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

Q3 Formative Report

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Section 1. Executive Summary

1.1 Overview

From March to June 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. The evaluation will also progress towards assessment of impact on project participants based on project goals. The primary goal of Track 2 EPSCoR project is knowledge transfer and three objectives are:

- Objective 1 - Connectivity
- Objective 2 - Interoperability
- Objective 3 - Cyberlearning

Evaluation results and forms of these project components are included in this Q3 report:

- Tri-state Consortium Annual Meeting and Workshops
- Data portal survey results
- Educational materials development
- Tri-state CI Training opportunities
- New Mexico Supercomputing Challenge/GUTS program

1.2 Summary of Findings

Based on the results of this evaluation key findings and recommendations for the Tri-State EPSCoR project have been identified. In this reporting period, participants in most project components were Caucasian and male and many were faculty in colleges or universities. However, there was good diversity in the SCC/GUTS programs. As recommended before, 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 minority groups to participate.

Participants gave high ratings to all program components and made useful suggestions for improvement. Progress was made toward gathering detailed information about educational materials development occurring within the three states at the Cyberlearning Summit. This progress should continue. Review participants' suggestions to improve each program. All program leads and participants should be made aware of the necessity to work collaboratively with the evaluator to develop valid, useful and thorough evaluations of programs. Provide training to embed assessment into educational materials development programs. Developers should also send detailed information to the evaluator to include in the next report.

Progress toward improved connectivity, interoperability and cyberlearning was noted during this reporting period. In order to more adequately assess project impact on goals, pre and post data could be collected. This is particularly relevant for education programs. Current impacts were largely assessed with subjective survey questions. It would also be valuable to assess gains more objectively by administering questions that assess knowledge and skill acquisition. Program leads should plan for evaluation prior to launching programs so useful and thorough evaluation plans can be executed to assess impact on EPSCoR Track 2 project objectives. The full report of Key Findings and Recommendations is presented in Section 4 of this evaluation report.

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.

Project goals

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

Project components

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
- Tri-state Consortium Annual Meeting and Workshops

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

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?

Evaluation components conducted during Quarter 3

The following Track 2 EPSCoR activities were conducted during Quarter 3:

- Tri-state Consortium Annual Meeting and Workshops
- Data portal survey results
- Educational materials development
- Tri-state CI Training opportunities
- New Mexico SCC/GUTS program

Section 3. Evaluation Findings

3.1 Evaluation of project components

A. Tri-State Consortium annual meeting and workshops

Background of the project

The three member states of the EPSCoR Tri-State Western Consortium held their first joint meeting, *Building Regional Collaborations*, in Boise, Idaho, on March 30 – April 1, 2009. The overarching goal for the meeting was to make concrete progress toward future collaborations.

The second annual meeting, *Collaborative and Interdisciplinary Climate Change Science*, was held in Incline Village, Nevada on April 6-8, 2010. The primary goals of the meeting were to:

- Advance understanding of climate change and its impact on the western U.S. by leveraging resources, data sharing, and data management in ID, NV, and NM.
- Develop joint research, education, and outreach capacity in the broader region that will lead to development of a virtual center for regional climate change research, education, and outreach.

The third Annual EPSCoR Western Consortium Tri-state Meeting, was held in Santa Ana Pueblo, New Mexico April 6-8, 2011. The primary goals of the meeting were to build upon the previous goals of the second annual meeting outlined above, as well as to:

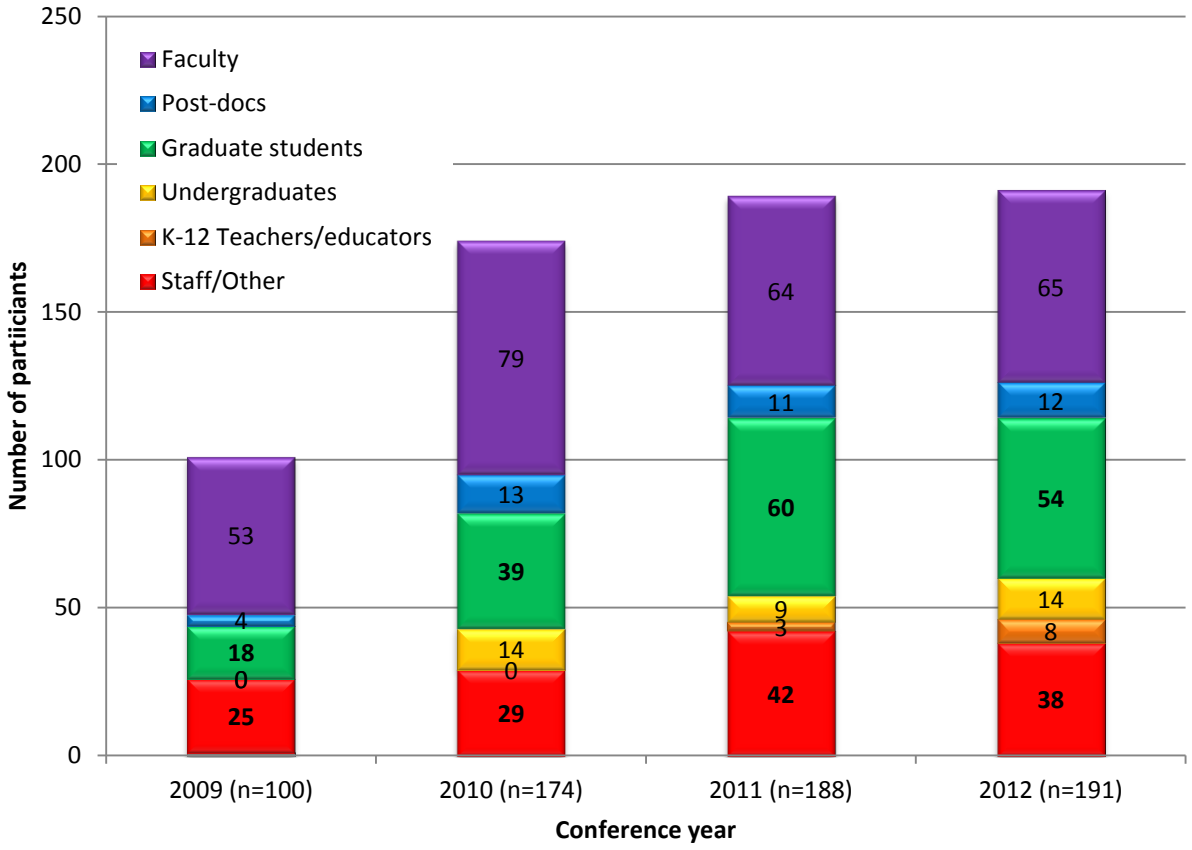
- Build upon and extend the collaborations that have been established between researchers across institutions and disciplines throughout the Western Consortium.
- Broaden the collaborative partnerships to be more inclusive of those who will ultimately use the results of the climate research to manage resources in the region. In addition, the meeting aims to provide a venue for further integration of cyberinfrastructure (CI), research, and education as well as continuing to work towards achieving the Consortium's goals for increasing diversity.
- Identify "next steps" in research, CI, education, and diversity efforts across the Western Consortium.
- Form partnerships to develop joint research, education, and policy efforts across the Western Consortium.

The fourth annual NSF EPSCoR Western Consortium meeting was held in Sun Valley, Idaho April 4-6, 2012 (http://www.certain.com/system/profile/web/index.cfm?PKWebId=0x307193a72f). The primary goals of the meeting were to build upon the previous goals of the third annual meeting as well as to:

- Advance the understanding of climate research and education
- Lead common regional scientific, education, outreach, and CI opportunities and solutions
- Lead to further collaborative, interdisciplinary efforts between the tri-state jurisdictions
- Provide a venue for further CI investigation
- Foster implementation of Tri-State Diversity Strategic Plan elements

Figure 1 shows a comparison of meeting participation at the four Tri-state Consortiums disaggregated by position. Meeting attendance has steadily increased each year and the number of undergraduate and graduate students has increased considerably. One hundred people attended in 2009, 174 in 2010, 188 in 2011and 191 in 2012.

Figure 1. Tri-state Consortium attendance



Participants of the fourth annual Tri-state Consortium

Of the 194 people who attended the fourth annual meeting, one hundred and forty-two people completed the demographic survey at the time they picked up their conference materials. The majority of attendees who completed the demographic survey were male (86%). Forty-three percent of respondents were higher education faculty members, administrators, or staff and more than half were from a university in Idaho. Very few minorities were in attendance. An overwhelming majority of attendees were white (75%). The demographic description of meeting attendees and survey respondents is listed in Figure 2.

Figure 2. Demographic characteristics of conference attendees

	2012 Tri-State Consortium respondents (n=142)[1]	
	#	%
Previous participation in EPSCOR projects[2]		
Track 1 Idaho	37	22%
Track 1 Nevada	33	20%
Track 1 New Mexico	24	15%
Track 2 Tri-State	36	22%
Neither	35	21%
Gender		
Male	86	61%
Female	56	39%
Position		
Higher education faculty / administrator / staff	61	43%
K-12 educator / administrator/ staff	7	5%
Post-doctoral	9	6%
Graduate student	45	32%
Undergraduate student	12	8%
Community-based organizing member	1	1%
Industrial affiliate	1	1%
Other[3]	6	4%
Institution of affiliation		
Boise State University	17	12%
College of Southern Idaho	3	2%
Desert Research Institute	8	5%
New Mexico Highlands University	5	4%
New Mexico Tech.	9	6%
Idaho State University	16	12%
New Mexico State University	4	3%
NSHE	2	1%
University of Idaho	24	17%
University of Nevada, Las Vegas	17	12%
University of Nevada, Reno	12	8%
University of New Mexico	15	11%
Other[4]	10	7%
Ethnicity		
Hispanic or Latino	17	12%
Not Hispanic or Latino	119	84%
Unknown/Prefer not to respond	6	4%
Race		
White	106	75%
American Indian or Alaskan Native	4	3%
Asian	19	13%
Native Hawaiian or other Pacific Islander	1	1%
Other	9	6%
Prefer not to respond	3	2%

[1] Participants who completed the demographic survey.
[2] Twenty participants indicated participation in more than one track. Of those 20, one indicated participation in three tracks and one indicated participation in four EPSCoR tracks.
[3] Idaho National Lab, National Science Foundation, USDA, two evaluators, and one did not indicate a position.
[4] Foothill High School, Idaho National Lab, NMCAC, NSF, NWRL, Private Company, Santa Fe Institute, SmartStart Educational Consulting, Summit Elementary, and University of Alaska

Findings

Usefulness of Tri-state Consortium Components

Participants rated the usefulness of each session they attended on a Likert scale from 1 to 5, *1=not at all useful to 5=extremely useful.* Participants also rated how well each session's objective was achieved. The objective for each session is listed below the title. Mean ratings can be considered to trend towards positive or negative based on the following scale:

Excellent	4.21 – 5.00
Good	3.41 – 4.20
Average	2.61 – 3.40
Below average	1.81 – 2.60
Poor	1.00 – 1.80

Day 1 - Tuesday, April 3, 2012

Sixty-nine participants completed an evaluation form at the end of the first day. Twenty-two participants indicated they were from the state of Idaho, nineteen from Nevada and twenty-two from New Mexico. Six participants did not indicate a state. All sessions were rated either *good* or *excellent.* Mean ratings of the usefulness of each component and achievement of the objective are displayed in Figure 3. General comments and suggestions for improving future meetings follow the figure.

Figure 3. Ratings of quality and usefulness of Day 1 Tri-State Consortium components

	Usefulness (1-5)	Achievement of Objective (1-5)
Plenary Session		
Keynote Speaker: Lilian Na'ia Alessa, University of Alaska (n=61) "Kaitiakitanga: New Approaches for Water, Energy and Societal Sustainability"	4.34	4.60
Concurrent Sessions		
Building Sustainable Native Communities (n=19) Objective: Gain strategies and knowledge to identify research priorities, methods, and applications towards sustainable community development.	4.32	4.16
Interface of Hydrology, Biogeochemistry, Ecology in Riverine Systems (n=34) Objective: Increase knowledge of interface hydrology, biogeochemistry, and ecology in Riverine systems and develop collaborative relationships.	4.18	4.21
Engaging Pre-and In-Service Teachers in Climate Change Literacy (n=15) Objective: Increase understanding of the approaches, results, and lessons learned regarding climate change education efforts for both pre-service and in-service teachers.	4.20	4.20
Luncheon Talk		
Tri-State Cyberlearning Panel (n=59) Objective: Increase awareness among scientists and educators of Cyberlearning activities in each state and their importance to communicating scientific findings.	3.58	3.95
Concurrent Sessions		
Climate Change Cyberlearning Curriculum Development (n=9) Objective: Increase understanding for the underpinnings of Climate Change Cyberlearning Curriculum Development (C4D) materials, their effectiveness, application, and potential.	4.56	4.56

	Usefulness (1-5)	Achievement of Objective (1-5)
Using Social Media and Visualization to Communicate Science (BoF) (n=17) Objective: Improve understanding of tools available in communicating science and research using visualization and social media.	3.94	3.88
Advances in Climate Modeling (n=29) Objective: Improve understanding of climate datasets and climate modeling as a means to foster better climate impact assessments in complex terrain of the intermountain western United States.	4.17	4.22
Video Screening		
Showing of *Carbon Nation* movie with opening remarks by Von Walden (n=42) Objective: Provide talking points for communicating actions the public can take to live in a more sustainable manner.	4.45	4.71

Respondents made the following suggestions to improve the conference:

No talks at lunch / more time for networking

- *No talks at lunch.*
- *Extensive lunchtime talks should be eliminated so that we can talk with the people at our table. More progress/networking could be made that way.*
- *The lunch session was too rushed.*
- *Don't have presentations during lunch – difficult to network, eat and listen.*
- *More time for networking*

Food

- *Nutrition and timing – so hungry. It's hard to eat and listen. So much sugar and very little protein, very hard to think.*
- *Need protein at breakfast, iced tea at lunch.*
- *Vegetarians are a bit neglected at meals.*
- *I appreciate the protein at breakfast, thanks!*
- *Have better entrees for people with dietary restrictions and the time it took to serve us was very long.*

Technical / Organization

- *Size images on screen could be expanded (e.g. in limelight – not using full screen size to show powerpoint so it's really hard to read slides if you are not in the front row). Would be helpful to be able to see abstracts – were abstracts submitted for any presentations?*
- *More panel discussions, more workshops, more field trips*
- *The opening was late (could I do that at my job?) and seemed long, like it pushed Dr. Alessa to have to rush, have less time.*
- *Smaller session groups*
- *Carbon nation – handout and talking points would have helped.*
- *Carbon nation movie could be replaced by more informal outdoor hike/walk*
- *Sun Valley is way nice, but hard to get to.*

Participants also wanted to share the following:

- *Keynote speaker, Alessa was excellent, interesting, inspiring – more talks like hers!*
- *Carbon nation was awesome!*
- *I enjoyed the talk on sustainable native communities. It was very entertaining and informative.*

Day 2 - Wednesday April 5, 2012

Fifty-six participants completed an evaluation form at the end of the second day. Seventeen participants indicated they were from the state of Idaho, fourteen from Nevada and twelve from New Mexico. Thirteen participants did not indicate a state. Participants rated the usefulness of each session they attended on a scale from 1 to 5, 1=*not at all useful* to 5=*extremely useful*. Participants also rated how well each session's objective was achieved. The objective for each workshop is listed below the title. A little more than half of the meeting components were rated *good* with all remaining components rated *excellent* in both usefulness and in achievement of objective. Results from each session are displayed in Figure 4.

Figure 4. Ratings of quality and usefulness of Day 2 Tri-State Consortium components

	Usefulness (1-5)	Achievement of objective (1-5)
Plenary Session		
The Changing Landscape of Science and Management of Land and Water: New Collaborative Initiatives and their Relevance (n=43) Objective: Improve understanding of models and approaches for integrating science and land management.	3.81	4.07
Concurrent Sessions		
Climate Education Resources (n=14) Objective: Increase knowledge of climate education resources and understanding of how to incorporate their own science and outreach efforts and to connect with other educators.	3.86	3.79
Climate Change and Landscape Responses (n=25) Objective: Increase understanding of the types and magnitudes of landscape and ecosystem response to climate change.	4.32	4.46
Strategies for Academic-Agency Collaborations (n=7) Objective: Increase awareness of best practices and approaches that will help in developing more and/or better agency-academic collaborations.	4.00	4.00
Luncheon Talk		
Rotating through EPSCoR (n=12) Objective: Increase understanding of future directions of NSF and priorities for NSF programs and program elements, and lessons learned from past experience.	4.17	4.50
Concurrent Sessions		
Infrastructure and Cyberlearning (n=47) Objective: Increase understanding of program and methods for teaching computation and climate science in K-12.	4.55	4.60
Quantifying Ecosystem Services (n=12) Objective: Increase understanding of how Ecosystem services have been quantified and for evaluating the relative extent of ecosystem services.	4.25	4.33
Tri-State CI Resources for Data Sharing and Collaboration (n=12) Objective: Increase awareness of Tri-State CI resources for data sharing, utilization, and future collaboration.	3.75	3.58
Student Poster Session (n=34)		
Objective: Increase awareness of range and type of research and education activities and findings, and increase communication and collaboration within the Tri-State Consortium	4.59	4.68

Participants' mean ratings of the quality of the student poster session are presented in Figure 5. Poster session components were all rated *excellent*.

