EPSCoR project.

The primary goal and three objectives of the Track 2 EPSCoR project are:
Project Goal - Knowledge transfer

- Objective 1 - Increase connectivity and bandwidth to increase collaboration
- Objective 2 - Enhance data and model interoperability to improve research outcomes
- Objective 3 - Utilize cyber infrastructure to integrate research with education to improve learning

From December 2011 to February 2012, SmartStart Educational Consulting Services conducted a formative evaluation of the NSF Tri-state EPSCoR project. The focus of this quarter's evaluation is to assess the quality of activities that are being conducted and to continue to assist program leaders develop valid assessment methods and d instruments. The evaluation is progressing towards assessment of impact on project participants based on project goals and objectives. Evaluation results of the following EPSCoR activities that were conducted during Quarter 2 are included in this report:

- Cyberlearning Summit
- Idaho Educational Materials Development programs
- Nevada Education Materials Development programs
- New Mexico Educational Materials Development programs
- New Mexico Growing up Thinking Scientifically (GUTS) student programs
- New Mexico Super Computing Challenge (SCC) programs
- Review of External Advisory Committee report

1.2 Findings

The Cyberlearning Summit was well-attended by both males and females however, participants were primarily Caucasian. Continue to work towards involving more underrepresented minorities in this EPSCoR project and activities. Advertise and publicize activities and events more widely and make a greater effort to personally invite individuals from underrepresented minorities to participate. Participants of the Cyberlearning summit assigned high ratings to all program components and made useful suggestions for improvement.

Curriculum development programs in the tri-states continue to make progress towards development of a repository of hands-on, science-based curriculum.

During this reporting period project impacts were primarily documented with answers to questions in the Cyberlearning Summit evaluation. Participants of the Summit reported a number of specific steps they would take that are consistent with the goal of this EPSCoR project to increase cyberlearning the three states. Summative assessments of project components were not available during this reporting period. Educational materials development leaders should each have a plan for disseminating their materials. Coordinators across the three states should work with the evaluator to implement summative assessments of their curriculum impacts. In order to assess the impact of cybercurriculum on students' attitudes the evaluator will work with project leaders in each state to identify attitudinal goals (ie. increased interest in science, increase interest in pursuing a career in science, increase confidence in learning science) and will develop an attitudinal survey. Curriculum developers/teachers will administer the pre/post-survey using an online link. The evaluator will compile and analyze results. Curriculum developers are encouraged to develop content exams, based on the content of their curriculum, and administer them to students as a pre and post-test. The evaluator will analyze and report content test data provided by curriculum developers. The evaluator will distribute and collect survey and pre/post content test results through the curriculum development program leader.

Section 2. Introduction

2.1 Background of the project

On September 1, 2009 Idaho, Nevada, and New Mexico NSF EPSCoR joined projects forming a consortium of EPSCoR states with similar research agendas related to climate change and water resources. The consortium model significantly increases opportunities for scientific collaboration and enhances each state's ability to secure competitive funding and tackle complex climate change research agendas. Project leads, scientists and educators from the three states met in New Mexico, November, 2008 and Idaho, December, 2009, to create a coordinated Cyberinfrastructure (CI) research and development plan to serve both as a platform for future climate change research collaborations and the foundation for the Tri-state NSF EPSCoR project.

The mission of the National Science Foundation (NSF) Experimental Program to Stimulate Competitive Research (EPSCoR) is to assist NSF in its statutory function "to strengthen research and education in science and engineering throughout the United States and to avoid undue concentration of such research and education."
EPSCoR goals are:

- To provide strategic programs and opportunities for EPSCoR participants that stimulate sustainable improvements in their R&D capacity and competitiveness;
- To advance science and engineering capabilities in EPSCoR jurisdictions for discovery, innovation and overall knowledge-based prosperity.

EPSCoR objectives are:

- To catalyze key research themes and related activities within and among EPSCoR jurisdictions that empower knowledge generation, dissemination and application;
- to activate effective jurisdictional and regional collaborations among academic, government and private sector stakeholders that advance scientific research, promote innovation and provide multiple societal benefits;
- To broaden participation in science and engineering by institutions, organizations and people within and among EPSCoR jurisdictions;
- To use EPSCoR for development, implantation, and evaluation of future programmatic experiments that motivate positive change and progression.

The primary goal and three objectives of the Tri-state EPSCoR project are:
Project Goal - Knowledge transfer
The Track 2 project will promote knowledge transfer to scientists, educators, students, and citizens within and beyond the Consortium by enhancing state CI, and to enable the community science that is required to address regional to global scientific and societal challenges.

Objective 1 - Connectivity

Significant effort will focus on promoting communication and collaboration by improving connectivity infrastructure within the Consortium. Proposed and future Consortium efforts related to improving research competitiveness, STEM education, and economic development rely on this basic infrastructure.

Objective 2 - Interoperability

The Consortium will promote discovery by supporting community-based climate change science through enhanced interoperability between models and other software components, improved access to and usability of Consortium data products through the adoption of standards-based data management and access models, and new data assimilation, analysis, and visualization capabilities.

Objective 3 - Cyberlearning

The Consortium will enhance learning by focusing particularly on graduate student and postdoctoral researcher development; extending cyberenabled science education into middle and high schools and extracurricular programs; and improving outreach to business and industry

Tristate EPSCoR project components include:

- Cyberlearning Summit
- Idaho Cyberlearning educational materials development
- Idaho McCall Outdoor Science School (MOSS) summer institute
- Idaho/ Nevada / New Mexico Data Portals
- Nevada educational materials development
- Nevada summer science institute for teachers
- New Mexico CI for Industry
- New Mexico educational materials development
- New Mexico SCC/GUTS student programs
- New Mexico SCC/GUTS summer teacher institute
- Tri-State Consortium annual meeting and workshops
- Tri-state CI Training opportunities

2.2 Background of the evaluation

Two types of evaluations are being conducted for EPSCoR project Track 2: (1) a formative evaluation to monitor implementation of project components and give ongoing feedback to the principal investigators, and (2) a summative evaluation to assess the quality and impact of the project in reaching its stated goals and objectives. Both types of evaluation use a combination of qualitative and quantitative indicators.

Guiding evaluation questions are based on the goals of this EPSCoR project.

Intellectual merit

- How has the addition of research and cyber infrastructure (equipment, facilities, people, and training) provided by the EPSCoR project affected Nevada's, New Mexico's, and Idaho's competitiveness for research funding and sustained partnerships as per the outputs/outcomes/metrics listed for the overarching goal and each of the 3 objectives listed in the evaluation plan?

Impact on project participants, schools, universities, businesses, and communities

- What impact has participation in the EPSCoR programs had on the development and direction of participants' educational and career opportunities and choices?
- In what ways has participation in the EPSCoR programs increased participants' understanding and use of cyberinfrastructure?

Impact on participating organizations and the scientific community

- In what ways did participants' take the knowledge they acquired in EPSCoR programs and transfer it back into the classroom, school district, university, agency and/or community in a meaningful, productive way?
- How has involvement in the EPSCoR project benefited participating agencies, offices, divisions, departments, schools, universities, etc?
- In what ways have the participating agencies, offices, divisions, departments, schools, universities, etc. changed as a result of participation in this project?

From December 2011 to February 2012, SmartStart Educational Consulting Services conducted a formative evaluation of the NSF Tri-state EPSCoR project. The focus of this quarter's evaluation is to assess the quality of activities that are being conducted and to continue to assist program leaders develop valid assessment methods and d instruments. The evaluation is progressing towards assessment of impact on project participants based on project goals and objectives. Evaluation results of the following EPSCoR activities that were conducted during Quarter 2 are included in this report:

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Section 3. Evaluation Findings

3.1 Evaluation of project components

A. Cyberlearning Summit

Background of the project

The Cyberlearning Summit was a two day conference held on January 26-27, 2012 in Jemez Springs, NM. The purpose of the Summit is to bring together EPSCoR participants who have been working on K-12 cyberlearning activities in the tri-states. The focus of the summit was in three areas:

- Educational programs for students and/or teachers (e.g., GUTS, SCC)
- Curricular Materials (e.g., UNLV climate units)
- Resources for using data (e.g., the MOSS HIS portal, visualization tools)

The Cyberlearning summit endeavored to:
Goal 1: Provide an opportunity for participants to learn more about the activities, programs, and materials that have been supported by NSF EPSCoR in NM, NV, and ID.
Goal 2: Identify components that are suitable for scaling and/or disseminating to other locations.
Goal 3: Identify mechanisms, including funding opportunities, to scale and/or disseminate components.
Goal 4: Develop publications to share information about Cyberlearning activities, programs, and materials.