Figure 5. Respondents' ratings of quality of students' poster session

Poster Session Component	Rating
Research Quality	4.54
Visual Presentation Quality	4.38
Oral Presentation Quality	4.27
Promoting Critical Dialog	4.37

Participants from Day 2 shared the following suggestions to improve this meeting:

<u>More time needed</u>

- *More time for posters.*
- *Poster session should have been better in a larger room. It was crowded with people bumping into each other.*
- *Opening meetings started late then finished late affecting break/networking time. Otherwise, it was like a well-oiled machine!*
- *Needed more time to organize sessions*
- *More time at lunch for networking and less presentation*
- *Pre-meeting two weeks and due 25 Feb was hard!*

<u>Scheduling/Virtual Options/Attendance</u>

- *Make the climate modeling workshop and other workshops at separate times. I wanted to attend the climate workshop and other workshops but couldn't because I was helping with HIS workshop.*
- *Too many talks during lunch – need time for networking and break from talks.*
- *Abstracts were not shared at meeting – why were they submitted?*
- *There should/must be an option for virtual participation. We must be leaders in virtual conferencing and to save carbon.*
- *Students need information in advance about the importance of attending workshops/sessions*
- *I wish the field trip had been earlier in the week.*

<u>Accommodations / Food</u>

- *Would be nice to have more affordable restaurants on site*
- *Didn't get what I asked for, I am a vegetarian (2)*
- *Not enough food at poster session – I arrived at posters at 5:50pm, walked around to talk to students, but by the time I went to get food at 6:20pm there was no food left and I didn't get any.*
- *Ran out of food, food not good quality, especially given facility.*
- *Too much sugary stuff relative to less sweet options.*
- *Great meeting, food was a bit disappointing.*
- *Student drink tickets, catering (food) was extremely heavy (carbs).*

Participants also wanted to share…

- *This was the best poster session yet!*
- *The poster session was great!*
- *Nice venue.*
- *Very nice accommodations*
- *I feel very happy to be a part of this collaborative, caring, engaged, intellectually stimulating group.*
- *Excellent talk by Jeanne Small.*
- *Great to have student introductions, liked sharing names during climate change and landscape responses*
- *Excellent, I really liked the student interaction pieces.*

Day 3 - Thursday, April 5, 2012

Seven participants completed an evaluation form at the end of the workshops held on Thursday April 5, 2012. Two participants were from Idaho, four from Nevada, and one from New Mexico. Participants rated the usefulness of each session they attended on a scale from 1 to 5, 1=*not at all useful* to 5=*extremely useful*. Participants also rated how well each session's objective was achieved. The objective for each workshop is listed below the title. All morning sessions were rated *good* or *excellent.* Results from the morning and afternoon workshops are displayed in Figure 6. No participants from the Climate Modeling Tutorial and C4 Death Valley Workshop completed evaluation forms.

Figure 6. Ratings of quality and usefulness of Day 3 Tri-State Consortium components

	Usefulness (1-5)	Achievement of Objective (1-5)
Morning Sessions		
Climate Modeling Tutorial (n=0) Objective: Increase knowledge of basic concepts of global and regional climate modeling.	-	-
Tri-State CI Working Group (n=2) Objective: To develop a plan and near- and mid-term targets for collaborative CI development	4.50	4.50
Tri-State Diversity Workshop (n=3) Objective: identify and initiate activities that align with Tri-State Diversity Strategic Plan (e.g. REU proposal, on-line educational resources, guidance document)	4.67	5.00
HIS Workshop (n=1) Objective: Increased knowledge of web services and how they are used for distributed information systems, hydrologic information system and HydroDesktop.	5.00	5.00
C4 Death Valley Workshop (n=0) Objective: Increase understanding about the process, learning benefits, and data and findings that enable the development of C4D Climate Change curricular materials.	-	-
Systems Modeling for Understanding Climate Change Workshop (n=1) Objective: Increase understanding of Systems Modeling as it pertains to Climate Change.	5.00	4.00

Participants explained how they would use or implement the information and the skills learned in these workshops:

- *Software, hardware, UI and architecture improvements for CI; data exchange mechanisms.*
- *Linking our data to HIS using hydrodesktop for precipitation analysis; training of other students.*

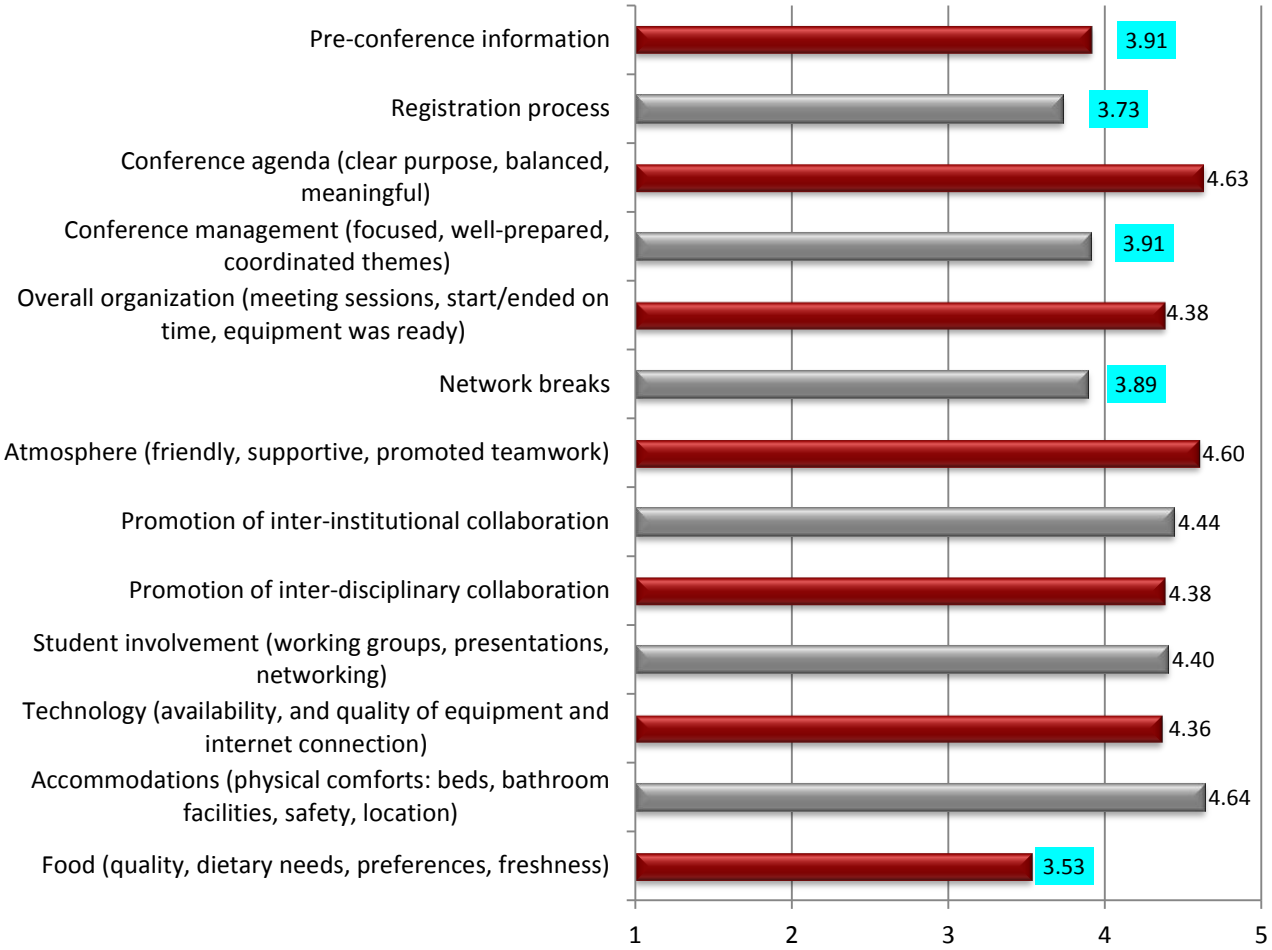
Participants from Day 3 wanted to share the following comments and suggestions to improve this Tri-state consortium meeting:

- *The CI working group was phenomenally useful – a longer session would have been even better.*
- *The poster session was one of the best I've ever attended. Good number of students, good arrangement of posters vs. food. Pop-ups gave good heads up and fantastic quality of work / presentation.*
- *Workshops should be at beginning of meeting. Limit number of talks at meals, it limits networking times.*

General Tri-State consortium meeting ratings and comments

Respondents' ratings of their satisfaction with various aspects of this meeting on a scale from *1=low* to *5=high*. Their ratings are presented in Figure 7. Respondents rated over 50% the thirteen aspects in the *excellent* range and all other components in the *good* range. Accommodations were rated the highest and food was rated the lowest.

Figure 7. Respondents' ratings of meeting aspects



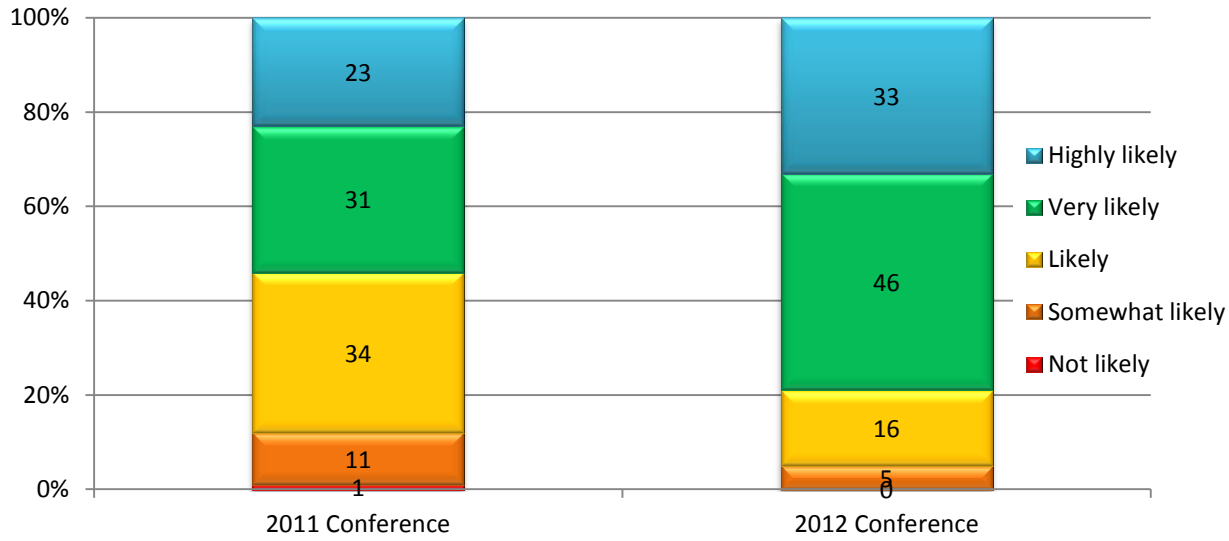
Impact of Tri-State Consortium attendance on project participants

Respondents indicated which of the prior meetings they attended. Of the 56 respondents[5], eleven had attended the first meeting, 24 had attended the second meeting and 23 had attended the third meeting. Consequently, 10% of the people who attended the first meeting, 24% of the people who attended the second meeting, and 23% of the people who attended the third meeting also attended this meeting.

[5] Day 2 evaluation form

Participants explained how likely they would be to use the information presented in the workshops in their research, classroom or work. Figure 8 shows that 46% of participants responded that they would be *very likely* to use the information and an impressive 33% indicated they would be *highly likely* to utilize the information presented - a 25 percentage point increase from last year.

Figure 8. Likelihood of participants using information presented in the workshop

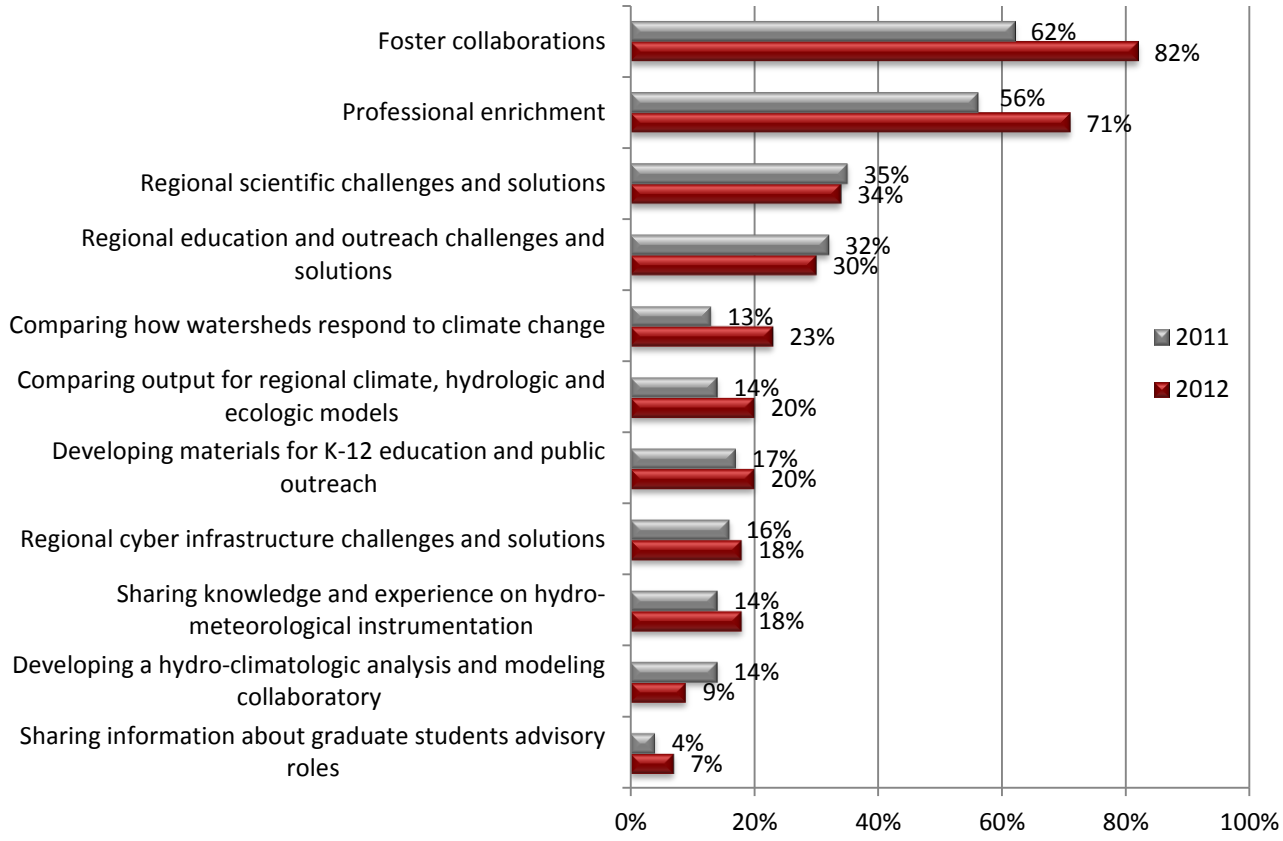


Participants explained how they will use or implement the information and skills they have learned at these Tri-state meetings:

- *CI integration into data management architecture*
- *Improve CI developments with other UI examples.*
- *Enhanced participation in next track 1 proposal*
- *Ideas for infrastructure improvement, TWG proposal.*
- *Through classes and through submission of proposals.*
- *Future proposals*
- *Make my sophomore tutorials more user friendly*
- *I've taken note of a few ideas from other students that may be useful in my own work*
- *Use ideas from modeling tutorials in own research.*
- *Use AIDA (to gain understanding of stakeholder interests); use downloaded climate data for research projects.*
- *In research as well as outreach, it provides wonderful context and perspective for explaining research projects.*
- *Use to frame further collaborations within the state and communicate this information broadly.*
- *Suggestions from poster session.*
- *Data portal access and information*
- *Sharing information with colleagues, students*
- *I am in charge of designing, implementing and executing the EPSCoR summer institute and the meetings (all of them!) helped me get organized – mentally and on paper from putting on an awesome program for this summer's participants.*

Next respondents reported their reasons for attending the Tri-state meeting. They selected all applicable reasons from the list provided. This data, along with the percentage of participants who selected the same reasons from last year, is presented in Figure 9. The majority of respondents from this year's meeting stated they attended to foster collaborations (82%) and for professional enrichment (71%). Both of these reasons increased considerably from last year's meeting.

Figure 9. Respondents' reasons for attending the Tri-state Meeting

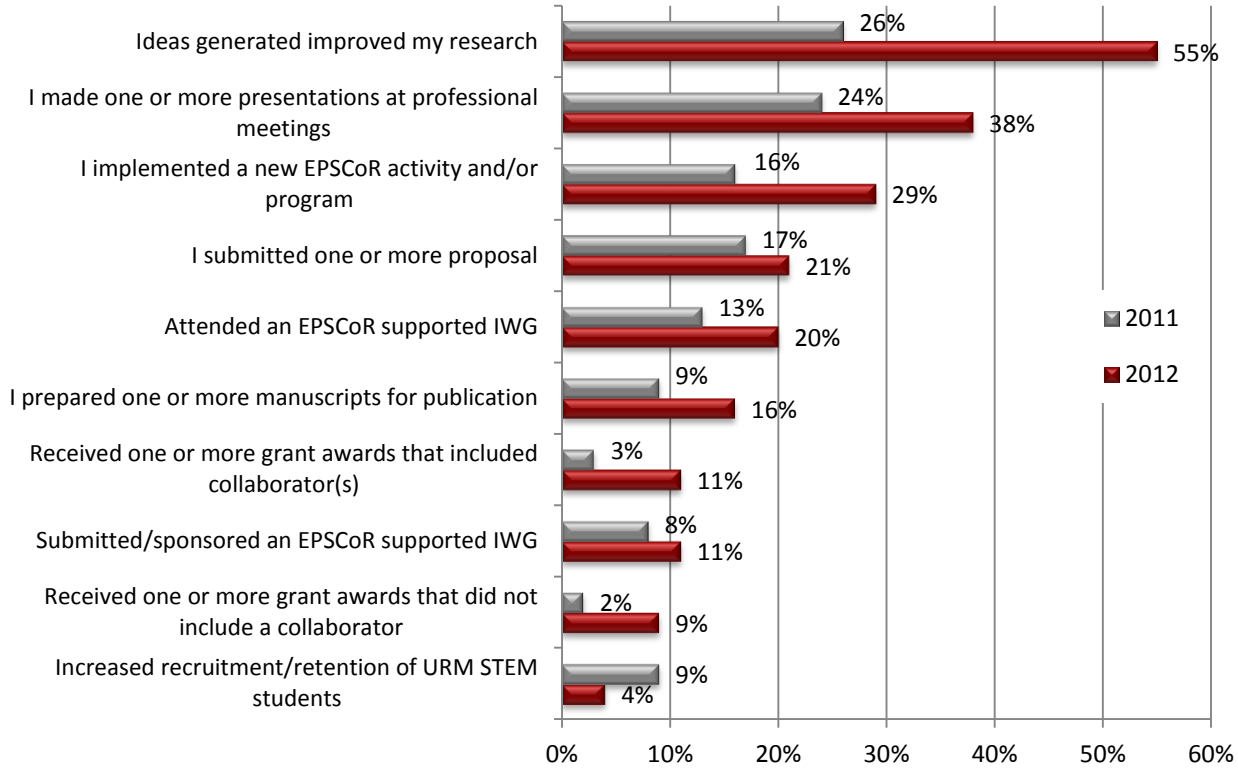


Respondents listed the following additional reasons for attending the Tri-state meeting:

- *Inter disciplinary modeling course*
- *Present research poster*
- *Sharing research*

Participants indicated professional activities they engaged in as a result of attendance at the previous Tri-state meetings. Respondents selected all applicable options, and a comparison of the percentage of respondents selecting each activity from last year and this year is presented in Figure 10. The most frequently selected activity from both years was *ideas generated improved my research*. Participants' engagement in professional activities increased in all areas with the exception of increased recruitment/retention of URM STEM students.

Figure 10. Percentage of participants reporting professional activities that resulted from attendance at prior Tri-state meetings

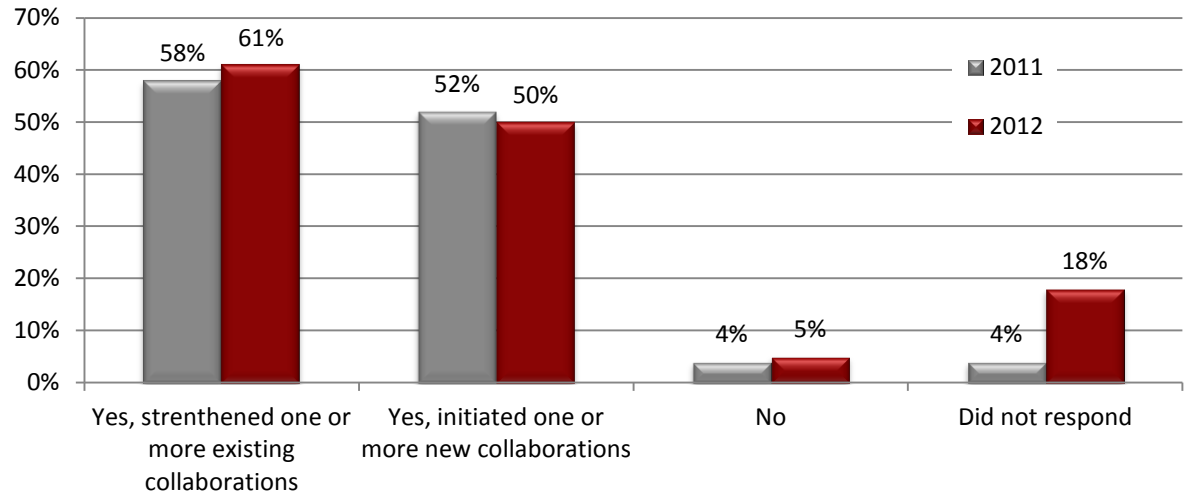


Participants listed other actions resulting from their participation in previous tri-state meetings. Their responses are listed below:

- *I got great ideas for furthering/improving my research and my duties as EPSCOR Education Co-coordinator.*
- *Preparing a couple of manuscripts for publication that are about to be submitted*
- *Workshop recruitment*
- *Inter disciplinary Modeling course*

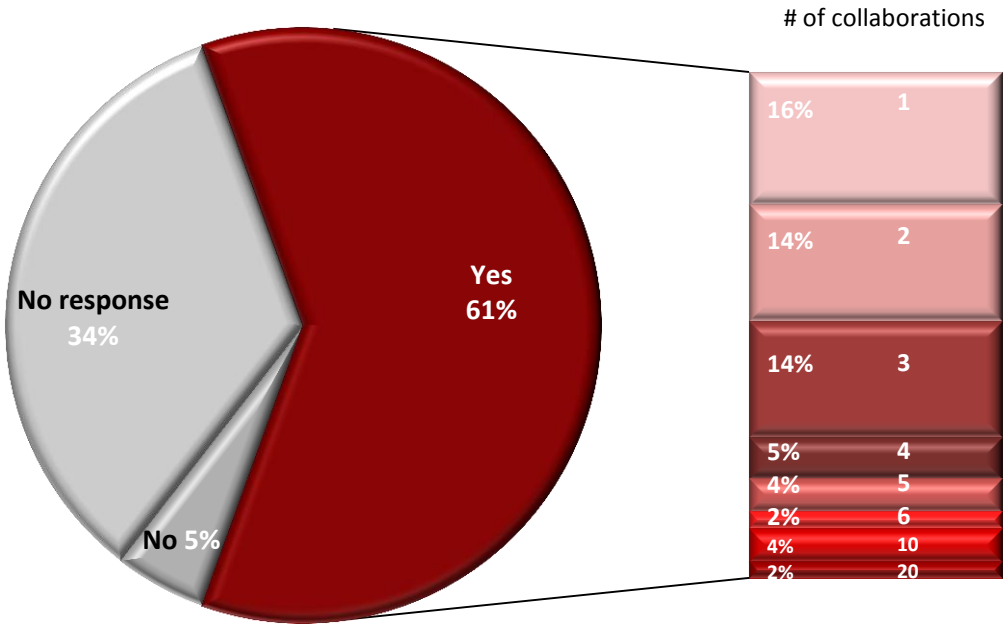
Respondents provided information regarding collaborations that resulted from this or prior Tri-state Consortium meetings. Respondents selected all applicable options. In Figure 11, respondents' responses are provided regarding whether they strengthened existing or initiated one or more new collaborations at this meeting. Also included in Figure 11 are responses from last year. This year, more than half of respondents reported strengthening collaborative relationships (61%) while exactly half (50%) of respondents reported initiating new collaborations. More collaborative relationships were strengthened this year with a few less collaborations initiated compared to last year.

Figure 11. Percentage of respondents strengthening or initiating new collaborations while attending this meeting



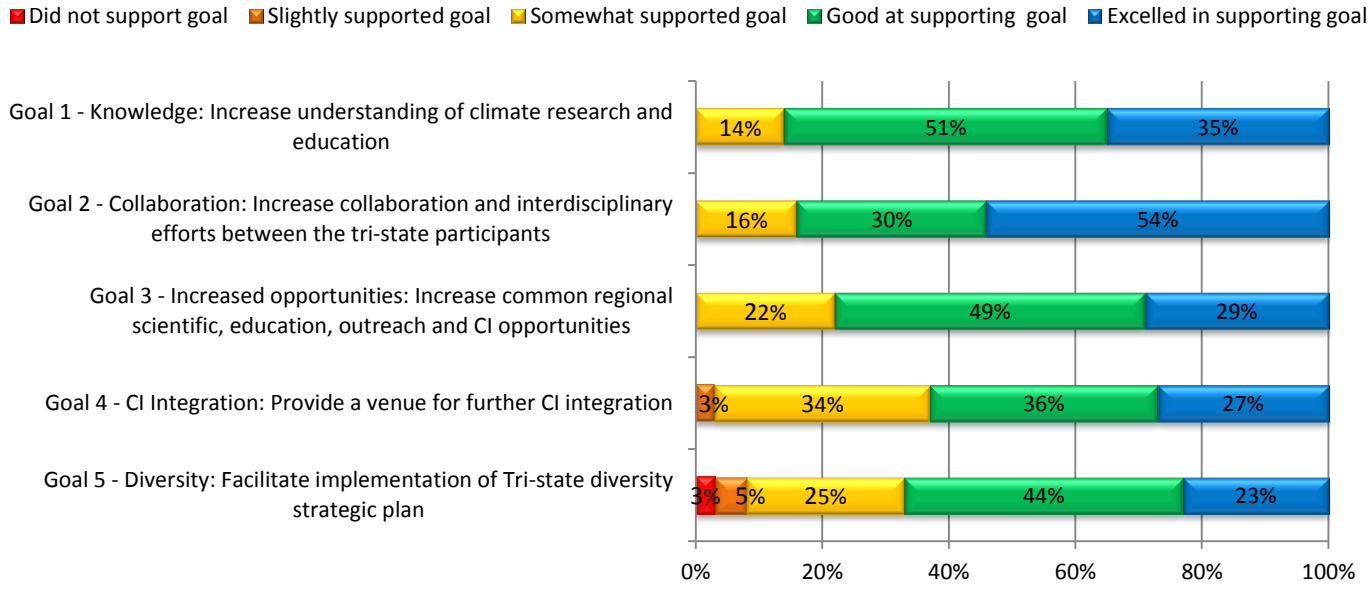
In Figure 12, data is presented indicating if respondents' at this Tri-state meeting strengthened a collaborative relationship within the Tri-state region that started as a result of attending a previous meeting. Respondents who replied *yes* (61%) also reported the number of collaborations strengthened. Thirty-one percent of attendees strengthened three or more collaborations compared to 24% from last year.

Figure 12. Percentage of respondents indicating strengthened collaborations



Respondents rated how well they believe this meeting supported achievement of the meeting goals on a scale from 1 to 5; *1=did not support this goal* to *5=excelled in supporting goal.* Most participants reported the meeting was either *good* or *excelled* in supporting meeting goals. The highest result was reported for Goal 2 – Increase collaboration, in which more than half of attendees stated the meeting excelled in supporting this goal. Results are shown in Figure 13.

Figure 13. Respondents' rating of achievement of meeting goals



Key findings and recommendations for the Tri-state meeting

Demographics

There remains a wide disparity between male (61%) and female participants (39%) and no notable increase in Hispanic/Latino attendees. The percentage of Caucasians in attendance increased considerably from last year from 56% in 2011 to 75% in 2012, while the percentage increase in other race/ethnicities had either very moderate or negligible increases. As in prior years, no Black/African Americans were in attendance.

Continue efforts to increase the number minority and female participants. Request demographic information be provided during the registration process.

Evaluation of meeting components

Attendance increased by six participants this year. Meeting components all three days were rated *good* to *excellent* in usefulness and achievement of meeting objectives. One participant described the CI working group as "phenomenally useful" and the guest speakers received enthusiastic reviews.

There was an overall increase in the reasons for attending the meeting as well as an increase in the number of collaborations strengthened from the prior year's meeting. Engagement in professional activities also increased in all but one area compared to last year. It is clear this meeting was useful and impact participants.

Participants' suggestions for improvement included clarifying why abstracts were submitted, enabling virtual attendance, and stressing the importance of students attending the workshops. They also noted that the food variety and quantity was not sufficient. Participants had two similar suggestions for improvement as last year including more time for collaboration and no presentations during lunch.
Consider participants' suggestions for upcoming meetings. Allowing attendees to attend via video-conferencing is a valid point to consider but could inhibit the collaborative benefits of in-person meetings. Consider networking lunch periods and more varied food options.

Impact on participants
An overwhelming majority of meeting participants reported the meeting was either *good at* or *excelled at supporting* all five meeting goals. A small percentage of participants rated the meeting as either *not supporting* or *slightly supporting* goals 4 (CI integration) and 5 (Diversity). Participants clearly noted the likelihood of using what they had learned in their classroom or in their work.
It is clear this meeting was useful and positively impacted participants. Continue to develop meeting components around goals with more emphasis on developing components that are directly related to achievement of specific goals. Prior to the presentation/activity, the presenter should state the purpose of the presentation/activity and the specific goal to which it relates, to help focus participants' attention.

B. Data Portal Survey and Workshop Evaluation

Background of the project

At the fourth annual NSF EPSCoR Western Consortium meeting data portals being developed in the three states were described and introduced in a workshop. The data portal meeting was held on Thursday, April 5th, the second day of the three-day conference. At the beginning of the workshop, developers from each of the states introduced their data portal. Then, participants were given the opportunity to use the data portals from either Nevada or New Mexico. The data portal from Idaho was not available for use at the time of the workshop although developers in that state did present on their data portal.

Background of the evaluation

The focus of this evaluation was twofold. First, the evaluation was intended to solicit feedback on the data portals being developed. This feedback was provided to data portal developers to enable them to improve the data portal. Second, the evaluation was designed to assess the usefulness of the data portal workshop.

During the workshop participants logged into the data portal/workshop evaluation form through a link provided on the data portal websites and completed the form as they participated in the workshop. A separate evaluation form was created for each state's data portal but the content was the same. The evaluation form for the Nevada and the New Mexico data portals are included in the Appendix B.

Nevada Data Portal

Participants

Seven participants completed the Nevada Data Portal evaluation form. Participants were majority male (86%) and white (43%). All participants were from 4-year colleges or universities and 43% were students. Most were 26-35 years of age (57%). A detailed demographic description of participants is shown in Figure 14.

Figure 14. Demographic description of Nevada data portal participants

	Number (n=7)	%
Gender		
Female	1	14%
Male	6	86%
Ethnicity		
Asian	2	29%
Caucasian	3	43%
Prefer not to answer	2	29%
Age		
26-35	4	57%
46-55	3	43%
Highest educational degree attained		
MA / MS	3	43%
Phd, EdD, or other doctoral degree	4	57%
Primary academic or work location		
4-Year College/University	7	100%

	Number (n=7)	%
Primary academic or work role		
Faculty	2	29%
Post –doc	1	14%
Staff	1	14%
Student	3	43%
Number of years in current job or academic status		
<1	1	14%
1-2	1	14%
3-5	2	29%
6-10	1	14%
11-15	1	14%
21-30	1	14%

Quality and usefulness of the data portal workshop

Participants rated the usefulness of each component of the workshop on a Likert scale from 1-5, 1=*not useful at all,* 5=*extremely useful*. In addition, participants were asked to comment about each component. Each component was rated *very useful* on average and no participants made comments on the particular components. Ratings of component are displayed in Figure 15 below.

Excellent	4.21 – 5.00
Good	3.41 – 4.20
Average	2.61 – 3.40
Below average	1.81 – 2.60
Poor	1.00 – 1.80

Figure 15. Ratings of data portal workshop components

Workshop Component	Rating (1-5)	Comments
Beginning overview and introduction to the portal	3.86	None
Exploration and use of the portal	3.57	None
Feedback session	3.71	None

Participants gave suggestions for how the workshop could have been more useful. The one participant who responded would have liked more time to explore the portal and suggested having the survey as a permanent feature of the portal.

Mode of accessing the Nevada data portal

Respondents explained how they heard about the portal and how they will access the data portal. The majority reported that they will access the portal on Windows on their primary (57%) computer. Forty-three percent reported they would access it through Windows on their secondary computer as well, but many reported they used Mac OS X (29%). Most participants reported using Firefox (72%) web browser. Results are displayed in Figure 16.

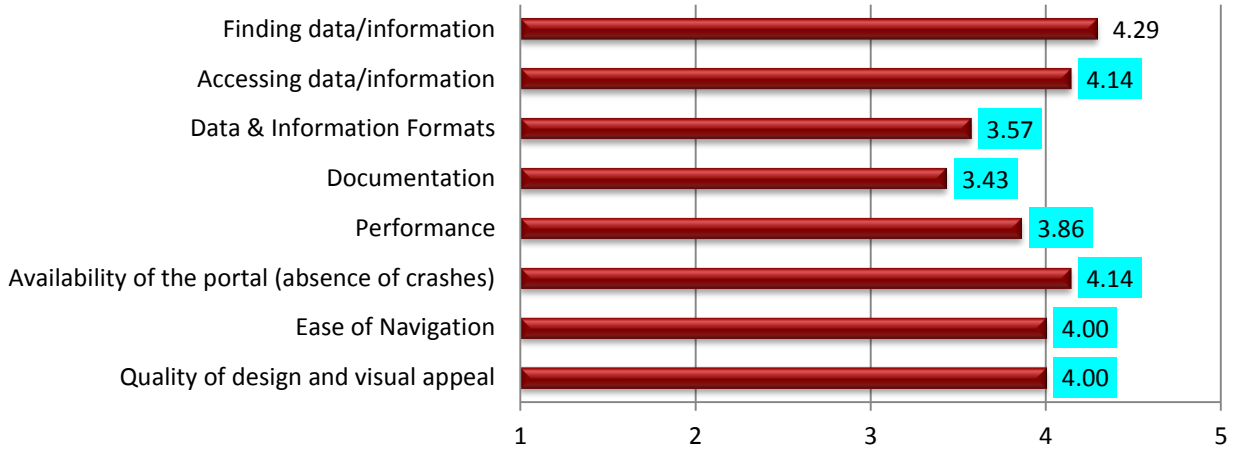
Figure 16. How participants heard about and will access the NV data portal

	Number (n=7)	%
How did you first hear about this data portal?		
Informational email or newsletter	1	14%
Presentation at conference/meeting	3	43%
Online Community	1	14%
Google search	1	14%
Project participant Track 1	1	14%
When accessing the portal what is the operating system of your primary computer?		
Windows	4	57%
Mac OS X	3	43%
When accessing the portal what is the operating system of your secondary computer?		
Windows	3	43%
Mac OS X	2	29%
Linux/Unix	1	14%
None	1	14%
What web browsers do you use on your primary and secondary computers?		
Internet Explorer	2	29%
Firefox	5	71%
Chrome	2	29%
Safari	3	43%

Nevada data portal user-friendliness

Participants rated the user-friendliness of the following aspects of the data portal on a Likert scale from 1-5, 1= *poor*, 5=*excellent*. Finding data and information was rated *excellent*, whereas the rest of the aspects of user-friendliness were rated *good* by participants. Results are displayed in Figure 17.

Figure 17. Participant's ratings of Nevada data portal user-friendliness



As participants explored the data portal during the workshop, they recorded their observations. Many participants gave detailed and technical advice for improving the data portal. Developers are encouraged to look through these comments one by one for specific feedback on the data portal. Comments are listed below.

Student

- *I saw you have the "Home" button on the right side. I am used to having it on the left.*
- *Good use of colors*
- *Clear navigation menu*
- *Easy access to data*
- *Good layout and design*
- *Possible improvements would be a simple site map and a breadcrumb or highlight menu as an indicator of current page on the website.*

College/University Faculty

- *Biophysical data looks great. Would evaluation like to see education and social science data?*
- *The interface of NCCP looks good. Straightforward and user friendly.*
- *Needs a Search feature.*
- *Also, need to remove "begin downloading" after downloading data*

Staff

- *Got a number of long-running javascript warnings (Mac OS X Lion, Chrome 18.0.1025.142), like every couple of minutes regardless of what I tried to do.*

Post-doc

- *The instruction on Silverlight version is very nice, with light lighting. Having it under the main menu or toolbar maybe easier for a user to find it.*
- *Being able to switch between Map and Text view is very good feature, too.*
- *For some reason, it's easy to forget to hit save, though. Perhaps asking to save or not when a user just closes the dialog maybe helpful.*

Participants also made suggestions for how the data portal could be improved to make it easier to use and be more useful. Participants made a variety of suggestions in functionality including facilities for data comparison, graphing clarifying how to select a station, and the ability to download data in several standard formats. Comments are listed below.