Background of the evaluation

The evaluator created an evaluation form for the meeting in consultation with program staff (Appendix A) and posted it online at www.zoomerang.com. After the summit concluded a link to the evaluation form was emailed to the list of participants provided to the evaluator by program staff. After the initial emailing, two reminder emails were sent requesting that participants complete the evaluation form.

Evaluation participants

Twenty-three (88%) of the twenty-six registered participants completed the summit evaluation form. Most of the survey respondents were white (83%) and more than and half of these participants were female (52%). Individuals from a wide variety of institutional affiliations and positions attended this summit. The largest number of attendees were from University of Nevada, Las Vegas (26%), University of Idaho (22%), and New Mexico Tech (13%). The largest groups represented were university faculty members and graduate students (17%) each. The detailed demographic description of respondents is illustrated in Figure 1.

Figure 1. Demographic description of Cyberlearning summit participants

	Number (n=23)	%
Gender		
Male	11	47%
Female	12	53%
Ethnicity		
Asian	1	4%
Black-Latino	1	4%
White	19	83%
Hispanic	2	9%
Institution of Affiliation		
Cimarron High School	1	4%
College of Southern Idaho	1	5%
Idaho Science & Technology Charter School	1	4%
Idaho State University	1	5%
Nevada Department of Education	1	4%
New Mexico EPSCoR	1	4%
New Mexico Tech.	3	13%
Santa Fe Institute	2	9%
University of Idaho	5	22%
University of New Mexico	1	4%
University of Nevada, Las Vegas	6	26%
Current Position		
Consultant, Program Director, Project GUTS	1	5%
Curriculum and Professional Development	1	4%
Facilitator, Project GUTS	1	5%
Faculty - Community college	1	4%
Faculty - University	4	17%
Graduate Student	4	17%
Independent Contractor	1	5%
K-12 Science Program Professional	1	4%
Recent graduate, undergraduate degree	1	4%
Staff	3	13%
Teacher - High School	3	13%
Teacher - Middle School	1	4%
Web/Mobile App Developer	1	4%

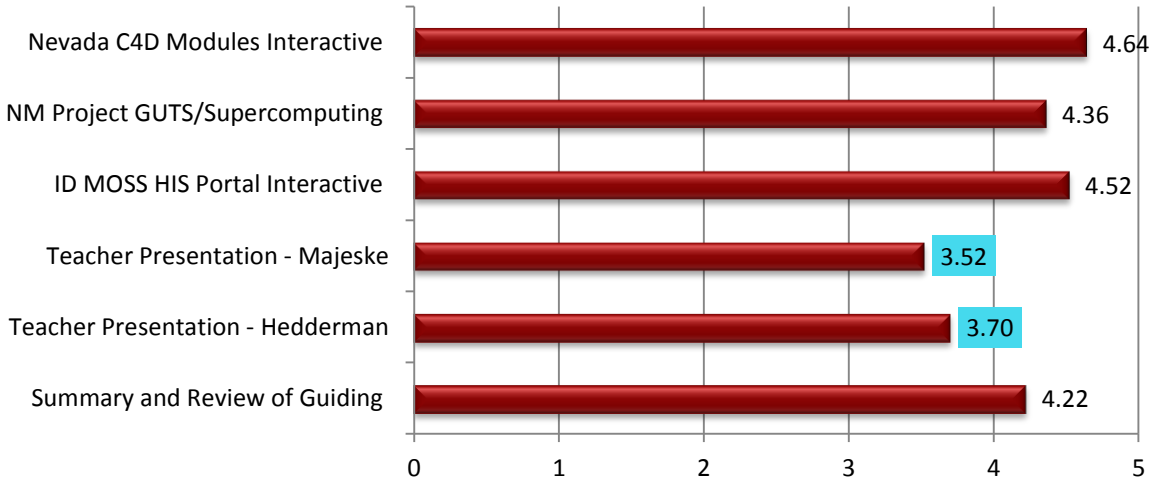
Quality and usefulness of program components

Participants rated the level of usefulness of each of the summit's components on a five-point Likert scale from 1 to 5 (1=*not useful at all* to *5=extremely useful*). The majority of participants rated four of the six components of the Thursday January 26, 2012 session as *extremely useful*. Results are displayed in Figure 2 below. Mean ratings can be considered to trend towards positive or negative based on the following scale:

Extremely useful	4.21 – 5.00
Very useful	3.41 – 4.20
Somewhat useful	2.61 – 3.40
Slightly useful	1.81 – 2.60
Not useful at all	1.00 – 1.80

Thursday, January 26, 2012

Figure 2. Participants' ratings of Cyberlearning summit components, Thursday



Participants commented on the usefulness of the Thursday sessions. Participants viewed the sessions very positively. Many expressed appreciation for hearing about the educational activities going on in other states. Several also mentioned either a desire for more collaboration across states and/or plans to using what they learned about in their own practice. Their comments are included below.

University/College Faculty:

- *All of these individual sessions provided the basis for what the tri-state consortium (TSC) does in regard to educational outreach. This is a model of the model for the EOD arm of NSF EPSCoR. As such, each of these presentations illustrated a component of the "bigger" picture of getting science to the community of learners. Something that holds tremendous value to other EPSCoR jurisdictions and the entire US educational enterprise. Specifically, the C4D substantiated a science-centric, scaffolded, cognitive model (5DIE), the GUTS/Supercomputing Challenge provided a unique tool for student exploration of models, and the MOSS portal connected students in a meaningful way to each other and "experts."*
- *The teacher presentations were variations of these same components/themes. What's important is that the TSC has done the research and has the tools for providing the rest of the formal/informal education community with "best practices" that can close the loop within the community of science AND connect it functionally to the lives*

of every individual (attainment of a scientifically literate population) All of these sessions combined later to allow us to "see" how EPSCoR is now ready to use its science to take literacy throughout. We need to get and connect just this message to others - and think we all "see the light" of just how to begin to do just this!

- *There was a lot of great energy on Thursday. Participants were excited to share and collaborate. This was an excellent opportunity to learn more about the EPSCoR activities!*
- *I had an emergency and had to step out of GUTS, which I really wanted to participate in...*

Graduate Student: *It was very useful to see the tools that all of the groups are using to see how we might collaborate to make each of our tools richer.*

Staff:

- *There were lots of good questions and suggestions for ways to integrate program components across states.*
- *Very good to see what other states are working on! Understanding and participating in the lessons and activities other groups have implemented gave me a good understanding of how others are addressing climate change education.*

High School Teachers:

- *NM GUTS/Supercomputing Session was the most valuable in that I realize that I would like to know more since I know very little about building a model.*
- *I particularly enjoyed the GUTS interactive sessions - I will use this resource with students. Other sessions increased my understanding of pedagogy relating to online learning.*