College/University faculty

- *Add facilities for data comparison, graphing*

Post-doc

- *Perhaps simple graphing or reporting feature to give the information about the data at a glance might be very helpful.*
- *Also, it would be helpful if users can download the data in the format desired. Availability in several standard formats would be helpful.*

Student:

- *Maybe more instructions.*

Staff:

- *Had no idea I needed to select a station. Pretty sure it dumped all of the search results to the CSV even though I selected on set (unless selecting it wasn't enough in which case, that was unclear).*
- *Big buttons? Tabs? Disconnected from the 'work' area (search params) - then I have to go somewhere else to find download but that's not an obvious search location. Expected: select, search, select, download.*
- *Trying to pull the entire CSV into a browser is expecting a lot of the machine. Download should be a download option (want to save the file and open it in something more useful than the browser; I have seen a lot of people have trouble saving pages from a browser).*
- *It has too many script issues.*

Impact of the Nevada data portal

Participants indicated their purpose for visiting the data portal and how they planned to use the information they obtained from the data portal. Nearly half of the participants indicated their purpose was to obtain data (43%) with the remaining participants indicating their purpose was for information (29%) or tools (29%). All participants reported they planned to use the information for research. Responses are shown in Figure 18.

Figure 18. Purpose and domains of use for Nevada data portal

	Number (n=7)	%
What is your primary purpose for visiting the portal?		
Data (measurements & observations for download and use)	3	43%
Information (reports, graphs, charts, tables, maps, photos, videos, references)	2	29%
Tools (search, analysis, mapping)	2	29%
In which of these academic and/or employment domains do you primarily plan to use the information you obtained from this data portal?		
Education	0	0%
Research	7	100%

Two participants described the topic focuses of the information they obtained from the data portal.

College/University Faculty

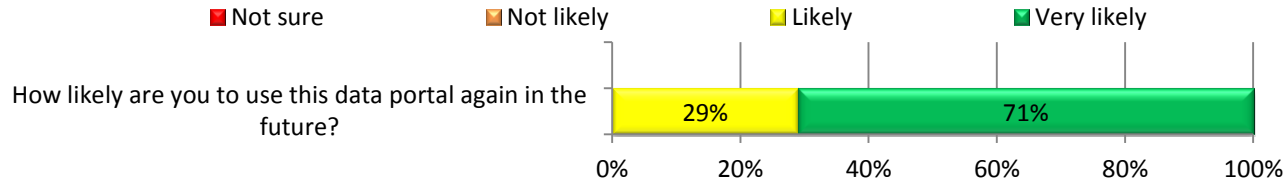
- *Research on climate modeling*

Post-doc

- *Data retrieval and transformation, such as visualization.*

Participants rated their likelihood of using the data portal again on a 4-point scale that ranged from *not likely* to *very likely*. The majority of participants indicated they were very likely to use the data portal again. The responses are illustrated in Figure 19.

Figure 19. Likelihood of using the Nevada data portal again



Participants shared additional comments about the data portal. Those who responded offered praise for the development of the data portal and/or workshop.

Post-doc

- *This would be very useful and powerful tool that will facilitate data-oriented projects. Also, it would be great for public and in education to have the access to this information.*

Student

- *It is a good looking* website. *It is fast and easy to use.*

New Mexico Data Portal

Participants

Five of the participants completed the evaluation form. All five respondents were male and from 4-year universities. Most (60%) were 26-35 years of age and held MS/MA degrees. A detailed demographic description of respondents is shown in Figure 20.

Figure 20. Demographic description of New Mexico Data Portal Workshop participants

	Number (n=5)	%
Gender		
Male	5	100%
Ethnicity		
Asian	2	40%
Caucasian	2	40%
Prefer not to answer	1	20%
Age		
26-35	3	60%
36-45	1	20%
46-55	1	20%
Highest educational degree attained		
MA / MS	3	60%
Phd, EdD, or other doctoral degree	2	40%
Primary academic or work location		
4-Year College/University	5	100%
Primary academic or work role		
Faculty	2	40%
Post -doc	1	20%
Student	2	40%
Number of years in current job or academic status		
<1	1	20%
3-5	3	60%
6-10	1	20%

Quality and usefulness of the data portal workshop

Participants rated the usefulness of each component of the workshop on a Likert scale from 1-5, 1=*not useful at all,* 5=*extremely useful* and commented about each component. Each component was rated *very useful* on average and only one participant made a comment. Ratings and comments are displayed in Figure 21.

Excellent	4.21 – 5.00
Good	3.41 – 4.20
Average	2.61 – 3.40
Below average	1.81 – 2.60
Poor	1.00 – 1.80

Figure 21. Ratings of the data portal workshop components

Workshop Component	Rating (1-5)	Comments
Beginning overview and introduction to the portal	4.00	• *This should have been a PowerPoint-free introduction to keep the focus of the workshop.*
Exploration and use of the portal	4.20	None
Feedback session	4.00	None

Mode of accessing the New Mexico data portal

Participants were asked a series of questions about how they will access the data portal. The majority reported that they will access the portal on Windows from their primary (60%) computer. Eighty percent reported that they would access it through Windows on their secondary computer as well, and 20% reported they used Mac OS X. Most participants reported using Firefox as a web browser (80%). Results are displayed in Figure 22.

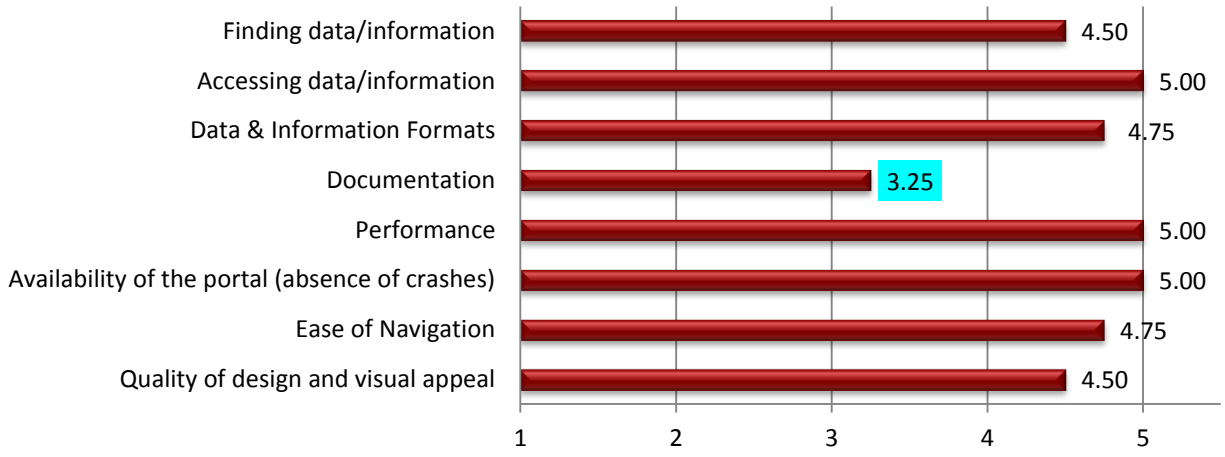
Figure 22. How participants heard about and will access the NM data portal

	Number (n=7)	%
How did you first hear about this data portal?		
Informational email or newsletter	1	20%
Presentation at conference/meeting	3	60%
Online Community	1	20%
When accessing the portal what is the operating system of your primary computer?		
Windows	3	60%
MAC OS X	1	20%
iOS	1	20%
When accessing the portal what is the operating system of your secondary computer?		
Windows	4	80%
MAC OS X	1	20%
What web browsers do you use on your primary and secondary computers?		
Internet Explorer	3	60%
Firefox	4	80%
Chrome	2	40%
Safari	1	20%

New Mexico data portal user-friendliness

Four Participants rated the user-friendliness of the following aspects of the data portal on a Likert scale from 1-5, 1= *poor*, 5=*excellent*. The overall rating of portal user-friendliness was *excellent.* All aspects were rated excellent except documentation which was rated in the *good* range. One participant was *not sure* what any of the aspects were and did not provide a rating. Results are displayed in Figure 23.

Figure 23. Participant's ratings of New Mexico data portal user-friendliness



As participants explored the data portal during the workshop, they recorded their observations. Many participants gave detailed and technical advice for improving the data portal. Data portal developers are encouraged to look through these comments one by one for specific feedback on the data portal. Participant comments on the data portal are listed below.

College/University Faculty

- *Couldn't access any data through iPad safari interface. Browse just shows a blank list.*
- *A very nice number of data search options with very enjoyable interfaces. A lot of effort has clearly gone into this.*

Post-doc

- *Search and filtering features are very useful. Being able to browse by theme is a great feature, too.*

Student:

- *You have a great website*
- *Good use of color and spacing; Fast search and easily accessible data with metadata*
- *improvements; no sense where user is based on looking at the page; possibly highlight currently active menu or provide simple breadcrumb; no temporal search; provide couple of samples for rest API for a kick start*

Participants also made suggestions for how the data portal could be improved to make it easier to use and more useful. One participant suggested additional or prominent background about the data would be good, another indicated the portal failed on the iPad and a third suggested a temporal search. Comments are listed below.

College/University Faculty

- *Provide additional (or more prominent) background about the data available.*
- *Failed on iPad. I will try laptop*

Student:

- *Temporal search*

Impact of the New Mexico data portal

Participants indicated their purpose for visiting the data portal and where they planned to use the information they obtained from the data portal. A majority of participants indicated their purpose was to obtain data (60%) and use the information obtained for research (60%). Responses are shown in Figure 24.

Figure 24. Purpose and domains of use for the New Mexico data portal

	Number (n=5)	%
What is your primary purpose for visiting the portal?		
Data (measurements & observations for download and use)	3	60%
Information (reports, graphs, charts, tables, maps, photos, videos, references)	1	20%
Other (ideas)	1	20%
In which of these academic and/or employment domains do you primarily plan to use the information you obtained from this data portal?		
Education	2	40%
Research	3	60%

Two participants described the topic focuses of the information they obtained from the data portal.

College/University Faculty

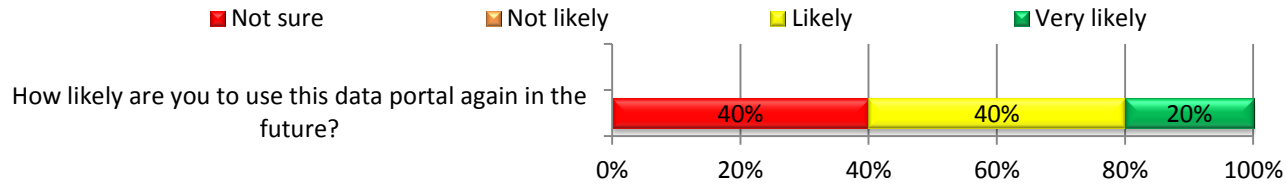
- *Data exchange and aggregation.*

Post-doc

- *Data retrieval and transformation for visualization*

Participants rated their likelihood of using the data portal again on a 4-point scale that ranged from *not likely* to *very likely*. Sixty percent of participants indicated they were *very likely* or *likely* to use the data portal again. The responses are illustrated in Figure 25.

Figure 25. Likelihood of using the New Mexico data portal again



A student reported not being sure he would use the data portal again because he wasn't a scientist.

Participants shared additional comments about the data portal. The one faculty member who commented reported that the data portal is one of the critical research tools that researchers must utilize to provide good research results.

Key findings and recommendations for the data portals

Fewer participants provided input than were expected.
To increase feedback on the data portal in group sessions such as this, incorporate logging into the evaluation form into the presentation. Continue to offer data portal workshops to generate feedback on these valuable tools. Post a link to the evaluation survey on the portal websites. Continue to build on and improve the portals. Conduct more group visits to evaluate the portal such as having students evaluate the portal as part of their class and incorporating data portal sessions into future conferences and trainings.

The workshop ratings were in the *good* range and some suggestions were offered.
Consider increasing the time participants have to explore the data portal.

Participants were positive about the data portal and offered many general and specific comments about it.
Developers should review the specific comments to improve the usefulness and impact of the data portals from each state.

C. Tri-state educational materials development

During this reporting period, the evaluator focused on two activities. First, detailed information about the evaluation materials developed so far was requested to obtain a summary of all of the materials that have been developed. Some curriculum developers have shown an interest in developing an online repository of educational materials, lessons, and curriculum. This list will provide a foundation on which individuals in charge of developing the online repository can build. In order to gather information about the curriculum, the following matrix was emailed to tri-state curriculum developers. The final list of curriculum that has been developed will be included in the next (Q4) evaluation report.

Scientific Topic	Tittle of Content Standard	Name of Lesson	Lesson Contents*	Pedagogical model**	Appropriate Grade Level

***Examples of possible lesson contents.**

- Data
- Simulations/Models
- Photos
- Graphs/tables
- Videos
- Field activities
- Lab equipment required
- PowerPoint presentation
- Computer-based activity

****Pedagogical model refers to lecture, lab, or activity.**

The second evaluation activity was to assess the possibility of integrating a student attitude survey into curriculum development programs. The evaluator emailed curriculum developers to begin a discussion on the feasibility and usefulness of a student attitude survey. Confounding factors were discussed:

- Teachers may choose to use one or several modules in our curriculum which may be taught infrequently over a long period of time or in conjunction with other materials. So results could not be fully attributed to students' exposure to materials.
- Would teachers be willing to use class time to administer the survey?
- Assessment is built into some of the curriculum develop models, such as the 5DIE format. For instance, at the beginning students respond to their initial ideas regarding the Big Question, collect evidence and create explanations about the scientific ideas of the lesson, compare with their initial understandings, and justify/communicate their artifacts and explanations regarding the Big Question. Therefore, developers are using the 5DIE format do they need to create additional assessment materials?
- Assessments can come in a variety of forms from product, observation, essay, to multiple choice. The form depends on the need and the goals of the lesson or unit.

Key findings and recommendations for educational materials development

It has been challenging to assess the impact of educational material development on the EPSCoR goals due to the wide variety of non-connected curriculum development programs.

For future EPSCoR projects, curriculum development programs should be planned, coordinated, and integrated. One way to accomplish this is to conduct a training session for all people involved in leading educational materials development projects and all people who are developing or are considering developing materials. Hire someone who is a specialist in this area to lead the training. That person should address the various processes/methods used to develop educational materials as well as goals and assessments.

Curriculum developers met at the Cyberlearning Summit to share lessons and curriculum that has been developed. This is an excellent start. Developers should meet periodically to discuss curriculum development models they are using and ways they can continually integrate and build upon each other's efforts. In addition, assessment instruments should be embedded as part of an educational materials development project. In order to develop assessment instruments, the person who is leading the curriculum development project needs to determine: the goals of the curriculum develop program, expected student outcomes and the type of assessment instruments the developers plan to use.

D. Tri-State Cyberinfrastructure (CI) Training Opportunities

Background of the project

Cyberinfrastructure (CI) training opportunities grants enable EPSCoR participants to broaden their knowledge of cyberlearning and climate change research. Faculty and students in the tri-states may apply for and receive funding to attend national workshops on computation and climate change.

Background of the evaluation

Assessment development

The CI Training Opportunities survey was developed by program leaders at Idaho State University and revised by the evaluator (Appendix D). The purpose of the survey is to assess the value of the CI training opportunity and the impact of participation in the CI Training on participants. The survey is comprised of fifteen questions. The first seven items ask participants to report on demographic characteristics. The next two items ask participants to report on whether the training they attended met their expectations. Participants responded to these items using a 5-point scale (0=*N/A,* 1=*did not meet my expectations,* 4=*far exceeded my expectations).* The next four items ask respondents to report whether the training enhanced their ability to conduct research as well as increased their knowledge and skills of climate change and cyberinfrastructure literacy. The last two items were open ended questions. The first item asked participants to comment on the application and award process. The second item requested participants to offer general comments or suggestions regarding the CI training they attended.

Data collection methods

The project leader emailed the evaluation to all CI training attendees. The project leader then emailed all completed surveys to the evaluator.

Evaluation participants

Evaluation results from two recipients, one from Idaho and one from New Mexico are included in this report. Idaho provided reimbursement to one person who attended ISO 19115-2/19139 Geospatial Metadata Standards in September 2011. New Mexico provided reimbursement to one person who attended a Spring Specialty Conference on GIS and Water Resources VII. Nevada did not have any CI training participants this quarter. Both participants were Caucasian males, one was a faculty member and one was a master's student.

Figure 26. Demographic description of CI training participants

Date	Name of training	Attendees				
		State	Gender	Ethnicity	Position	Institution
September 7-8, 2011	ISO19115/19139 Geospatial Metadata Training	ID	Male	Caucasian	Faculty	University of Idaho
March 26 - 28, 2012	2012 AWRA Spring Specialty Conference GIS & Water Resources VII	NM	Male	Caucasian	Graduate student – Masters	University New Mexico

Evaluation findings

Survey results for CI Training workshops are reported in Figure 27. All respondents said the training *met* or *exceeded* their expectations to increase scientific capabilities and CI literacy.