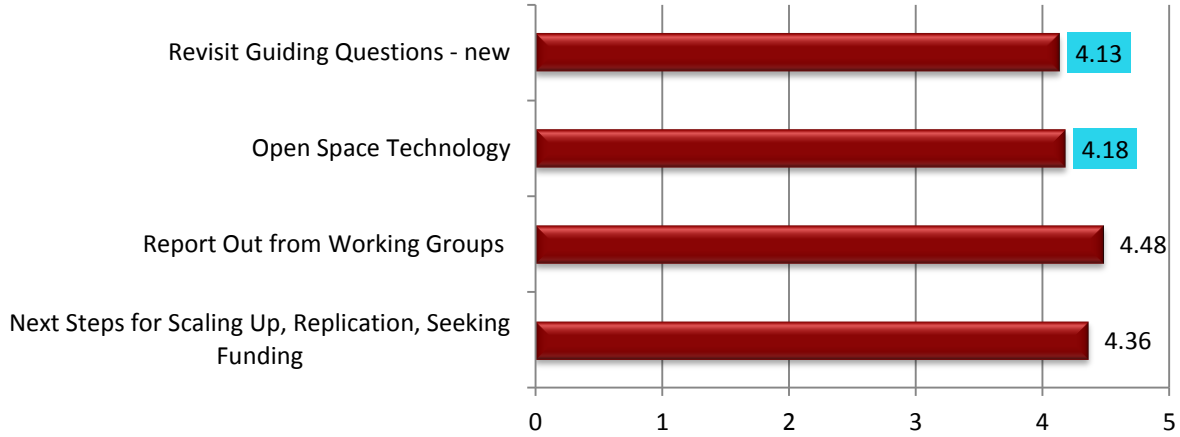
Others:

- *There is amazing, fantastic work happening in all 3 states, wish we could coordinate it better so we could all take advantage of what is happening elsewhere.*
- *I'm amazed at the skill sets coming from this group of people. So much understanding of everything around us.*
- *Nevada C4D modules and the ID MOSS HIS and Adventure Learning were very exciting to me. I can't wait to pass this information on to local educators as resources for their classrooms.*
- *It was good to hear about them overall. We often become focused in what we are doing that we lose sight of what is being accomplished around us. This provided a great opportunity to "look up".*

Friday, January 27, 2012

Participants rated the level of usefulness of the summit's components on a five-point Likert scale from 1 to 5 (1=*not useful at all* to *5=extremely useful*). Two of the four components of the Friday January 27, 2012 session were also rated *extremely useful*. Results are displayed in Figure 3.

Figure 3. Participants' ratings of Cyberlearning summit components, Friday



Participants commented on the usefulness of the Friday sessions. Many comments reflected the perception that the day's activities allowed for next steps to be taken to move the project forward. The comments are included below.

University/College Faculty:

- *Again, each piece of this entire conference provided me with the ability to "get the big picture." Not only of my place among the group, but for the entire group - a group with the expertise, skills, talents, desires, knowledge base, passion, vision, AND the answer to the question - how do we increase the scientific literacy of the US?*
- *Providing a summary and closure to the Summit is excellent. However, I thought some of the ideas were redundant. The best aspect of this, however, was identifying lead contacts for future work. For this reason, above others, the summit was productive and a huge success. Not only have we exchanged ideas, but we have moved the common agenda and interests forward.*
- *Proposals sound excellent.*

Graduate Students:

- *It was good to figure out how we could combine all of our different projects to create one lesson plan that integrated aspects from each project.*
- *I am excited that we were able to come out of the summit with some very concrete steps for moving the project forward. I feel like everyone feels similarly and hopefully we can keep the momentum going to get some of these action items accomplished.*

Staff:

- *Good discussion on cross-state collaboration and how to try to blend the three distinct styles that were shown during day 1 presentations. In some ways I felt the exercise was difficult because of the wide range of participants present, and what works in once context (in classroom instruction for instance) might not be what another context even considers (administrators or out-of-school projects). Still, it was good to have a discussion on these topics to set the stage for future collaboration. I felt the discussion for next steps was largely irrelevant for my work, since most of the discussion was about classroom implementation and specific state standards, while our focus is systems education and teacher professional development.*

High School Teachers:

- *Loved the open space activity. I think amazing things came out of it for the Next Steps section.*
- *I found the "open space" methods very conducive to creative, free yet productive discussion .I will share this idea at future workshops I attend.*
- *I wasn't sure where I fit in, but I am willing to help.*

Others:

- *Incredible way to wrap things up and create a plan of attack. It is so good to put names to responsibilities when it comes to keeping the ball rolling.*
- *I found this very useful in order to define the next steps.*
- *There is a lot of information and products being produced by each of the states. The Friday sessions helped to summarize these things and funnel them into specific goals for the Cyberlearning group as a whole.*
- *The directions and set up for the OST was facilitated very well.*
- *Some were a little too abstract for me -- I would have preferred a more concrete focus.*
- *I wanted some more explicit discussions of piloting integrations of agent-based modeling with specific curriculum for C4D and MOSS. Perhaps a more detailed level of work than time allowed in breakout sessions.*

Working groups

On Friday, participants broke up into smaller working groups focused on mechanisms and opportunities. Five working group topics emerged:

- *Common Tri-State Curricula Collection, Central Repository, dissemination*
- *Expanding cyberlearning community,*
- *Funding*
- *Implementation into the classroom, scaffolding learning*
- *Cross state collaboration*

Participants rated the overall usefulness of participating in these working groups on a 5 point scale ranging from 1 *not all useful* to 5 *extremely useful.* On average participants rated the working groups *extremely useful* (4.36). Results are displayed in Figure 5 below.

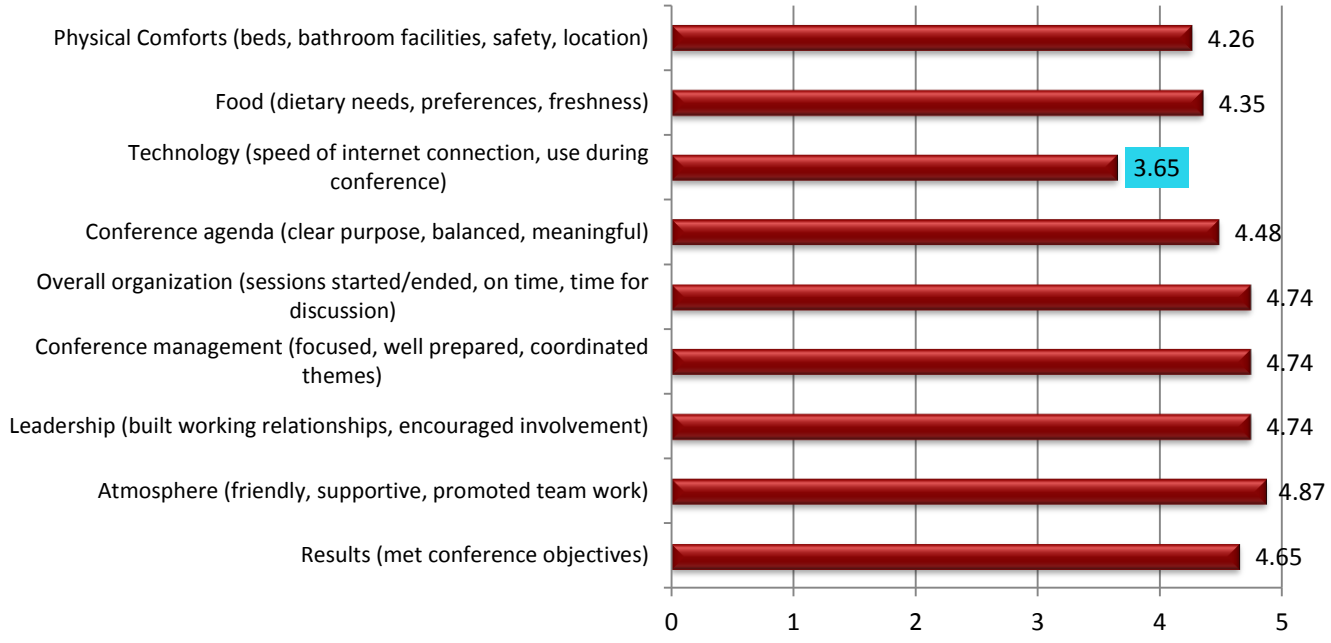
Participants' comments about the working group were very positive and pointed to future plans such as additional meetings, an undergraduate program to submit for grant proposal, a proposal for a conference workshop and continued collaborative work.

- *We collectively came up with the undergraduate program to submit as part of the grant proposal.*
- *To me this WAS the reason we all were here (open space technology entanglement!). Our WG contained the only participant from the public education sector. Andre's position enables him to see the National picture as it relates to attaining scientific literacy. With this conferences sessions and this "ending" I think our WG's contribution connects EPSCoR to the local economy to the US educational model to the US need for science literacy. I believe we do have a plan now for the sustainable solution of involving everyone with science to enable their functional participation in a science driven society!!! This WG and these two days really cemented the above agents and there connections in a way that I can see how I can contribute in a meaningful way as a part of the solution. I'm psyched!*
- *These groups and the C4D presentation have given us great ideas for continuing our classroom management infrastructure.*
- *Very good to attend and see what other groups from different states are working on. Looking forward to future meetings and more work!*
- *Our group plans to meet again at the next Tri-State conference and propose an Innovative Working Group workshop this summer.*

Quality of overall conference and meeting facilities

Participants rated technical aspects of the meeting and the quality of the facilities on a Likert scale from 1-5, 1=*poor*, 5=*excellent*. The majority of participants rated all but one (speed of internet use during conference) component of the conference as *excellent*. Results are displayed in Figure 4.

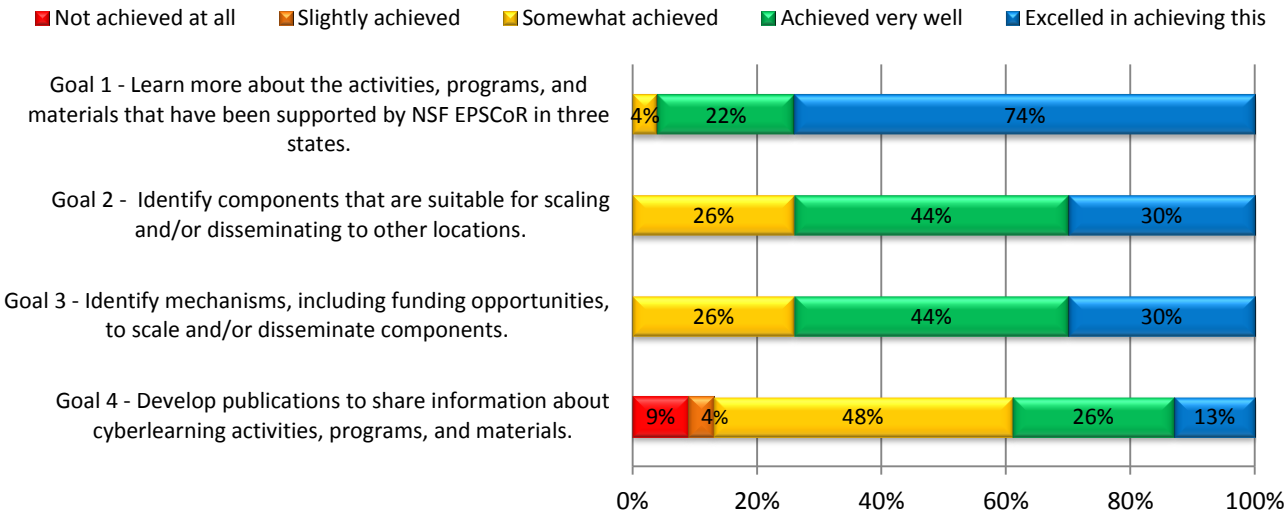
Figure 4. Participants' ratings of conference and meeting facilities



Program impact on participants

Participants rated the level of goal achievement for each of the four cyberlearning conference goals on a 5-point Likert scale from 1 to 5 (1=*not achieved at all*, 5=*excelled in achieving this).* A majority of the participants believed the summit excelled in achieving Goal 1 (Learn more about the activities, programs, and materials that have been supported by NSF EPSCoR in three states). Nearly 75% believed the summit excelled at or achieved well the goal of identifying components suitable for scaling and/or disseminating (Goal 2) and the goal of identifying mechanisms including funding opportunities to scale and/or disseminate components (Goal 3). A majority of participants indicated that the summit did not achieve at all, slightly achieved or somewhat achieved the goal of developing publications to share information about cyberlearning activities, program, and materials (Goal 4). Results are displayed in Figure 5.

Figure 5. Participants' rating of goal achievement



Participants explained the next steps they will take with the information they have learned and how they will use and implement it. Participants described a number of different activities they would undertake including writing proposals, developing and implementing curriculum and for some, continued collaboration with educators across the three states. Their responses are listed below.

University/College Faculty:

- *This summit has resulted in new intellectual partnerships directly. These partnerships are being exploited to write grants and continue the activities.*
- *Working on two proposals.*
- *Write a proposal.*
- *During the session wrap-up, I identified the following next steps for me - active participation in development of an IWG that will seek to formalize a tool for capture/archive, identifying(author, jurisdiction, content, cognitive model, delivery, etc.) and presenting in/formal learning activities developed by TSC EPSCoR.- in the above context - contact NSDL to understand/share how TSC might upload content to this source (and keep EPSCoR recognition) - identify Department of Ed representatives from ID, NV, NM that will attend/participate in TSC Annual Meetings in April - Design a K-12 hands on learning activity (working snow pillow) for snow water equivalent measurement and present it at TSC meetings in April - take active part in upcoming EPSCoR dialog for grant renewal.*

Graduate Students:

- *I will implement some of the 5DIE and Star Logo activities in my classroom next year.*
- *I hope to work with my focus group to start a website as a repository for all of the work we have been doing. Also, I will collaborate with other groups, helping provide them with modeling tools or modeling instruction as needed.*

Staff:

- *Continuing to work on developing curriculum focusing on EPSCoR core topic areas, along with finding ways to broaden the topics to include multi-state issues. Very good to see what other groups are working on and what they need.*
- *Will be working with others to identify funding opportunities for continued collaboration.*
- *We have taken the needs of teachers and sample curriculum and synthesized the ideas into an implementable feature set for our software*

High School Teachers:

- *I have already shared some of this material with fellow teachers. I am planning on using specific 5-DIEs in my classroom and using StarLogo created models to demonstrate difficult concepts in the classroom. Additionally, I will be forwarding the information to my D.C. to hopefully disseminate through the department.*
- *Use HIS interface; apply for the NM GUTS (perhaps in 2013); help with identifying standards and curriculum modules*
- *I will attend a working group session to continue work on a common curricula collection at the Tri-State Conference in Idaho. I am working with other participants to develop a student lab activity simulating the collection of Snotel data.*
- *I am going to help the MOSS group develop a SNOTEL model that can be built by students in the class room.*

Others:

- *Work on a white paper or outline that takes one scenario, mountain snowmelt, and links together the MOSS, C4D and agent based modeling components.*
- *Make the changes to the HIS interface requested.*
- *The next steps would be to develop this Tri-State relationship on the state and local levels.*
- *I will take information gained from these educators and incorporate it into future projects of my own to make them more useful to educators.*
- *Develop a short presentation for the Tri-State conference.*

Participants' suggestions

Participants had the following suggestions to improve the summit:

More breaks/morning sessions:

- *There should be a little more time for personal reflection. Breaks were cut short a little to accommodate discussions. By the end of Thursday, many of us were pretty expended.*
- *As one of the teachers who presented, I felt the short, late afternoon time slot was a negative. The audience seemed tired and disinterested. (Or maybe my presentation was really boring!) Perhaps teacher presenters should consider doing something more interactive? Or have a morning time slot?*

More free time/breakout sessions:

- *We get flown out to this beautiful location in the middle of a nature preserve, but then got about an hour of free time in the daylight to explore or go outside. Being from Vegas, we do not have much wilderness to enjoy. I would suggest more scheduled time to actually visit the caldera; otherwise, just have the meeting in town.*
- *More time outside!*
- *Only more time! I wish we had time for breakout to sessions we would like to know more about*

More information from teachers:

- *I think it would be good to hear more from the teachers to figure out what is feasible within a classroom and to hear about what they are doing with their students. It was great to hear from Leigh.*

Internet/Cell phone service:

- *More stable Internet connection.*
- *The location was beautiful, but the lack of cell service made it difficult at times. Overall great experience.*

Participants wanted to share the following with the project leaders:

- *Wonderful summit!*
- *Great group of people.*
- *EPSCoR has really made a significant impact on my professional development as a teacher of science - the people, the enterprise of science and the specific climate change and water content. Thank you!*
- *Thanks for an amazing experience. As a first year teacher, very informational, exciting, and most of all inspirational for my career.*
- *I greatly appreciate these opportunities to work with and learn from other educators and researchers. I have a deeper science content knowledge and greater perspective on how to teach science as a result.*
- *A huge thank you to those who organized this summit.*
- *Thank you for organizing this!*
- *Looking forward to working again in April.*
- *The scores associated with the venue aren't taken into context. This location does not purport to be a 5star resort. No one expected it to be. I rated the amenities in the greater context. Overall, it was very enjoyable.*

Commendations and recommendations

Summit coordinators are commended for presenting a program that provided an opportunity for participants to learn more about the activities programs and materials that have been supported by NSF EPSCoR in Idaho, Nevada and New Mexico. Most summit components including the working group meetings and nearly all presentations were perceived as *excellent* by participants.