Figure 27. CI Training workshop results

ISO19115/19139 Geospatial Metadata Training (n=1)	
Increased scientific capabilities?	*Met my expectations*
Increased CI-literacy?	*Exceeded my expectations*
Will this training enhance your ability to conduct research in your scientific field? *Yes. My work is in libraries. I typically study scholarly communications, information use and behavior, etc in practice. This gave me a valuable perspective not only in applying the standard myself, but how the standard is to be applied by researchers using geospatial data, the use of the standard in repositories and the possibilities this creates for researchers.*	
How has this training increased your awareness, skills and knowledge in the area of climate change? *It improves my understanding of how climate change researchers work with geospatial information, which helps me support their work.*	
How has this training increased your CI-literacy (awareness, skills and knowledge)? *It provided insight into a particular standard, the intricacies of that standard, and the possibilities of manipulating it to improve discovery of datasets in information systems.*	
How will you apply what you have learned to your studies, research, and/or career? *Two ways. First, I can assist our metadata librarian and geospatial repository manager with their work. It's easier to solve problems and develop strategic approaches to supporting researchers when we all have a strong understanding of the tools and systems that they're working with. Second, it provides me with the capacity to speak at the same level about metadata production and maintenance with researchers in data management planning and supporting their efforts to make data available.*	
Was the application review and award process timely? *Yes*	
Comments: *I appreciate the opportunity to attend this. Enabling the training and development of those at UI who support research activities, but aren't typical PIs strengthens the entire community and improves our ability to do great research. Thank you for offering it.*	

2012 AWRA Spring Specialty Conference GIS & Water Resources VII (n=1)	
Increased scientific capabilities?	*Exceeded my expectations*
Increased CI-literacy?	*Exceeded my expectations*
Will this training enhance your ability to conduct research in your scientific field? *Yes. The conference contained a track specific to the CUAHSI framework I am using for my masters work. Connecting with the development team and other graduate students in person allowed collaborative progress on several fronts.*	
How has this training increased your awareness, skills and knowledge in the area of climate change or other scientific disciplines? *Several of the sessions covered emerging science in data management and visualization that will be directly applicable to my current and future work.*	
How has this training increased your CI-literacy (awareness, skills and knowledge) *Most of the sessions covered emerging methods in data management, modeling, or visualization. Special sessions explained new systems for sharing international standardized hydrologic data.*	
How will you apply what you have learned to your studies, research, and/or career? *I am already integrating methods learned in to my master's thesis and planned future projects.*	
Was the application review and award process timely? *Yes*	
Comments: *The Bi-Annual AWRA GIS conference is valuable for anyone interested in integration of hydrology and geospatial visualization and analysis*.	

Key findings and recommendations for CI Training Opportunities

The CI Trainings enhanced participants' skills and abilities. Participants were appreciative of the financial support to attend these trainings. However, the CI Trainings Opportunities project funded only two individuals this reporting period. Nevada had no attendees and had reported that they have no more money to distribute for CI Trainings.
If funds are available, greater participation in the trainings should be encouraged. Continue to inform EPSCoR participants of the availability of these funds through email, weblinks and other electronic media. Personally notify qualified individuals of opportunities available.

E. New Mexico New Mexico GUTS & Supercomputing Challenge (SCC)

Background of GUTS

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 (www.projectguts.org). It is a summer and after-school science, technology, engineering and math (STEM) program for middle school students. It was designed to be a feeder program for the Supercomputing Challenge. 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.

Background of the SCC

The main goals of the Supercomputing Challenge program (www.challenge.nm.org/) are to teach teams of middle and high schools students how to use powerful computers to analyze, model and solve real-world problems and to teach computational thinking in science and engineering to high school students. The teams have mentors that provide support and answer questions for them throughout the year. There are a variety of different activities throughout the year in which the teams or their teachers participate, including:

- Summer Teacher's Institute - teachers are taught 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.
- Kickoff - teams have introductory classes on 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 college near them 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.
- Expo - the culmination of the year - teams presents their work to panels of judges and receives feedback on their presentations and reports. Awards, scholarships, and prizes are given to many different teams, not just the winners. It is held at Los Alamos National Lab (LANL).

Goals of GUTS and SCC programs

GUTS and SCC share the same five goals:

Goal 1: Maintaining interest in interest is staying with the program for the entire year, especially for female 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

Background of the evaluation

In collaboration with the project leads, the evaluator created a survey for SCC and GUTS students to assess student achievement of program goals. The survey assesses participants' perception about whether the program met each goal and asks them to rate their own abilities/interest and perceived gains. The survey is designed to be a pre/post survey so program leaders can administer the pre-survey at the beginning of the year and the post-survey at the end of the year and measure students' gains. This year the survey was administered only at the end of the project year. A paper-pencil survey was administered at the end of the Supercomputing Challenge Expo. To reach students who may have not have attended the Expo, a link to an online version was posted on the SCC website and email notifications were sent to all SCC/GUTS students.

Data was collected from project leaders regarding the number of schools/clubs, teachers, facilitators, students and other individuals involved in the programs.

Participants

The primary participants in GUTS and SCC are high school students, their teachers, and volunteers from academia and industry. With the GUTS program, teachers form the clubs at their schools and interested students join. GUTS also has paid facilitators who advise teachers and teams. Facilitators are experienced software developers, teachers and STEM professionals that visit each GUTS club meeting. Some facilitators are retired educators who have become proficient in the GUTS curricular activities and tools. Facilitators often work with several clubs in their region. SCC has teams at schools. SCC has volunteers, some of whom are reimbursed for time/travel to go visit teams. The number of SCC volunteers hasn't been closely tracked over the years, but the project lead indicated that in the past few years about 80 volunteers help at the kickoff and 80 to 90 help at the end-of-year expo. Between 300 and 500 students have participated in each program over the past years since the SCC/GUTS program began. The number of schools involved in each program has increased in the past four years: from 15 to 39 for GUTS and 31 to 57 for SCC. The number of districts, clubs/schools, teachers, facilitators and students involved in each SCC and GUTS are show in Figure 28.

Figure 28. GUTS and SCC program participants

	2008-09	2009-10	2010-11	2011-12
GUTS				
Clubs (Schools)	15	30	25	39
Teachers	25	30	28	39
Facilitators	6	8	9	17
Students	344	474	391	355
SCC				
Districts	14	20	18	26
Schools	31	49	50	57
Teachers	52	58	61	74
Students	336	366	312	431

Of the 108 students who completed the post-survey, 98 indicated they participated in SCC this year and ten indicated they participated in GUTS. Seven of the SCC participants indicated they were also in GUTS, for which they served as a mentor. The majority of students who participated in each program were female and Caucasian. About a quarter of SCC participants were under-represented minority students. Participating students were in grades 5 to 12 and most students had a GPA over 3.00. Nearly a third participated in the free lunch program, an indicator of lower-income. All except one GUTS student reported that this is their first year of the program. Sixty-four percent of SCC students reported that this is their first year. A detailed demographic description of participants is shown in Figure 29.

Figure 29. Demographic characteristics of GUTS/SCC participants

	GUTS Students (n=10)		SCC Students (n=98)	
	Number	**%**	**Number**	**%**
Gender[6]				
Female	6	60%	65	67%
Male	4	40%	33	33%
Ethnicity[7]				
African American	0	0%	1	1%
Asian	0	0%	10	10%
Caucasian	8	80%	55	57%
Hispanic	1	10%	22	23%
American Indian or Alaska Native	0	0%	3	3%
Native Hawaiian / Pacific Islander	0	0%	1	1%
Prefer not to respond	0	0%	3	3%
Other[8]	0	0%	2	2%
Grade Level				
5th	0	0%	7	7%
6th	0	0%	6	6%
7th	4	40%	9	9%
8th	2	20%	12	12%
9th	0	0%	15	15%
10th	3	30%	9	9%
11th	1	10%	22	22%
12th	--	--	18	18%

[6] One SCC student declined to indicate gender
[7] One GUTS and one SCC student declined to indicate ethnic background
[8] One SCC student identified as Indian and one identified as IndioGer

	GUTS Students (n=10)		SCC Students (n=98)	
	Number	%	Number	%
GPA				
00.99	0	0%	1	1%
1.00-1.99	0	0%	1	1%
2.00-2.99	1	10%	9	9%
3.00-3.99	5	50%	41	42%
4.00 or greater	4	40%	33	34%
I'm not sure	0	0%	13	13%
In Free Lunch Program[9]				
Yes	3	30%	30	32%
No	5	50%	53	56%
Not sure	2	20%	12	13%
Years in program[10]				
1	8	89%	61	64%
2	1	11%	13	14%
3	0	0%	8	8%
4	0	0%	8	8%
5	0	0%	5	5%
6	0	0%	1	1%

Findings

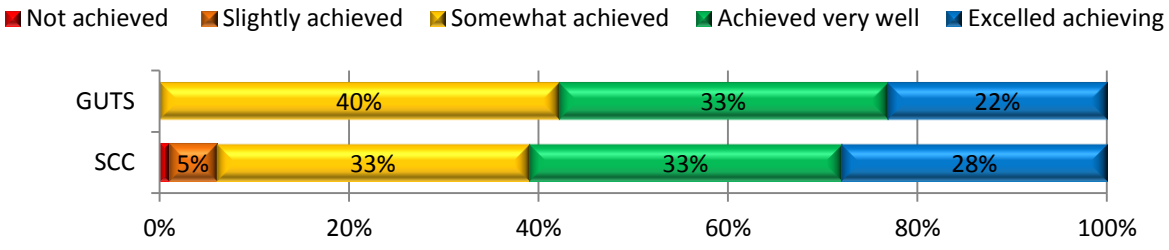
Frequencies of students' responses to questions in each goal area were calculated. Four goal composite scores were calculated by summing the responses to a series of items related to each goal area. Skills and knowledge were combined into a single goal composite score because they are intricately related. The evaluator examined whether demographic characteristics and years of participation were associated with each goal composite score.

For each goal area, student's perception regarding the success of goal attainment and their perceived gain in that area is shown. In addition, students' level of agreement with a series of statements related to each goal is reported. For each goal area, group differences in goal composite scores and the correlation of years of participation with each goal composite score is presented.

Goal 1: Maintain student interest in staying in the program

Students indicated the extent to which GUTS and SCC programs achieved the goal of *keeping students interested in staying in the program the entire year* on a scale of 1 to 5; 1=*not achieved* to 5=*excelled achieving*. Over half the students reported that the program either excelled at this goal or achieved it very well. Their responses are illustrated in Figure 30.

Figure 30. Achievement of Goal 1: Increase students' interest in staying in the program

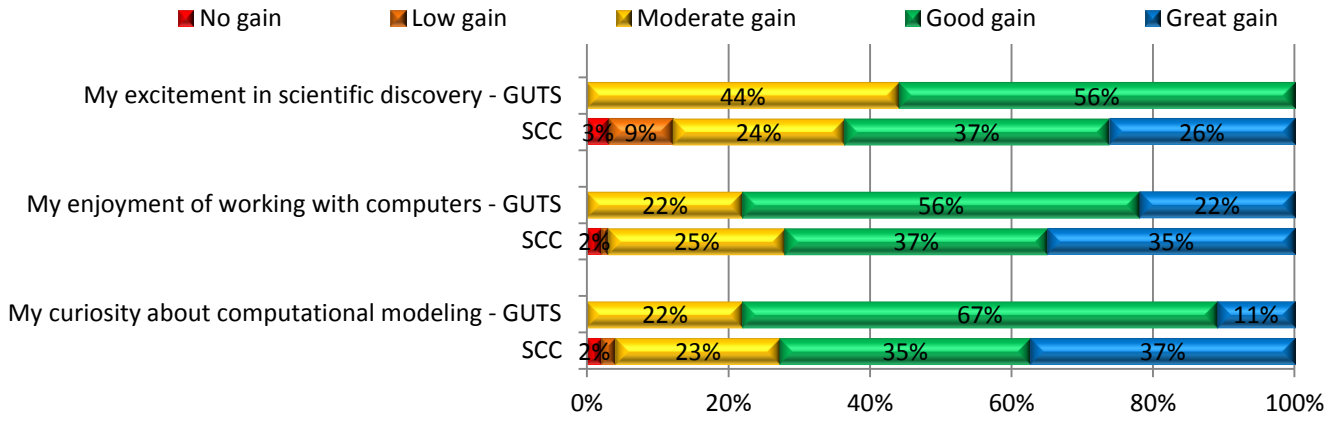


[9]Three SCC students declined to indicate whether they were in the free lunch program
[10] One GUTS and two SCC students declined to indicate the number of years in the program

Students indicated previous participation in GUTS or SCC and their interest in continuing in the program. All GUTS participants plan to continue to SCC. Of the 98 SCC students who completed the survey, 16 (16%) had participated in GUTS previously. The evaluator is unable to determine if these statistics exemplify interest in staying in the program because the number of GUTS students who completed the survey was too few and many SCC students may not have been able to participate in a GUTS program because it wasn't available at the time. Annual tracking needs to continue to determine the validity of these statistics.

Students indicated how much gain they experienced in interest this year on a scale of 1 to 5; 1=*no gain* to 5=*great gain*. At least 70% of participants in both programs reported *good* or *great gain* in their curiosity about computational modeling and in their enjoyment in working with computers. Over half reported *good* or *great gains* in their excitement in scientific discovery. Responses are illustrated in Figure 31.

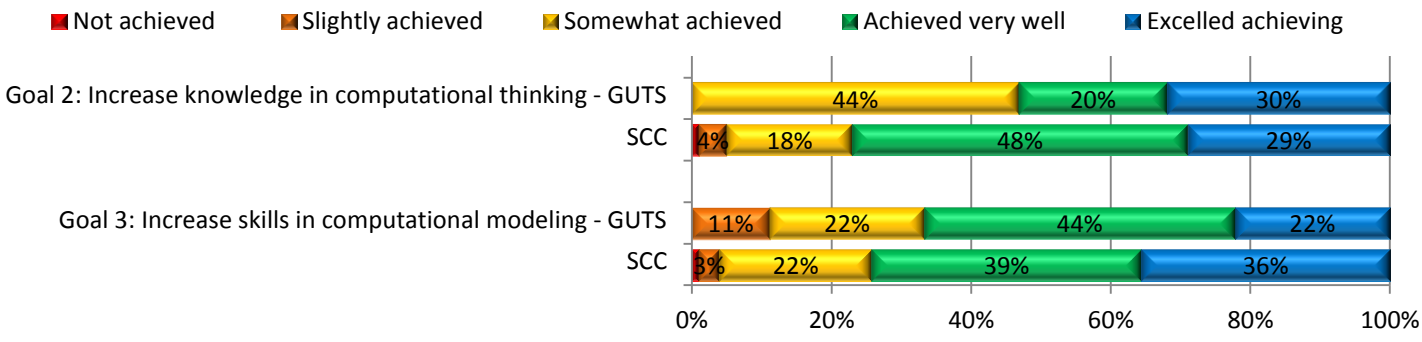
Figure 31. SCC/GUTS students' perceived gains in interest in staying in the program



Goals 2 and 3: Knowledge, skills and abilities

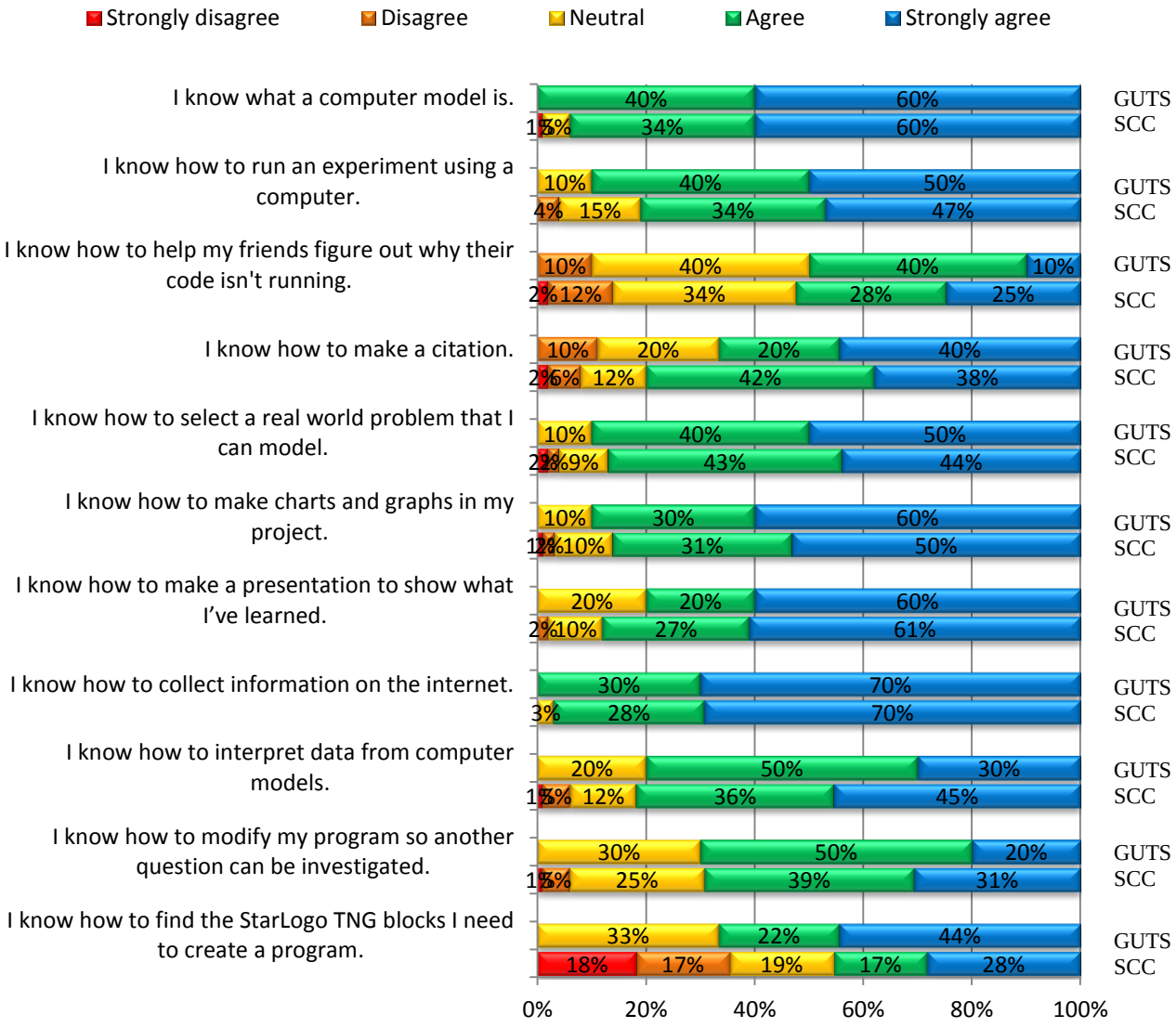
Goals 2 and 3 were combined because knowledge and skills are intertwined. The evaluator was not able to separate one from the other. Students indicated the extent to which the GUTS and SCC programs achieved the goal of *increasing their computing knowledge and skills* on a scale of 1 to 5; 1=*not achieved* to 5=*excelled achieving*. Over half of the participants in both programs reported that the program *achieved very well* or *excelled at achieving* this goal. Responses are illustrated in Figure 32.