1. Technology was rated lower than other aspects of the meeting and participants noted that cell coverage was poor and internet connections were unstable. In selecting a location for the summit, coordinators should consider locations with excellent internet access (fast and stable) if possible.
2. The summit was perceived to only somewhat achieve goal of developing publications to share information. This goal was possibly not achievable in the time allowed. Coordinators are encouraged to identify ways to assist and support participants in achievement of this goal.

B. Idaho Educational Materials Development Program

Background of the project

The vision of the **Cyber-enabled Curriculum and Education Materials Development** for middle and high school students program is to use climate change as the underlying theme, to expand Cyberinfrastructure awareness, increase use of Cyberinfrastructure, and integrate quantitative reasoning, data analysis, and climate change modeling with education through support of cyber-enabled curriculum and education materials development for middle and high school students.[1]

Two researchers (McNeil – ISU and Majeske – ISTCS) received funding from EPSCoR Track 2 to integrate cyberlearning into the ISTCS STEM classrooms. The project utilizes cyber-technology in the classroom to become linked (in real-time) with professionals throughout America and beyond in the professionals' real-world STEM settings. The purpose of this project is to expand students' accessibility to presenters. Using WebEx, an online video chat, students are connected to professionals (engineers, nurses, scientists, etc.) worldwide and conduct discussions regarding their professions and their impact upon our world. The cyber-technology provides the

[1] Grant proposal to Tri-state EPSCoR

opportunity for teachers to be able to arrange these cyber-sessions in order to facilitate discussions between students and STEM professionals on climate change and other topics of interest. These cyber-sessions are then recorded, catalogued, and shared with the Idaho Education Network (IEN), allowing teachers from schools who do not have the connectivity equipment to have the live presentations streamed into their classrooms, giving Idaho students from rural areas the opportunity to learn from career professionals and to complete student inquiry- and problem-based projects.

The goals of this curriculum development program are to:

1. Improve students' attitudes towards math and science
2. Increase students' knowledge about career opportunities in math and science
3. Increase teachers' incorporation of math and science projects into their curriculum

Program update

During this reporting period, members of the Idaho materials development team were contacted to assess responses to evaluation recommendations made in previous reports. At the time the report was written no updates were available on progress towards recommendations. It is unclear at this time whether or not the researchers will continue to develop additional cyber-sessions.

Commendations and recommendations

As recommended in the 2012 Q1 report curriculum developers are encouraged to create a plan outlining when/if future lessons will be developed and implemented. If future lessons are planned, the evaluator should be included in development of the formative and summative assessments. Curriculum developers should also create a dissemination plan that explains how they will share their lesson(s) with other teachers, schools, and districts.

C. Nevada Educational Materials Development Program

Background of the project

The purpose of the year two activities for **Nevada Climate Change and Cyberlearning Education Materials Development** (http://climatechange.education.unlv.edu/?q=node/153) entitled C4D is to build four cyberlearning curriculum modules to support a teacher professional development summer science institute. The topics of the four modules are:

1. Earth - Geologic Time - Environment of Formation - Students examine how energy environments govern the type of rock formation and rock features indicate environment.
2. Earth - Continental Drift - Location of Formation - Students examine how the movement of continental plate can affect climate. (Insulation and albedo can affect changes in climate)
3. Regional - Cycles and Regional Environment of Formation- Students examine how small changes in environments can be recorded within the rock record (evaporatic rock systems, i.e. salt flats).
4. Local - Evidence of Environmental Changes with Climate - Students use the Pinnion-Juniper forest as a model for examining how the rate of climate change can be used to predict future environments (Death Valley).

According to the project lead a formative evaluation of the usefulness of materials and a summative evaluation of the impact of the materials for the participants of the summer institute is currently being conducted.

Program update

During this reporting period, the faculty collaborator (P.J. Schrader) was contacted by email for an update and progress on recommendations made in prior reports. He indicated that the focus of this reporting year has been on researching and improving materials that have been developed for the Principles of Science course, which uses the Science and Sustainability textbook. According to Dr. Schrader, the curriculum development team has been developing additional simulations to supplement those materials as their understanding about students and the curricula continues to emerge. In addition, activities include building curriculum guides to effectively implement the materials.

In terms of dissemination, they plan to build the materials during the spring semester and summer for teachers to experience during a professional development training (hosted by CPDD). He reported that more than 50 teachers have already been exposed to the materials and expects that many more will learn about them this summer. Further, part of their dissemination plan to posts the curriculum on the Nevada EPSCoR website at: http://epscorspo.nevada.edu/nsf/climate1/index.html under the Educational Outreach Diversity - Curriculum.

In terms of assessment, he reported that they continue to evaluate and assess the use of the materials. He added that they are currently troubleshooting a data collection issue in order to assess navigation and use within the materials. No data from the assessment and evaluation process was available to the evaluator during this quarter.

Commendations and recommendations

Curriculum developers are commended for continuing to revise and build upon the curriculum they have developed already and for developing a plan disseminate it to teachers at professional development trainings and make them available through the Nevada EPSCoR website.

1. Curriculum developers are encouraged to create a plan outlining when trainings will be conducted and when materials will be posted.
2. There are two different webpages on two different sites (UNLV and EPSCoR). The evaluator was not able to locate where the materials are posted. The faculty collaborator is encouraged to consolidate websites and/or link pages together to facilitate navigation between sites and location of materials. The UNLV website needs to be updated.
3. It is not clear if the assessment plan delineated on the project website is being conducted. The planned assessment strategy should be carried out and results should be provided to the external evaluator to be included in upcoming reports.

D. New Mexico Educational Materials Development Program

Background of the project

The primary goals of the **New Mexico educational materials development** program are to develop middle and high school curricula relating to climate change, water resources, and the science, technology, engineering and math (STEM) pipeline that prepares students for studying those areas and to distribute those materials.

Individuals who are in charge of different aspects of curriculum development report to Lori Liebrock (liebrock@cs.nmt.edu). The primary curriculum developers are current middle and high school teachers who are working towards a Masters of Science Teaching (MST) at New Mexico Tech (NMT). A list of MST students is shown in Figure 6. Ramesh Shakamuri (rshakamuri@gmail.com) coordinates the MST students. As a culmination of their MSTstudies at NMT, students enroll in an Independent Studies course to create a science-based curriculum. They develop the curriculum at various times throughout the year and usually take about a year to complete their materials. Materials that have been developed are available at http://nmepscor.org/content/teaching-materials.

Figure 6. Masters of Science in Teaching curriculum development team

Name	Email	Name	Email
Teresa Apodaca	tapodaca@socorro.k12.nm.us	Ashley Ivins	nmcanchaser@gmail.com
Jerry Esquivel	jlesquivel@cepinm.org	Jared Kempton	kemptonjared@gmail.com
Ivy Graham-Dewers	Ivy.Graham-Dewers@bosqueschool.org	Margaret Lewis	mlewis34@hotmail.com
David Hailes	dhailes@nmt.edu	Valerie Salas	v_salas@yahoo.com
Leigh Heddarman	leigh.hedderman@gmail.com	Alvin Suazo	Alvin.Suazo@state.nm.us
Martha Holman	mvholmen@gmail.com		

Elena Zagraiis (e_zagrai@yahoo.com) coordinates the technical curriculum development (in Java and Data Literacy) by NMT computer science undergraduate and graduate students. A list of computer science students is shown in Figure 7.

Figure 7. Computer science student curriculum development team

Name	Email	Name	Email
Jesse Crawford	jesse@jbcrawford.us	Ben Turrubiates,	bturru@gmail.com
Jeff Grantham	jcgrantham@gmail.com	Cesar Venegas	cvenegas@nmt.edu
Jeffrey Mills	jmills@nmt.edu	James Wernicke	wernicke81@gmail.com
Eunice Perez	eunperez@gmail.com	Edwin Wuieve	edwinjwuieve@gmail.com

Program update

During this reporting period, the evaluator contacted the coordinators of New Mexico educational materials development to assess responses to evaluation recommendations made in previous reports. Coordinators reported that four of the students have completed their thesis or independent study and the rest are still in progress. MST students are using the curriculum with their students. Staff is reviewing the finished curricula.

In the last report it was recommended that teachers work collaboratively on curriculum development and have someone to help coordinate their efforts. The lead of curriculum development clarified that throughout this project two staff have been coordinating various aspects of educational materials development, as described above. Students discuss their curricular ideas with the staff. The staff provides guidance to help students choose projects that align with EPSCoR goals. NM teachers do not collaborate with each other on curriculum development.

It was also recommended in the last report that a specific process be used to develop curriculum and materials. Coordinators indicated that no single lesson planning processes is used and students who are developing curriculum use pedagogical approaches that they feel is most suited to their curriculum.

New Mexico educational materials development coordinators reported that at the Cyberlearning Summit they shared what they were doing with their counterparts in other states and had a chance to see different approaches used across the states and how they can build on each other. They indicated that a new feature set for cyberinfrastructure development is one of the more immediate results of the Summit. They reported that they will follow up with what was started at the Summit at the Tristate conference in April where they will have an opportunity to expose more of their curriculum development team to what is being done in the other states.

In the 2011 Q3 report, it was recommended that the curriculum be aligned with NM standards and tests and that such alignment should be indicated in lesson plans and that materials placed online be searchable by standard and topic. According to the coordinators, the curriculum developed adheres to both NM state standards as well as EPSCoR guidelines for distance learning. Teachers include state standards and benchmarks in the supporting materials they provide with their curriculum and include how the curriculum fits those standards. The staff is working out how they want to distribute these curricula online, but haven't made a final determination on distribution and are looking at how other states are doing so for guidance. They plan to ensure that the posted curriculum is linked by standards as well as topic.

In the 2011 Q3 report it was recommended that formative and summative evaluation tools be developed and implemented. Since that time, assessment materials have become a required part of the supporting materials for submitted the curricula. Assessments are conducted by teachers as part of the MST program. Results of assessments were not available to the evaluator during this quarter.

Commendations and recommendations

The program is commended for developing curriculum that adheres to both NM state standards as well as EPSCoR guidelines for distance learning. Curriculum developers are also commended for now requiring that assessment tools be included in the curriculum plans submitted by students.

1. Coordinators indicated that no single lesson planning processes is used and students who are developing curriculum use pedagogical approaches that they feel is most suited to their

curriculum. Regardless of what pedagogical approaches they use, each curriculum developer should be encouraged to identify a specific step by step process on how they will develop and implement the curriculum starting with a research-based lesson planning process

2. Program coordinators are encouraged to continue to foster collaboration with Nevada and Idaho curriculum developers.

3. Coordination of the curriculum should involve assuring that a breadth of topics is covered and that teachers developing curriculum are not overlapping content with other teachers.

4. Providing access to the curriculum on the EPSCoR site is an important aspect of dissemination. The program is encouraged to carry out the plan that when materials are placed online they are searchable by standard addressed and by topic. The link should be easy accessible from the New Mexico EPSCoR site. Further, the link to the materials should be provided to the evaluator so it can be included in upcoming reports.

5. Provide formative and summative evaluation plans, tools, and results to the external evaluator to be included in upcoming reports.

E. New Mexico Growing up Thinking Scientifically (GUTS) Middle School Student Program

Background of the project

Growing up thinking scientifically (GUTS) means learning to look at the world and ask questions, develop answers to the questions through scientific inquiry, and design solutions to their problems. Irene Lee (ireneannelee@gmail.com) coordinates the GUTS program. Project GUTS (www.projectguts.org) is a summer and after-school science, technology, engineering and math (STEM) program for middle school students. It is designed to be a feeder program for the Supercomputing Challenge. The primary participants of GUTS are middle school students, their teachers, and volunteers from academia and industry. The goals of the GUTS program are to:
Goal 1: Increase of participation in GUTS from the beginning to the end of the program year, especially for females and under-represented minority students
Goal 2: Increase students' knowledge in computational thinking
Goal 3: Increase student's skills in computational modeling
Goal 4: Increase student's self-efficacy in computational thinking
Goal 5: Increase students' desire to enroll in computing classes and pursue higher education and/or a career in computing

The four main components of the GUTS program are:

- **Student Round-ups** - Conducted in June/July
- **Summer Teacher's Institute** (STI) - Teachers attend classes at New Mexico Tech and learn computer modeling and how to help their students with their modeling projects.
- **Roundtables** - Conducted at the end of each semester in which teams present and discuss.
- **Supercomputing Challenge Expo**. – Students attend this end-of-year culminating event.

Assessment development and data collection methods

The Institutional Review Board Protocol (IRB) has been approved. The external evaluator is currently in the process of revising both the pre- and post-surveys based on program goals. The post-survey will be distributed at the end of the academic year and findings will be reported in the year end EPSCoR Track 2 report.

Commendations and recommendations

The evaluator will revise pre/ post-surveys to align with project goals. The revised survey will include questions to assess student demographics, the quality and usefulness of the program and achievement of program goals. GUTS Program leaders need to identify a method for tracking retention of project participants. Retention rates should be provided to the evaluator at the beginning and end of the program year.

D. New Mexico Super Computing Challenge (SCC) High School Student Program

Background of the project

The vision of the **Supercomputing Challenge** program (www.challenge.nm.org/) is to increase students' knowledge in computational thinking in science and engineering and skills in using computers to analyze, model, and solve real-world problems. The specific program goals are the same as the GUTS program listed in Section C of this report. Betsy Frederick (betsy.frederick@gmail.com) coordinates the SCC program.

Each SCC team has mentors that provide support and answer questions throughout the year. Teams participate in the following activities throughout the year:

- **Summer Teacher's Institute** (STI) - Teachers attend classes at New Mexico Tech and learn computer modeling and how to help their students with their modeling projects.
- **Summer Roundups** - Workshops are given locally for teams and teachers on an as-needed basis. These workshops teach computer modeling, how the challenge works, and other materials to both students and teachers. Round-ups enable teachers who are unable to attend STI to receive professional development and host a team.
- **Kickoff** – Student teams participate in introductory classes at New Mexico Tech on programming, modeling, data analysis, and other topics related to the SCC.
- **Proposals** - Teams write a proposal for a project that is reviewed and commented on by members of industry and academia
- **Interim Reports and Evaluations** - Teams write up their progress about halfway through the year. The teams travel to a local college and present their current work. These presentations and reports are also reviewed and commented on by members of industry and academia and suggestions are given to help the teams and/or their projects and point out areas to focus on to help them complete their projects.
- **Final Reports** - Teams write up a final report at the end of the year. The final reports are judged to determine finalists but feedback is given to all the teams.
- **SCC Expo** at Los Alamos National Lab – To culminate the year teams present their work to panels of judges and receive feedback on their presentations and reports. Awards, scholarships, and prizes are given.

Assessment development and data collection methods

SCC program staff developed a baseline survey to assess students' knowledge and skills in utilizing technological tools and computing programs. The external evaluator is currently revising the baseline survey to include demographic information and questions that will further measure achievement of project goals. A post-survey is also being developed to assess the quality and usefulness of program activities and components.

Commendations and recommendations

The New Mexico SCC program is commended for developing pre and post surveys to assess achievement of program goals. The evaluator will revise pre/ post-surveys to align with project goals. The revised survey will include questions to assess student demographics, the quality and usefulness of the program and achievement of program goals. SCC program leaders need to identify a method for tracking retention of project participants. Retention rates should be provided to the evaluator at the beginning and end of the program year.