Figure 32. Achievement of Goal 2 and 3: Increase students' computational knowledge and skills



Students indicated the extent to which they agreed (1= *strongly disagree*; 5=*strongly agree*) with a series of statements about their knowledge, skills and abilities. GUTS and SCC students' responses were similar. Half and in many cases over 70% or more *agreed* or *strongly agreed* with nearly all of the statements. However, over half of SCC students reported they were *neutral*, *disagreed* or *strongly disagreed* with *having the ability to find the StarLogo TNG blocks* and their *ability to help friends figure out why their code isn't running*. It is interesting that more GUTS students than SCC students have the ability to find the StarLogo TNG blocks. Responses are illustrated in Figure 33.

Figure 33. SCC/GUTS students' knowledge, skills, and abilities

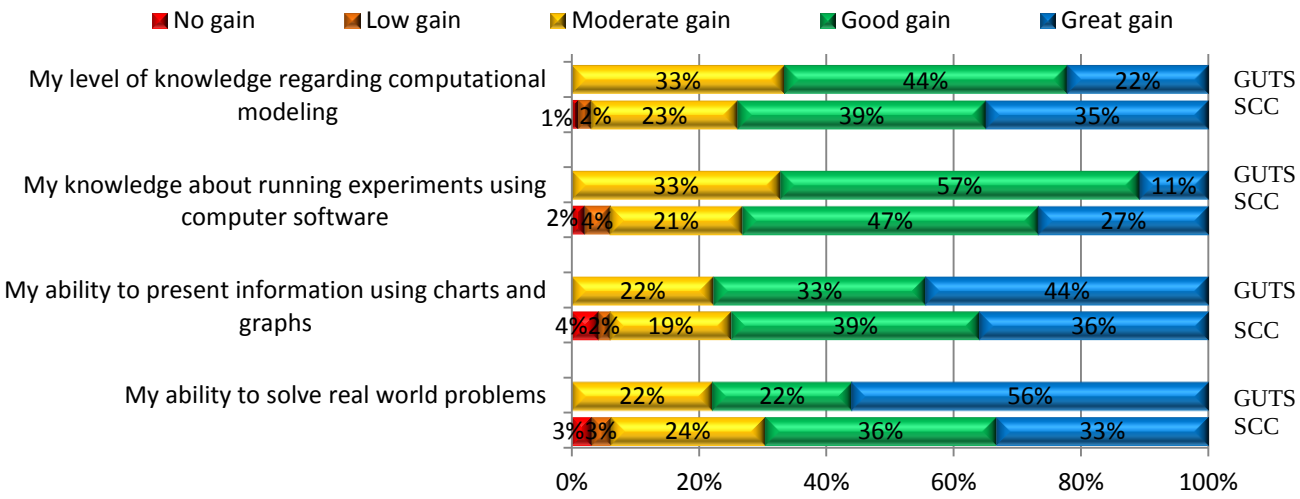


No statistically significant gender or ethnic group differences in knowledge and skills in either program were observed. There was also no statistically significant difference in knowledge and skills between GUTS students who participated in the free lunch program and those who did not. However, SCC students who participated in the free lunch program reported significantly less knowledge and skill than those who did not.

There was a statistically significant correlation between the number of years students participated and a composite score of their knowledge, skills and abilities, suggesting the longer students participate the greater their knowledge skills and abilities.

Students indicated how much gain they experienced in their knowledge, skills and abilities this year on a scale of 1 to 5; 1=*no gain* to 5=*great gain*. GUTS and SCC students' responses were similar. At least 70% of participants in both programs reported *good* or *great gain* in their knowledge, skills and abilities related to computational modeling. Responses are illustrated in Figure 34.

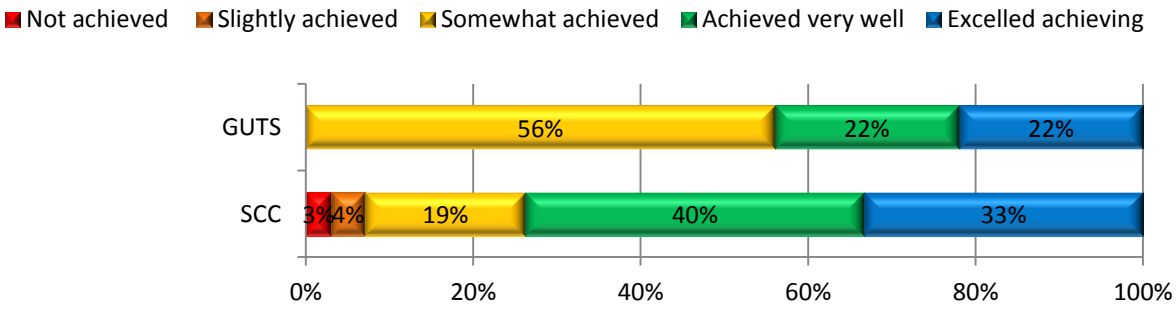
Figure 34. SCC/GUTS students' perceived gains in knowledge, skills, and abilities



Goal 4: Confidence in computational modeling ability

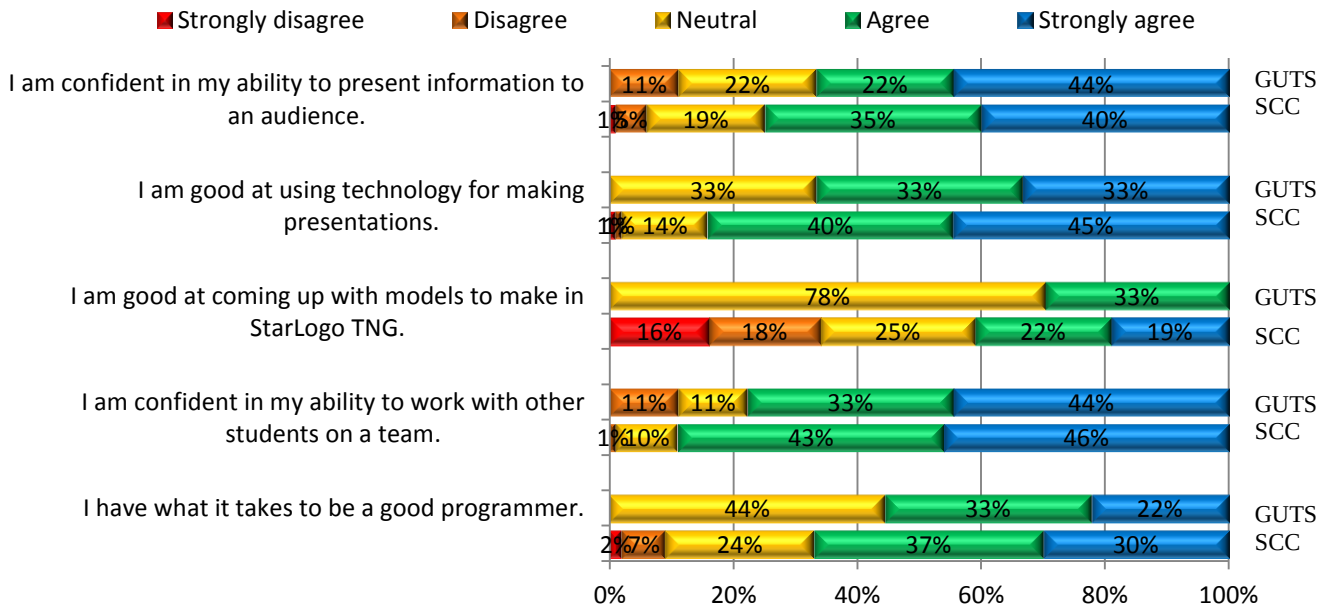
Students indicated the extent to which the GUTS and SCC programs achieved the goal of increasing their confidence about their ability to do computational modeling on a scale of 1 to 5; 1=*not achieved* to 5=*excelled in achieving*. Over 70% of SCC students agreed the program achieved this goal *very well* or *excelled at achieving* this goal, whereas fewer than half the GUTS students did. Responses are illustrated in Figure 35.

Figure 35. Achievement of Goal 4: Increase students' confidence in ability to do computational modeling



Students indicated the extent to which they agreed (1= *strongly disagree*; 5=*strongly agree*) with a series of statements about their confidence in understanding computational modeling. GUTS and SCC students' responses were similar, with slightly higher agreement among SCC students. Over half of each group was confident about their ability to present information and using technology in presentations. Over half also believed they have what it takes to be a good programmer. Over 75% of each group was confident in their ability to work on a team. Students in both groups were less confident about their ability to come up with models to make StarLogo TNG. Responses are illustrated in Figure 36.

Figure 36. Confidence in understanding computational modeling

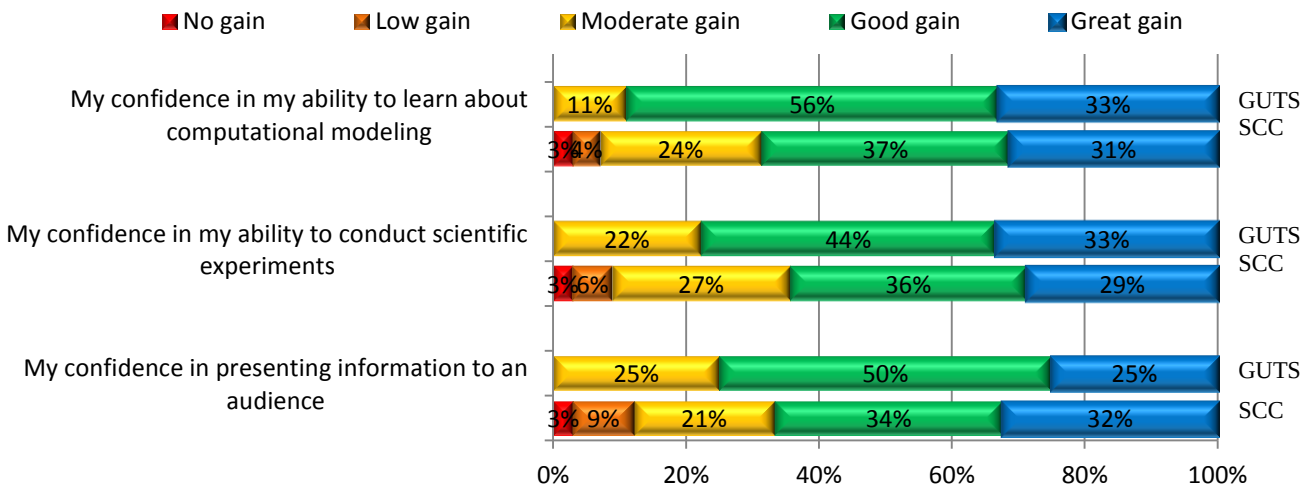


There was not a statistically significant ethnic group difference in confidence for either program. There was not a statistically significant gender difference in confidence in GUTS. However, boys who participated in SCC reported significantly greater confidence than did girls. There was no statistically significant difference in confidence between GUTS students who participated in the free lunch program and those who did not. However, SCC students who participated in the free lunch program reported significantly less confidence than those who did not.

There was a statistically significant correlation between the number of years students participated and a composite confidence score, suggesting the longer students participate the greater their confidence in understanding computational modeling.

Students indicated how much gain in confidence they experienced this year on a scale of 1 to 5; 1=*no gain* to 5=*great gain*. GUTS and SCC students' responses were similar, although GUTS students reported slightly greater gains. At least 60% of participants in both programs reported *good* or *great gain* in their confidence. Responses are illustrated in Figure 37.

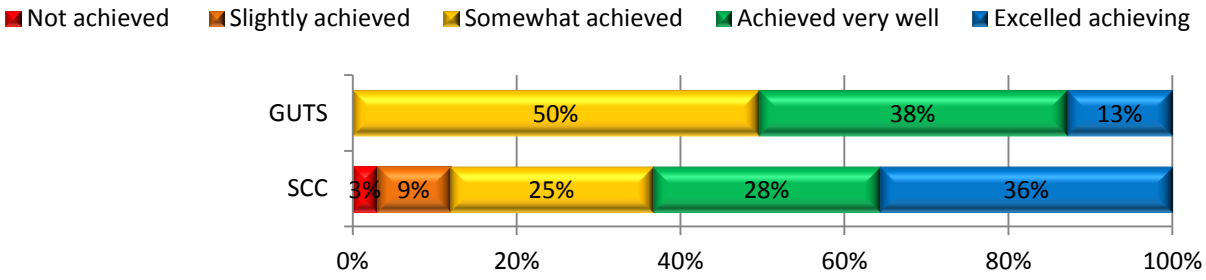
Figure 37. SCC/GUTS students' perceived gains in confidence



Goal 5: Increasing desire to take more computing coursework

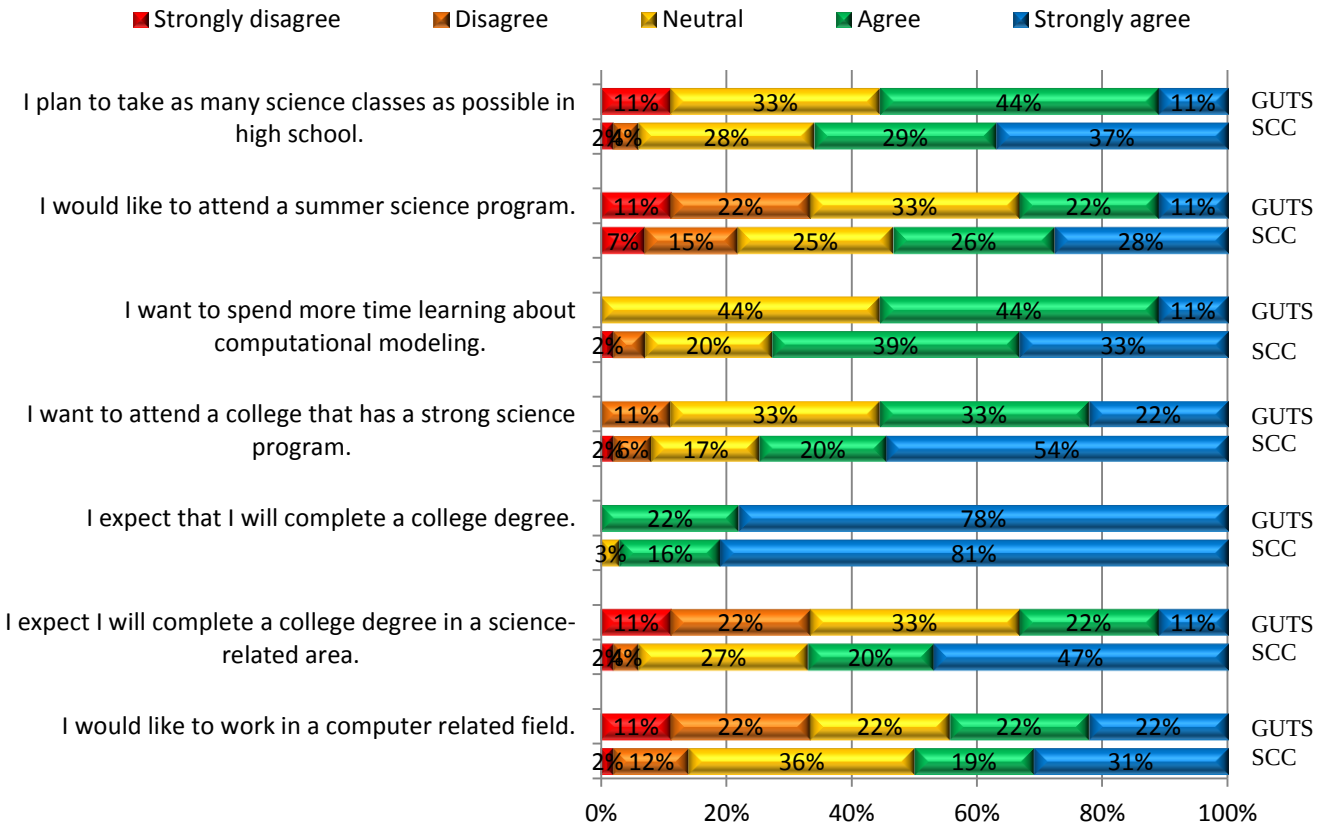
Students indicated the extent to which the GUTS and SCC programs achieved the goal of increasing their desire to take more computing coursework on a scale of 1 to 5; 1=*not achieved* to 5=*excelled achieving*. Over half of the participants in both programs reported that the program achieved this goal *very well* or *excelled at achieving* this goal. Responses are illustrated in Figure 38.

Figure 38. Achievement of Goal 5: Increase students' desire to take more computing classes



Students indicated the extent to which they agreed (1= *strongly disagree*; 5 *strongly agree*) with a series of statements about their desire to enroll in additional science and computer science coursework. Over 75% of students *strongly agreed* they anticipate completing a college degree. Sixty percent of SCC students plan to pursue a degree in a science related area, compared to less than 40% of GUTS students. Thirty-three percent of SCC students are interested in learning more about computational modeling, compared to 11% of GUTS. Approximately 50% in each group plan to work in a computer related field. Responses are illustrated in Figure 39.

Figure 39. Desire to enroll in additional computer courses or a career in computer

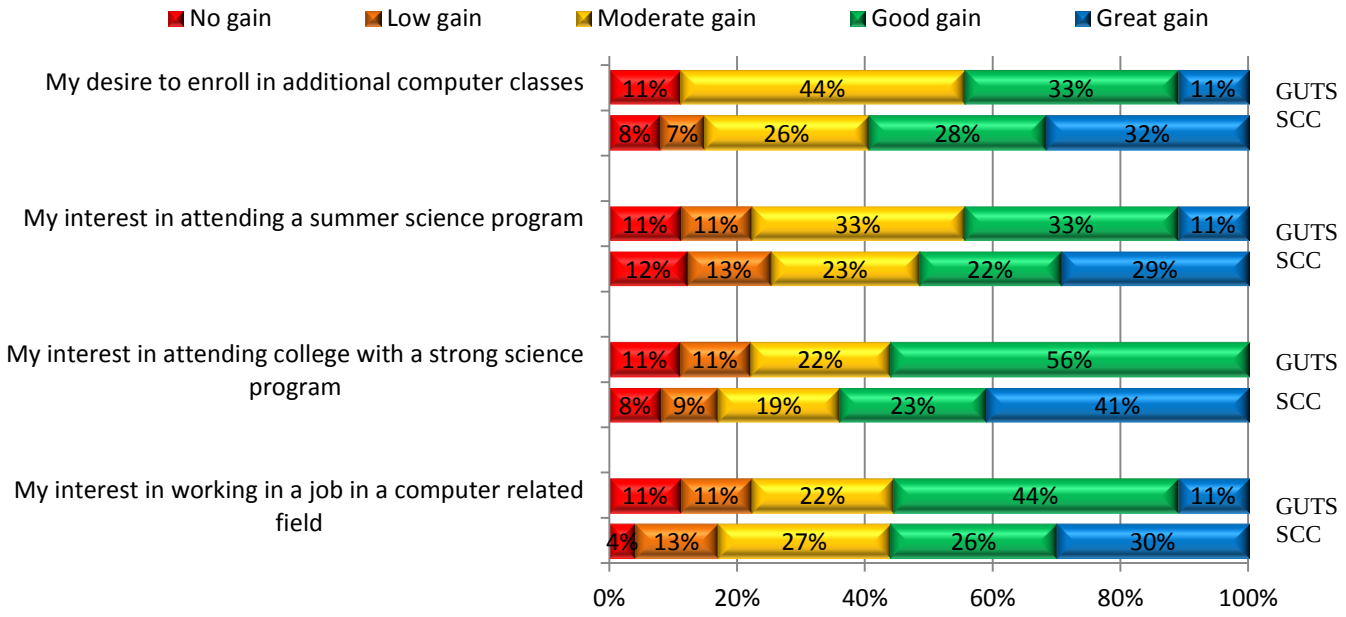


There were no statistically significant gender or ethnic group differences in the level of interest in additional coursework for either program. SCC and GUTS students who were in the free lunch program reported significantly less interest in pursuing additional coursework.

There was a statistically significant correlation between the number of years students participated a composite score of their interest in science and computer coursework, suggesting the longer students participate the greater their desire to pursue coursework in computing and science.

Students indicated how much gain they experienced this year in their desire for additional computer and science coursework on a scale of 1 to 5; 1=*no gain* to 5=*great gain*. GUTS and SCC students' responses were similar, although GUTS students reported slightly greater gains. Between 40% and 60% of participants in both programs reported good or great gain in their interest in computer and science coursework however, there are considerable percentages that did not report any or only low gains in all areas. Responses are illustrated in Figure 40.

Figure 40. SCC/GUTS students' perceived gains in desire to enroll in additional computer science courses



Suggestions for improvement

Students made suggestions to improve the program. Although quite a few offered praise and said they didn't know how to improve the program, others suggested additional activities for training, such as workshops, more programing classes and more interactive tours. A couple also mentioned encouraging participants more. Their comments are included below:

- *More training for students*
- *Buses!*
- *You emphasize teamwork, but individuals are awarded 1st and 2nd and last year an individual got 1st. You can't exactly have a finalist team of one*
- *They could offer more programming classes*
- *At the conference have more workshops specifically relating computer models to real life*
- *Make easier*
- *Make a better website for this*
- *More fun activities*
- *Enforce the theme more*
- *Have more learning for students.*
- *Have more workshops.*
- *For us not to walk around the lab wearing our formal clothes.*
- *They have done very well, but maybe more programs.*
- *More hands-on activities, interactive tours.*
- *Maybe encourage all the participants.*
- *All teachers and staff are incredibly helpful! I feel that if there was more contact throughout the year, that would even more beneficial.*
- *Provide more training & workshops for the students during the school year & before the competition.*
- *Our school does not encourage me to do supercomputing. I wished the Los Alamos schools would include this program in their curriculum.*
- *They could explain a little more about the programs.*

- *It's wonderful :D*
- *It's awesome*
- *SCC is a great program/competition*
- *This program was perfect, I feel nothing needs to change*

Key findings and recommendations for GUTS/SCC

The New Mexico GUTS and SCC are commended for developing a project for middle school and high-school students that allows them to use computational thinking and computers analyze, model and solve real-world problems.

A strength of this program is the diversity of student participants. The majority of students who participated in each program were female, a quarter of SCC participants were under-represented minority students and nearly a third in each group were lower-income (as indicated by their participation in the free lunch program). In terms of expansion, the number of schools involved with each program has increased over the years as have the number of teachers, mentors and facilitators. The number of students has varied over the years, but there is an upward trend in the number of participants.

During the current reporting period, there was very good perceived progress towards the goals of the SCC and GUTS programs. The majority of students in each program reported that each goal was at least achieved *very well*. In addition, a majority reported *good* to *great* gains across goals. Responses by students in both programs suggested good interest, knowledge and skills in computing and computational modeling. There was some variation in the perceived level of ability across goal areas. Many students also offered praise for the programs. Further, it was observed that the longer students participated in the two programs, the greater their level of knowledge, skill, and confidence in computational modeling as well as interest in future coursework in computing and science.
Program leads should examine responses to items in the survey and consider if there is a way to address items in which larger proportions of students indicated were weaknesses. Students made several suggestions for additional trainings and program leads should review this list. In order to better assess goal attainment two additional evaluation tools should be considered. First, adding a pre-survey would allow for a comparison with post-survey responses to better assess gains in knowledge, skills, confidence and interest. Second, the current assessment focused on perceived skill development, but adding content questions would allow for a more objective measure of knowledge and ability.

There were group differences across goal areas. Specifically, SCC students who participated in the free lunch program reported lower levels of knowledge, skill, confidence and interest in additional science and computing coursework. GUTS students in the free lunch program were also less likely to be interested in additional science and computing coursework. It was also observed that male SCC students were more confident in their abilities than were female students. No other gender differences were observed. No ethnic group differences across goal areas were observed.
Consider that some students may need additional encouragement and perhaps resources to feel and be successful. Some students noted that the program should encourage participation more and perhaps those from less advantaged backgrounds were among those less engaged in the programs.

F. C4D Laptops

The evaluator assisted in a review the laptop program in Nevada. The C2 evaluator contacted staff who were in charge of the project and obtained the following information.

Laptop users

- The ten laptops are in place at this time and are used in a blended learning environment in science classrooms at Green Valley High School. The laptops provided by the C4D project from NSF C2 funds along with additional laptops acquired from other sources provide a two students to one laptop ratio engaging students in a technology rich cyberlearning experience, collaboration with peers, and face to face interactions with their teachers. Furthermore, the laptops provide students to engage in inquiry based climate change instructional units created by the C4D curriculum development team.
- Four teachers regularly use the laptops.
- Since last March when the laptops became available for student use the computers have been used every school day for one to six class periods. The students engaging in the meaningful curriculum developed by C4D have been enrolled in Principles of Science, Principles of Science Co-Teach, Biology, Biology Co-Teach, and Biology I Honors.
- Over 900 students have used the laptops since last March. They are available before and after school for student use as well as during class.

Impact

- The school has approximately 2,850 students, 107 teachers each with five to six classes. The existing computer lab space was limited. Few classrooms can use the labs at a time and when they did, students have to share computers with two other usually. This resource limitation limited the ability to carry out cyberlearning projects.
- Furthermore, there were second order barriers associated with network, computer, and hardware issues results in a high level of frustration for both the teacher and the students resulting in limiting student engagement and impacting the meaningfulness of the cyberlearning experience.
- The impact on students' ability to learn/interact with information depends upon the teachers ability to have students engage in the curriculum developed by C4D.
- The laptops have allowed the Green Valley science department implement the C4D curriculum that is designed to impact student domain specific content knowledge related to sustainability and climate change, student self-efficacy and self-regulatory skills, and domain-general content knowledge associated with nature of science and science as a way of knowing. Without laptop access there would be limited access to the C4D developed instructional units.

Key findings and recommendations for the C4D Laptops

According to program staff, the laptops have increased the school's capacity to deliver cyberlearning curricula.

Encourage the C2 evaluator to develop an evaluation plan to gather information, assess impact of the laptops on student learning, assess anticipated gains, and identify suggestions for improvement and possible barriers to successful implementation.

Section 4. Key Findings and Recommendations

Based on the results of this evaluation the following key findings and recommendations for the Tri-State EPSCoR project are listed for demographics, project components, and project impacts.

1. Demographics: In this reporting period, participants in most project components were Caucasian and male and many were faculty in colleges or universities. The one exception was the SCC/GUTS program in which participations were primarily female, a quarter underrepresented minority, and a third lower income. There has been a notable decline in the number of participants receiving CI Training opportunities funds: only one from New Mexico and Idaho and none from Nevada, which reportedly had no more funds.
As recommended before, continue to work towards involving more underrepresented minorities in this EPSCoR project and activities. Advertise and publicize events more widely and make a greater effort to personally invite individuals from underrepresented minorities to participate.

2. **Project components**: Program leads worked with the evaluator to develop survey instruments for the Tri-State Meeting, the Data Portal Workshop, and SCC/GUTs program. Participants gave high ratings to all program components and made useful suggestions for improvement. Little progress was made toward gathering detailed information about educational materials development occurring in the three states. The evaluator stated key findings 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. All program leads and participants should be made aware of the necessity of working collaboratively with the evaluator to develop valid, useful and thorough evaluations of their programs. Consider offering a training on education materials development and assessment. Educational materials developers should also send detailed information to the evaluator to include in the next report.

3. Project impacts: During this reporting period, the goal of improving connectivity was enhanced at the Tri-State Meeting, the Data Portal Workshop and in the CI-Trainings each of which involved individuals from variety of institutions and thus promoted communication and collaboration. Another way the project is addressing this objective is by involving increasing numbers of teachers, mentors, facilitators and volunteers in the GUTS and SCC programs. Interoperability is being addressed in the development of data portals in the three states. Nevada and New Mexico have made more progress in this area and were able to get additional feedback on their data portals at the Tri-State data portal workshop. In terms of cyberlearning, programs conducted during this reporting period served middle school to graduate student participants. Perceived impacts were assessed with some these groups. Little impact data is available from the educational materials programs in the three states. There has been little outreach to business and industry during this reporting period.
In order to more adequately assess project impact on goals, pre and post data could be collected. This is particularly relevant to education programs. It would also be valuable to assess gains more objectively by administering questions that assess knowledge and skill acquisition. In addition, assessment instruments should be developed and administered to middle and high-school students, perhaps before and after participating in the curriculum developed in the three states as part of the educational materials development programs. Program leads should plan for evaluation prior to launching programs so useful and thorough evaluation plans can be executed to assess impact on EPSCoR Track 2 project objectives.

Appendix A: Tri-state Consortium Evaluation Forms

Demographic Information

Please complete this demographic information form to enable us to capture the demographics of this year's Tri-Consortium participants. NSF requires that we collect this information. It also enables us to track growth in div which strengthens future applications for funding, ultimately providing research program sustainability and gro

1. Have you previously participated in the current EPSCoR Track 1 (Climate Change) and/or Track 2 Research Infrastructure Improvement projects in Idaho, Nevada, or New Mexico (check all that apply)? (An RII participant is an individual in the RII jurisdiction who is strongly involved or contributes to the project on an ongoing basis, whether or not they receive funding. All project members who receive funding are by definition participants, although not all participants are funded.)

   - ❍ Track 1 Idaho
   - ❍ Track 1 Nevada
   - ❍ Track 1 New Mexico
   - ❍ Track 2 Tri-State
   - ❍ Neither

2. What best describes your position? (Choose one)

   - ❍ Higher Ed faculty/administrator/staff
   - ❍ K-12 Educator/administrator/staff
   - ❍ Post doc
   - ❍ Graduate student
   - ❍ Undergraduate student
   - ❍ Community-based organization member
   - ❍ Industrial affiliate
   - ❍ Other, please specify _____

3. With which institution are you most closely affiliated? (Choose one)

   - ❍ Boise State University
   - ❍ Desert Research Institute
   - ❍ Idaho State University
   - ❍ Nevada State University
   - ❍ New Mexico State University
   - ❍ University of Idaho
   - ❍ University of Nevada, Las Vegas
   - ❍ University of Nevada, Reno
   - ❍ University of New Mexico
   - ❍ 2-year College:_____
   - ❍ High School:_____
   - ❍ Middle School:_____
   - ❍ Other, please specify:_____

4. What is your gender?

   - ❍ Male
   - ❍ Female

5. With what ethnicity do you most closely identify?

   - ❍ Hispanic or Latino
   - ❍ Not Hispanic or Latino
   - ❍ Unknown
   - ❍ Prefer not to respond

6. With which race do you most closely identify?

   - ❍ White
   - ❍ American Indian or Alaskan Native
   - ❍ Asian
   - ❍ Black or African American
   - ❍ Native Hawaiian or other Pacific Islander
   - ❍ Other
   - ❍ Prefer not to respond

Thank you for providing this information.

Evaluation Form
Tuesday, April 3, 2012

Please check the box next to each of the sessions you attended, and rate the usefulness to you as a researcher/educator/ policy-maker on a scale from 1 to 5, 1=*not at all* to 5=*extremely well*. Also, please rate how well each session's objective was achieved. The objective for each session is listed below the title.

Plenary Session		Usefulness 1-5	Achievement of objective 1-5
☐	**Welcoming Remarks from Tri-State Consortium Project Directors**		
Concurrent Sessions			
☐	**Building Sustainable Native Communities** Objective: Gain strategies and knowledge to identify research priorities, methods, and applications towards sustainable community development.		
☐	**Interface of Hydrology, Biogeochemistry, and Ecology in Riverine Systems** Objective: Increase knowledge of interface hydrology, biogeochemistry, and ecology in Riverine systems and develop collaborative relationships.		
☐	**Engaging Pre-and In-Service Teachers in Climate Change Literacy** Objective: Increase understanding of the approaches, results, and lessons learned regarding climate change education efforts for both pre-service and in-service teachers.		
Luncheon Talk			
☐	**Tri-State Cyberlearning Panel-Lunch** Objective: Increase awareness among scientists and educators of Cyberlearning activities in each state and their importance to communicating scientific findings.		
Concurrent Sessions			
☐	**Climate Change Cyberlearning Curriculum Development** Objective: Increase understanding for the underpinnings of Climate Change Cyberlearning Curriculum Development (C4D) materials, their effectiveness, application, and potential.		
☐	**Using Social Media and Visualization to Communicate Science (BoF)** Objective: Improve understanding of tools available in communicating science and research using visualization and social media.		
☐	**Advances in Climate Modeling** Objective: Improve understanding of climate datasets and climate modeling as a means to foster better climate impact assessments in complex terrain of the intermountain western United States.		
Video Screening			
☐	**Showing of *Carbon Nation* movie with opening remarks by Von Walden** Objective: Provide talking points for communicating actions the public can take to live in a more sustainable manner.		

Help us make tomorrow an even better experience. Please share with us any comments or suggestions you have for how we can improve (Continue on back as needed).

_____

_____

After completing, tear off and deposit both parts of this form in the Conference Evaluation Box

Your name:

Your email address:

☐ Idaho ☐ New Mexico

☐ Nevada ☐ Other_____

Evaluation Form
Wednesday, April 4, 2012

Please check the box next to each of the sessions you attended, and rate the usefulness to you as a researcher/educator/ policy-maker on a scale from 1 to 5, 1=*not at all* to 5=*extremely well*. Also, please rate how well each session's objective was achieved. The objective for each session is listed below the title.

Plenary Session		Usefulness 1-5	Achievement of objective 1-5
☐	**The Changing Landscape of Science and Management of Land and Water: New Collaborative Initiatives and their Relevance** Objective: Improve understanding of models and approaches for integrating science and land management.		
Concurrent Sessions			
☐	**Climate Education Resources** Objective: Increase knowledge of climate education resources and understanding of how to incorporate their own science and outreach efforts and to connect with other educators.		
☐	**Climate Change and Landscape Responses** Objective: Increase understanding of the types and magnitudes of landscape and ecosystem response to climate change.		
☐	**Strategies for Academic-Agency Collaborations** Objective: Increase awareness of best practices and approaches that will help in developing more and/or better agency-academic collaborations.		
Luncheon Talk			
☐	**Rotating through EPSCoR** Objective: Increase understanding of future directions of NSF and priorities for NSF programs and program elements, and lessons learned from past experience.		
Concurrent Sessions			
☐	**Infrastructure and Cyberlearning** Objective: Increase understanding of program and methods for teaching computation and climate science in K-12.		
☐	**Quantifying Ecosystem Services** Objective: Increase understanding of how Ecosystem services have been quantified and for evaluating the relative extent of ecosystem services.		
☐	**Tri-State CI Resources for Data Sharing and Collaboration** Objective: Increase awareness of Tri-State CI resources for data sharing, utilization, and future collaboration.		
Student Poster Session			
☐	Objective: Increase awareness of range and type of research and education activities and findings, and increase communication and collaboration within the Tri-State Consortium		
	Please rate the poster session regarding the following on a scale of 1-5; 1=*poor*, 5=*excellent*: ____ Research quality ____ Visual presentation quality ____ Oral presentation quality ____ Promoting critical dialogue		

Which Tri-state Consortium meeting(s) have you previously attended? Select all that apply.

☐ 2009 (Boise, ID) ☐ 2010 (Lake Tahoe, NV) ☐ 2011 (Santa Ana Pueblo, NM)

Please indicate whether any of the following have resulted from your attendance at any of these prior Tri-state meetings.

☐ Ideas generated improved my research
☐ I submitted one or more proposal
☐ I made one or more presentations at professional meetings
☐ I implemented a new EPSCoR activity and/or program
☐ I prepared one or more manuscripts for publication
☐ Increased recruitment/retention of URM STEM students
☐ Received one or more grant awards that included collaborator(s)
☐ Received one or more grant awards that did not include a collaborator
☐ Submitted/sponsored an EPSCoR supported IWG
☐ Attended an EPSCoR supported IWG
☐ Other, Please explain: _____

Over →

Please select your reason(s) for attending the Tri-state Consortium meeting. Select all that apply.