3.2 Review of Project Reports

A. External Advisory Committee Report

The External Advisory Committee (EAC) for the NSF EPSCoR Tri-State Cyberinfrastructure Project (Track 2) (TSCP) met on February 23, 2012 with project leaders and participants to review the effort. The meeting was held in the Inn and Spa at Loretto in Santa Fe, NM and was hosted by the New Mexico EPSCoR office. For this meeting, the evaluator developed a project Logic Model (Appendix B), a PowerPoint presentation, and presented evaluation findings to the EAC. In the EAC report, members offer recommendations to the Track 2 leadership team. Many ideas and suggestions were mentioned through the report. The evaluator has responded to recommendations that pertain to evaluation. Items below are listed by recommendation number on the EAC report.

5) Awareness of Project Resources

The EAC recommends developing a data portal survey that is posted on the Data Portal webpage.

The evaluator has been working with the interoperability team members and has developed a user survey. The survey is posted on the Nevada, New Mexico, and Idaho Data Portal webpages. Users are encouraged to complete this survey after they access Data Portal resources. Additionally, the data portals will be introduced to Tri-state Consortium participants. Data Portal developers will conduct a workshop in which participants use a data portal and complete the user survey. The evaluator will compile and analyze the results and report them to the data portal developers.

6) Sustainability of Track 2 Activities – Connectivity

The EAC recommends pursuing additional forms of quantitative data to feature alongside the consumption and use case data. Possibilities are subnet analysis, measures of usage of specific connectivity-enabled capabilities (e.g., videoconferencing between specific sites), and impact headcounts (e.g., numbers of undergraduates, graduate students, postdocs, faculty, staff, K-12 teachers/students, etc., who have participated in the activities enabled by the physical CI).

The evaluator will work with the connectivity lead to develop metrics and provide headcount data.

The EAC recommends conducting a CI usage survey to identify which individual researchers are taking advantage of CI, how they are taking advantage, and to what effect.
The evaluator will work with the connectivity lead to develop this survey which will be conducted at the Tri-state Consortium. The evaluator will include questions to assess additional cyberinfrastructure, connectivity, and interoperability needs.

6) Sustainability of Track 2 Activities – Cyberlearning
The EAC recommends that a specific question "What has this allowed you to do that you could not do before? Be specific." be added to all workshop, seminar and conference evaluation forms.
This question is already being included in all evaluation instruments.

The EAC recommends:

- In the development of educational materials, describe how construct-centered design was used.
- Make a list of the materials that have been developed, their target knowledge and skills, and their audiences (e.g., middle school, high school, undergraduate education, graduate education, or research resources, tools, etc.). In terms of usage, please gather precise data here and report it.
- For each objective listed in the summary slide, be sure to address exactly what progress has been toward each objective (as it is a bit difficult to map some deliverables onto objectives).

The evaluator will work with the Cyberlearning lead to respond to these recommendations. The evaluator provided the Cyberlearning lead with a short summary and design process of construct centered design (http://assessment-ws.wikispaces.com/file/view/CCD_summary.pdf). The evaluator encourages all curriculum developers to identify and utilize a research-based design process that incorporates construct centered design methods.

Section 4. Commendations and Recommendations

Based on the results of this evaluation the following commendations and recommendations for the Tri-State EPSCoR project have been identified. Commendations and recommendations are listed for demographics, project components, and project impacts.

1. Demographics: In this reporting period, there was only one activity that in which gender and ethnic background were obtained. In that activity, the Cyberlearning Summit, slightly more women than men participated and program coordinators are to be commended for attracting an even gender balance in this activity. However, participants were primarily Caucasian.
Continue to work towards involving more underrepresented minorities in this EPSCoR project and activities. Advertise and publicize activities and events more widely and make a greater effort to personally invite individuals from underrepresented minorities to participate.

2. **Project components**: Participants of the Cyberlearning summit assigned high ratings to all program components and made useful suggestions for improvement. Curriculum development programs in the tri-states continue to make progress towards development of a repository of hands-on, science-based curriculum. The evaluator stated commendations and recommendations at the end of each program component section of this report.
Review participants' suggestions as well as evaluator's recommendations to improve each program. The evaluator will work with program leaders to implement recommendations.

3. Project impacts: During this reporting period project impacts were primarily documented with answers to questions in the Cyberlearning Summit evaluation. Participants of the Summit reported a number of specific steps they would take that are consistent with the goal of this EPSCoR project to increase cyberlearning the three states. Summative assessments of project components were not available during this reporting period.
Educational materials development leaders should each have a plan for disseminating their materials. Coordinators across the three states should work with the evaluator to implement summative assessments of their curriculum impacts. Data from the assessments should be made available to the evaluator so they can be included in future reports. In order to assess the impact of cybercurriculum on students' attitudes the evaluator will work with project leaders in each state to identify attitudinal goals (ie. increased interest in science, increase interest in pursuing a career in science, increase confidence in learning science) and will develop an attitudinal survey. Curriculum developers/teachers will administer the pre/post-survey using an online link. The evaluator will compile and analyze results. Curriculum developers are encouraged to develop content exams, based on the content of their curriculum, and administer them to students as a pre and post-test. The evaluator will analyze and report content test data provided by curriculum developers. The evaluator will distribute and collect survey and pre/post content test results through the curriculum development program leader.

Appendix A: Cyberlearning Summit Evaluation

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Page 1 - Heading

NSF EPSCoR Tri-State Western Consortium
K-12 Cyberlearning Summit
Valles Caldera National Preserve Science & Education Center, Jemez Springs, NM, January 26-27

Page 1 - Heading

Please tell us about you:
Completion of this section provides basic information to capture the demographics of NSF EPSCoR participants. This information strengthens future applications for funding, ultimately providing research program sustainability and growth.

Page 1 - Question 1 - Choice - One Answer (Bullets) [Mandatory]

What is your gender?

Male
Female

Page 1 - Question 2 - Choice - One Answer (Bullets) [Mandatory]

With which ethnicity do you most closely identify?

African American (Black)
Asian (Chinese, Filipino, Japanese, Vietnamese, etc.)
Caucasian (White)
East Indian (from India, Sri Lanka, Bangladesh etc.)
Hispanic (Latino/a, Mexican, Chicano/a, Brazilian)
Middle Eastern
Native American (American Indian/Alaskan Native)
Pacific Islander / Hawaiian
Other, please specify:

Page 1 - Question 3 - Choice - One Answer (Bullets) [Mandatory]

What is the name of the institution you are most closely affiliated?

Boise State University
Desert Research Institute
Idaho State University
New Mexico Tech.
University of Idaho
University of Nevada, Las Vegas
University of Nevada, Reno
Other, please specify:

Page 1 - Question 4 - Choice - One Answer (Bullets) [Mandatory]

What position do you currently hold?

Faculty - Community college
Faculty - University
Graduate Student
Industrial Affiliate
Staff
Student - Middle/High school
Teacher - Middle School
Teacher - High School
Undergraduate Student
Other, please specify

Page 2 - Question 5 - Rating Scale - Matrix [Mandatory]

Please tell us about the Summit:
Thursday, January 26
Please assess the usefulness to you of the sessions you attended.

	Not useful at all		Slightly useful		Somewhat useful		Very useful		Extremely useful		I did not attend
Nevada C4D Modules Interactive Session	❍	1	❍	2	❍	3	❍	4	❍	5	❍ I did not attend
NM Project GUTS/Supercomputing Challenge Interactive Session	❍	1	❍	2	❍	3	❍	4	❍	5	❍ I did not attend
ID MOSS HIS Portal Interactive Session (with outside data collection)	❍	1	❍	2	❍	3	❍	4	❍	5	❍ I did not attend
Teacher Presentation - Majeske	❍	1	❍	2	❍	3	❍	4	❍	5	❍ I did not attend
Teacher Presentation - Hedderman	❍	1	❍	2	❍	3	❍	4	❍	5	❍ I did not attend
Summary and Review of Guiding Questions	❍	1	❍	2	❍	3	❍	4	❍	5	❍ I did not attend

Page 2 - Question 6 - Open Ended - Comments Box

Please comment on the usefulness of any of the Thursday sessions you attended.

Page 3 - Heading

If you have already participated in Friday's sessions please continue with the survey.
Otherwise you can exit the survey now. Your answers will be saved. You can return to complete the evaluation of Friday's sessions by following the link provided on the original email invitation.

Page 3 - Question 7 - Rating Scale - Matrix [Mandatory]

Friday, January 27
Please assess the usefulness to you of the sessions you attended.

	Not useful at all		Slightly useful		Somewhat useful		Very useful		Extremely useful		I did not attend
Revisit Guiding Questions - new insights/issues	❍	1	❍	2	❍	3	❍	4	❍	5	❍ I did not attend
Open Space Technology	❍	1	❍	2	❍	3	❍	4	❍	5	❍ I did not attend
Report Out from Working Groups with discussion	❍	1	❍	2	❍	3	❍	4	❍	5	❍ I did not attend
Next Steps for Scaling Up, Replication, Seeking Funding	❍	1	❍	2	❍	3	❍	4	❍	5	❍ I did not attend

Page 3 - Question 8 - Open Ended - Comments Box

Please comment on the usefulness of any of the Friday sessions you attended.

Page 3 - Question 9 - Open Ended - One Line

What was the focus of the working group(s) you attended?

Page 3 - Question 10 - Rating Scale - Matrix [Mandatory]

Please rate the usefulness of participating in this working group.

	Not useful at all		Slightly useful		Somewhat useful		Very useful		Extremely useful		I did not attend one
	❍	1	❍	2	❍	3	❍	4	❍	5	❍ I did not attend one

Additional Comments about this working group.

Page 4 - Question 11 - Rating Scale - Matrix [Mandatory]

Please rate your satisfaction:

	Poor	Fair	Average	Good	Excellent
Physical Comforts (beds, bathroom facilities, safety, location)	❍ 1	❍ 2	❍ 3	❍ 4	❍ 5
Food (dietary needs, preferences, freshness)	❍ 1	❍ 2	❍ 3	❍ 4	❍ 5
Technology (speed of internet connection, use during conference)	❍ 1	❍ 2	❍ 3	❍ 4	❍ 5
Conference agenda (clear purpose, balanced, meaningful)	❍ 1	❍ 2	❍ 3	❍ 4	❍ 5
Overall organization (sessions started/ended, on time, time for discussion)	❍ 1	❍ 2	❍ 3	❍ 4	❍ 5
Conference management (focused, well prepared, coordinated themes)	❍ 1	❍ 2	❍ 3	❍ 4	❍ 5
Leadership (built working relationships, encouraged involvement)	❍ 1	❍ 2	❍ 3	❍ 4	❍ 5
Atmosphere (friendly, supportive, promoted team work)	❍ 1	❍ 2	❍ 3	❍ 4	❍ 5
Results (met conference objectives)	❍ 1	❍ 2	❍ 3	❍ 4	❍ 5

Page 4 - Question 12 - Rating Scale - Matrix [Mandatory]

Goals and Impacts: How well do you believe this summit has achieved these goals:

	Not achieved at all	Slightly achieved	Somewhat achieved	Achieved very well	Excelled in achieving this
Learn more about the activities, programs, and materials that have been supported by NSF EPSCoR in three states.	❍ 1	❍ 2	❍ 3	❍ 4	❍ 5
Identify components that are suitable for scaling and/or disseminating to other locations.	❍ 1	❍ 2	❍ 3	❍ 4	❍ 5
Identify mechanisms, including funding opportunities, to scale and/or disseminate components.	❍ 1	❍ 2	❍ 3	❍ 4	❍ 5
Develop publications to share information about cyberlearning activities, programs, and materials.	❍ 1	❍ 2	❍ 3	❍ 4	❍ 5

Page 4 - Question 13 - Open Ended - Comments Box

What are the next steps you will take with the information you have learned? How will you use and/or implement it?

Page 4 - Question 14 - Open Ended - Comments Box

Do you have any suggestions to improve this summit?

Page 4 - Question 15 - Open Ended - Comments Box

Is there anything else you would like to share?

Thank you for your participation and feedback!

Appendix B: Track 2 Tri-state EPSCoR Logic Model

Track 2 Tri-state EPSCoR Logic Model

Project Goal - The Track 2 project will promote knowledge transfer to scientists, educators, students, and citizens within and beyond the Consortium by enhancing state CI, and to enable the community science that is required to address regional to global scientific and societal challenges.

Inputs	Outputs		Outcomes		
	Activities	**Participants**	**Short-term**	**Medium-term**	**Long-term**
NSF Track 2 EPSCoR funding Educational institutions • DRI • UNR • UNLV • UI • ISU • BSU • UNM • NMT Community colleges High schools Middle schools Businesses Industry Networks – DataONE – CUAHSI – NOAA – neon	• Purchase, develop and/or use equipment and tools • Establish facilities • Establish cyber-infrastructure including data portals, software, hardware, connectivity, bandwidth, inter-operability, and data access • Conduct collaborative and/or interdisciplinary research • Use new knowledge, facilities, equipment, and cyberinfrastructure • Communicate findings through papers and presentations • Outreach to community /businesses/agencies • Develop plans, programs, centers, instructional materials • Conduct and/or attend trainings and meetings – Tri-state consortium meeting – Summer institutes for teachers – CI training workshops – CI for industry training – Interdisciplinary working groups – Cyberlearning Summit – Interdisciplinary Modeling course – Develop curricular materials – Extracurricular CI activities • Hire/train/mentor people • Influence individuals educational and career opportunities/choices • Tri-state Website	• Scientific researchers • Middle school teachers • High school teachers • Community college and university faculty • Middle school students • High school students • Community college and university undergraduate students • Graduate students • Postdocs • Business owners • Policymakers	**Objective 1 - *Increase connectivity and bandwidth to increase collaboration***		
			Increase the*: • Number of improved speed connections • Number of connections/site • Number of connections/machine • Utilization into the state • Utilization with in the state • Utilization by institutions • Number of portals • User satisfaction with network improvements	• Increase the quality of long distance, web based communication and conferencing • Increase the frequency of long distance, web based communication and conferencing • Increase access and use of web-based tools and software • Increase access and use of web-based information	• Increase and sustain connectivity and bandwidth • Increase communication and collaboration between researchers, educators, business owners, and policymakers • Improve research competitiveness, STEM education, and economic development
			Objective 2 – *Enhance data and model interoperability to improve research outcomes*		
			• Develop a standardized model to assimilate, manage, visualize and analyze data and models • Invite data submissions • Assess usability of data portal and data products • Increase usability of data portal • Increase usability of data products • Improve interoperability between models and other software components • Integrate portal with national networks	• Increase the number of data submissions to expand data archive • Increase the number of researchers whose data is represented in the data portal • Publicize the data portal • Increase the number of people who access the data portal • Increase the number of people who download and use the data products • Reduce need for training and assistance with data portal use	• Develop and sustain a model and data interoperability framework • Build and sustain an interoperability data archive • Integrate with national networks • Increase data intensive research • Increase research capabilities • Increase the number and quality of research outcomes • Increase data sharing • Improve research competitiveness
			Objective 3 - *Utilize CI to integrate research with education to improve learning*		
			• Improve the quality of educational information and tools • Increase access to educational information and tools • Present data in user friendly formats - spreadsheets and tables • Present information in user friendly formats- maps, models, and graphs • Train students, researchers, educators, business owners, and policymakers in climate modeling, hydrologic information systems, teragrid, Linux clusters, etc.	Increase educators, students, industry: • Access to scientific information • Ability to store scientific information • Use of and interaction with scientific information • Understanding of scientific information • Knowledge and skills necessary to use cyberinfrastructure	• Integrate research with informal and formal education • Build human capacity • Support students in the STEM pipeline • Improve STEM curriculum and instructional strategies • Increase student learning • Improve ability to make knowledge based decisions • Improve ability to address societal issues related to scientific causes • Improve economic development

*Some items are state specific.

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