☐ Foster collaborations
☐ Professional enrichment
☐ Sharing information about graduate students advisory roles
☐ Regional scientific challenges and solutions
☐ Sharing knowledge and experience on hydro-meteorological instrumentation
☐ Developing a hydro-climatologic analysis and modeling collaboratory
☐ Regional education and outreach challenges and solutions
☐ Regional cyberinfrastructure challenges and solutions
☐ Developing materials for K-12 education and public outreach
☐ Comparing how watersheds respond to climate change
☐ Comparing output for regional climate, hydrologic and ecologic models
☐ Other, Please explain: _____
_____

Did attending this Tri-state Consortium strengthen an existing collaboration or initiate a new collaborative relationship within the Tri-State region? (Check all that apply)

☐ Yes, strengthened one or more collaborations. How many individual collaborations would you estimate you have established as a result of your attendance at Tri-state meetings? _____
☐ Yes, I initiated collaborations at this Tri-state meeting. How many? _____
☐ No

Circle the number that most closely matches how well you believe this meeting has supported achievement of the meeting goals?

	Did not support this goal				Excelled in supporting goal
Goal 1 – Knowledge: Increase understanding of climate research & education	1	2	3	4	5
Goal 2 – Collaboration: Increase collaborative and interdisciplinary efforts between the tri-state participants.	1	2	3	4	5
Goal 3 – Increased opportunities: Increase common regional scientific, education, outreach and CI opportunities.	1	2	3	4	5
Goal 4 – CI Integration: Provide a venue for further CI integration.	1	2	3	4	5
Goal 5 – Diversity: Facilitate implementation of Tri-State Diversity Strategic Plan.	1	2	3	4	5

How likely are you to utilize the information presented in the sessions you attended in your research, classroom, or in your work?

☐ Not likely ☐ Fairly likely ☐ Somewhat likely ☐ Very likely ☐ Extremely likely

Please explain how will you use or implement the information and skills that you have learned at these Tri-state meetings.

_____
_____

Please circle the number that most closely matches your level of satisfaction with the following aspects of the meeting:

	Low				High
Pre-conference information	1	2	3	5	5
Registration process	1	2	3	5	5
Conference agenda (clear purpose, balanced, meaningful)	1	2	3	5	5
Conference management (focused, well-prepared, coordinated themes)	1	2	3	5	5
Overall organization (meeting sessions, start/ended on time, equipment was ready)	1	2	3	5	5
Network breaks	1	2	3	5	5
Atmosphere (friendly, supportive, promoted teamwork)	1	2	3	5	5
Promotion of inter-institutional collaboration	1	2	3	5	5
Promotion of inter-disciplinary collaboration	1	2	3	5	5
Student involvement (working groups, presentations, networking)	1	2	3	5	5
Technology (availability, and quality of equipment and internet connection)	1	2	3	5	5
Accommodations (physical comforts: beds, bathroom facilities, safety, location)	1	2	3	5	5
Food (quality, dietary needs, preferences, freshness)	1	2	3	5	5

Please share with us comments or suggestions for how we can improve this Tri-state Consortium meeting.

_____
_____

<u>After completing, tear off and deposit both parts of this form in the Conference Evaluation Box</u>

Your name:
Your email address:

☐ Idaho ☐ New Mexico
☐ Nevada ☐ Other_____

Evaluation Form
Thursday, April 5, 2012

Please check the box next to each of the sessions you attended, and rate the usefulness to you as a researcher/educator/ policy-maker on a scale from 1 to 5, 1=*not at all* to 5=*extremely well*. Also, please rate how well each session's objective was achieved. The objective for each session is listed below the title.

	Concurrent Sessions	Usefulness 1-5	Achievement of objective 1-5
☐	**Climate Modeling Tutorial** Objective: Increase knowledge of basic concepts of global and regional climate modeling.		
☐	**Tri-State CI Working Group** Objective: To develop a plan and near- and mid-term targets for collaborative CI development		
☐	**Tri-State Diversity Workshop** Objective: identify and initiate activities that align with Tri-State Diversity Strategic Plan (e.g. REU proposal, on-line educational resources, guidance document)		
☐	**HIS Workshop** Objective: Increased knowledge of web services and how they are used for distributed information systems, hydrologic information system and HydroDesktop.		

What is the likelihood that you will utilize the information presented in the session(s) you attended in your research, classroom, or in your work?

☐ Not likely ☐ Fairly likely ☐ Somewhat likely ☐ Very likely ☐ Extremely likely

Please explain how will you use or implement the information and skills that you have learned in this session(s).

_____

_____

	Concurrent Sessions	Usefulness 1-5	Achievement of objective 1-5
☐	**C4 Death Valley Workshop** Objective: Increase understanding about the process, learning benefits, and data and findings that enable the development of C4D Climate Change curricular materials.		
☐	**Systems Modeling for Understanding Climate Change Workshop** Objective: Increase understanding of Systems Modeling as it pertains to Climate Change.		

What is the likelihood that you will utilize the information presented in the session(s) you attended in your research, classroom, or in your work?

☐ Not likely ☐ Fairly likely ☐ Somewhat likely ☐ Very likely ☐ Extremely likely

Please explain how will you use or implement the information and skills that you have learned in this session(s).

_____

_____

Please share with us any comments or suggestions for how we can improve any of the sessions you attended today.

_____

_____

After completing, tear off and deposit both parts of this form in the Conference Evaluation Box

Your name:

Your email address:

☐ Idaho ☐ New Mexico

☐ Nevada ☐ Other_____

Appendix B: 2012 Tri-State Meeting NV/NM Data Portal Evaluation

Page 1 - Question 1 - Open Ended - Comments Box

Thank you for your participation today. Please record any notes or observations you've made as you've explored the data portal today.

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

How did you first find out about this data portal?

- ❍ Online community
- ❍ Informational email or newsletter
- ❍ News story (newspaper/television)
- ❍ Search engine
- ❍ Word of mouth
- ❍ Presentation at Conference/Meeting
- ❍ Email invitation
- ❍ Other, please specify

Page 2 - Heading

DATA PORTAL USABILITY

Page 2 - Question 3 - Rating Scale - Matrix [Mandatory]

Please rate the userfriendliness of the following aspects of this data portal.

	Poor	Fair	Average	Good	Excellent	Not sure what this is
Finding data/information	❍ 1	❍ 2	❍ 3	❍ 4	❍ 5	❍ Not sure what this is
Accessing data/information	❍ 1	❍ 2	❍ 3	❍ 4	❍ 5	❍ Not sure what this is
Data & Information Formats	❍ 1	❍ 2	❍ 3	❍ 4	❍ 5	❍ Not sure what this is
Documentation	❍ 1	❍ 2	❍ 3	❍ 4	❍ 5	❍ Not sure what this is
Performance	❍ 1	❍ 2	❍ 3	❍ 4	❍ 5	❍ Not sure what this is
Availability of the portal (absence of crashes)	❍ 1	❍ 2	❍ 3	❍ 4	❍ 5	❍ Not sure what this is
Ease of Navigation	❍ 1	❍ 2	❍ 3	❍ 4	❍ 5	❍ Not sure what this is
Quality of design and visual appeal	❍ 1	❍ 2	❍ 3	❍ 4	❍ 5	❍ Not sure what this is

Page 2 - Question 4 - Open Ended - Comments Box

How can we improve this data portal to make it easier to use and more useful for your needs?

Page 2 - Question 5 - Choice - One Answer (Bullets) [Mandatory]

How likely are you to use this data portal again in the future?

- ❍ Not likely
- ❍ Likely
- ❍ Very likely
- ❍ I'm not sure

Page 2 - Question 6 - Open Ended - Comments Box

If you are not likely or not sure you will use this data portal again in the future please share with us why.

Page 3 - Question 7 - Choice - One Answer (Bullets) [Mandatory]

When accessing the portal, what is the operating system of your primary computer?

- ❍ Windows
- ❍ Mac OS X
- ❍ Linux/Unix
- ❍ iOS
- ❍ Android
- ❍ Other, please specify

Page 3 - Question 8 - Choice - One Answer (Bullets) [Mandatory]

When accessing the portal, what is the operating system of your secondary computer?

- ❍ Windows
- ❍ Mac OS X
- ❍ Linux/Unix
- ❍ iOS
- ❍ Android
- ❍ None
- ❍ Other, please specify

Page 3 - Question 9 - Choice - Multiple Answers (Bullets) [Mandatory]

What web browsers do you use on your primary and secondary computers? [Select all that apply]

- ❑ Internet Explorer
- ❑ Firefox
- ❑ Chrome
- ❑ Opera
- ❑ Safari
- ❑ Other, please specify

Page 4 - Heading

PLANNED USE OF DATA

Page 4 - Question 10 - Choice - One Answer (Bullets) [Mandatory]

What is your primary purpose for visiting the portal?

- ❍ Data (measurements & observations for download and use)
- ❍ Information (reports, graphs, charts, tables, maps, photos, videos, references, etc.)
- ❍ Tools (search, analysis, mapping, etc.)
- ❍ Other

Page 4 - Question 11 - Choice - One Answer (Bullets) [Mandatory]

In which of these academic and/or employment domains to you primarily plan to use the information you obtained from this data portal?

- ❍ Education
- ❍ Research
- ❍ Policy Development
- ❍ Other

Page 4 - Question 12 - Open Ended - Comments Box

What is the topic focus for the use of the information you obtained from this data portal?

Page 4 - Heading

FOLLOW-UP

Page 4 - Question 13 - Open Ended - One Line

The creation of this data portal is sponsored by the National Science Foundation EPSCoR project. In order to continue receiving funding we need your feedback to find out how you used the data from this portal. We would like to send you a very short survey six months to a year from now. Please type your email address into the box below to receive the follow-up survey. (Your email will be kept separate from your answers to the rest of this questionnaire).

Page 4 - Question 14 - Open Ended - One Line

Are you interested in learning more about field-testing the data portal site as new elements are added? If so, please include your email in the box below. (Your email information will be separated from the rest of your responses to this questionnaire).

Page 4 - Question 15 - Open Ended - Comments Box

Is there anything else you would like to share with us or with the National Science Foundation about this data portal?

Page 5 - Heading

2012 Data Portal Workshop - The following questions are about the workshop you participated in today.

Page 5 - Question 16 - Rating Scale - Matrix [Mandatory]

Please rate the usefulness of each aspect of this workshop.

	Not useful at all	Slightly useful	Somewhat useful	Very useful	Extremely useful
Beginning overview and introduction to the portal	❍ 1	❍ 2	❍ 3	❍ 4	❍ 5
Additional Comme					
Exploration and use of the portal	❍ 1	❍ 2	❍ 3	❍ 4	❍ 5
Additional Comme					
Feedback session of the workshop	❍ 1	❍ 2	❍ 3	❍ 4	❍ 5
Additional Comme					

Page 5 - Question 17 - Open Ended - Comments Box

Thinking about the format of the workshop, do you have any suggestions for how it could have been more useful for you or other attendees?

Page 6 - Heading

DEMOGRAPHIC INFORMATION
Completion of this section provides basic information to capture the demographics of our data portal users. The demographic questions are required by the National Science Foundation who is funding this project. This information strengthens future applications for funding, ultimately providing research program sustainability and growth.

Page 6 - Question 18 - Choice - One Answer (Bullets) [Mandatory]

With which gender do you identify?

- ❍ Male
- ❍ Female

Page 6 - Question 19 - Choice - One Answer (Bullets) [Mandatory]

With which ethnicity or racial background do you most closely identify?

- ❍ African American or Black
- ❍ Asian
- ❍ Caucasian or White
- ❍ Hispanic or Latino
- ❍ American Indian or Alaska Native
- ❍ Native Hawaiian or Other Pacific Islander
- ❍ Prefer not to answer
- ❍ Other, please specify

Page 6 - Question 20 - Choice - One Answer (Bullets) [Mandatory]

What is your age (in years)?

- ❍ <18
- ❍ 18-25
- ❍ 26-35
- ❍ 36-45
- ❍ 46-55
- ❍ 56-65

- ○ 66-75
- ○ 76-85
- ○ > 85

Page 6 - Question 21 - Choice - One Answer (Bullets) [Mandatory]

What is the highest educational degree you have attained?

- ○ High school diploma / GED
- ○ Associates degree
- ○ BA / BS
- ○ MA / MS
- ○ PhD, EdD, or other doctoral degree
- ○ Other, please specify

Page 6 - Question 22 - Choice - One Answer (Bullets) [Mandatory]

What is your primary academic or work location?

- ○ Elementary school
- ○ Middle/High school
- ○ 2-year College
- ○ 4-year College/University
- ○ Government
- ○ National Lab
- ○ Business/Industry
- ○ Other, please specify

Page 6 - Question 23 - Choice - One Answer (Bullets) [Mandatory]

What is your primary academic/work role?

- ○ Student
- ○ Post-doc
- ○ Faculty
- ○ Staff
- ○ Decision-maker/Management
- ○ Researcher
- ○ Other, please specify

Page 6 - Question 24 - Choice - One Answer (Bullets) [Mandatory]

How many years have you been in your current job or academic status?

- ○ <1
- ○ 1-2
- ○ 3-5
- ○ 6-10
- ○ 11-15
- ○ 16-20
- ○ 21-30
- ○ 31-40
- ○ >40

Thank You Page

Thank you very much for your feedback!
If you have any questions about this survey or this data portal please contact:
Project evaluator: Lisa Kohne lkohne@smartstartecs.com
Data portal developer:
Nevada: Michael McMahon, mcmahon@cse.unr.edu

Appendix C: CI Training Evaluation Form

Idaho, Nevada and New Mexico EPSCoR - CI Training Evaluation

Please answer the following questions about the CI Training workshop you attended. **Double click the box to make your selection.**

1. What is your name?

2. What is the name of the training you attended?

3. What is the date(s) of the training you attended the training? September 7-8, 2011

4. With which gender do you identify?
   - ☐ Male
   - ☐ Female

5. With which ethnicity do you most closely identify?
   - ☐ African American (Black)
   - ☐ Asian (Chinese, Filipino, Japanese, Vietnamese, etc.)
   - ☐ Caucasian (White)
   - ☐ East Indian (from India)
   - ☐ Hispanic (Latino/a, Mexican, Chicano/a, Brazilian)
   - ☐ Middle Eastern
   - ☐ Native American (American Indian)
   - ☐ Pacific Islander / Hawaiian
   - ☐ Other, please specify:

6. What is your position?
   - ☐ Faculty
   - ☐ Research faculty
   - ☐ Post-doc
   - ☐ Graduate student – Masters
   - ☐ Graduate student – Ph.D.
   - ☐ Undergraduate student
   - ☐ Other, please specify:

7. With which institution with which you are affiliated?
   - ☐ Desert Research Institute
   - ☐ Idaho State University
   - ☐ New Mexico State University
   - ☐ New Mexico Tech

☐ University of Idaho
☐ University of Nevada, Las Vegas
☐ University of Nevada, Reno
☐ University New Mexico
☐ Other, please specify:

Please rate the training you attended in the following areas. Put an X in the box.

	Did not meet my expectations	Met my expectations	Exceeded my expectations	Far exceeded my expectations	N/A
8. To what degree did this training meet your expectations for increasing your **scientific capabilities**?					
9. To what degree did this training meet your expectations for increasing your **CI-literacy**?					

10. Will this training enhance your ability to conduct research in your scientific field?
☐ Yes ☐ No

Please explain.

11. Has this training increased your awareness, skills and knowledge in the area of climate change or other scientific disciplines?
☐ Yes ☐ No

Please explain.

12. Has this training increased your awareness, skills and knowledge in the area of cyberlearning and/or cyberinfrastructure literacy?
☐ Yes ☐ No

Please explain.

13. Will you be able to apply what you have learned to your studies, research and/or career?
☐ Yes ☐ No

If yes, please explain how you will apply what you have learned.

14. Was the application review and award process timely?

15. Is there anything else you would like to share with the EPSCoR project leads or directors?

Thank you for completing this evaluation form. Please email this form back to the person who sent it to you or to the project evaluator: Lisa Kohne at lkohne@smartstartecs.com

Appendix D: SCC/GUTS Student Survey

2011-12 SCC/GUTS Student Survey

DEMOGRAPHIC INFORMATION

What is your gender?

- ○ Male
- ○ Female

With which ethnicity or racial background do you most closely identify?

- ○ African American or Black
- ○ Asian
- ○ Caucasian or White
- ○ Hispanic (Latino/a, Mexican, Chicano/a)
- ○ American Indian or Alaska Native
- ○ Native Hawaiian or Other Pacific Islander
- ○ Prefer not to respond
- ○ Other, please specify _____

What is your current grade level?

- ○ 5th
- ○ 6th
- ○ 7th
- ○ 8th
- ○ 9th
- ○ 10th
- ○ 11th
- ○ 12th

What is your current grade point average (GPA)?

- ○ 0.00 - .99
- ○ 1.00 - 1.99
- ○ 2.00 - 2.99
- ○ 3.00 - 3.99
- ○ 4.00 or greater
- ○ I'm not sure

Do you qualify for free or reduced lunch?

- ○ Yes
- ○ No
- ○ I'm not sure

Which of these statements best describes your participation in the GUTS/SCC program(s)?

- ○ I am currently participating in GUTS and I plan to participate in SCC in upcoming years.
- ○ I am currently participating in GUTS but I don't plan to participate in SCC in upcoming years.
- ○ I am currently participating in SCC and I participated in GUTS previously.
- ○ I am currently participating in SCC but I didn't participate in GUTS previously.
- ○ I am currently participating in both GUTS and SCC.

For how many years have you participated in GUTS and SCC? (If you participated in both, add up all the years you participated in these programs.)

- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5
- ○ 6
- ○ 7

ACHEIVEMENT OF STUDENT OUTCOME AREAS

Read these statements and select the number that most closely matches your opinion. There are no right or wrong answers. Please be honest because it will allow us to see what you have gained from the program.

Outcome area #2 and 3 – Knowledge, skills and abilities

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I know what a computer model is.	1	2	3	4	5
I know how to run an experiment using a computer.	1	2	3	4	5
I know how to help my friends figure out why their code isn't running.	1	2	3	4	5
I know how to make a citation.	1	2	3	4	5
I know how to select a real world problem that I can model.	1	2	3	4	5
I know how to make charts and graphs in my project.	1	2	3	4	5
I know how to make a presentation to show what I've learned.	1	2	3	4	5
I know how to collect information on the internet.	1	2	3	4	5
I know how to interpret data from computer models.	1	2	3	4	5
I know how to modify my program so another question can be investigated.	1	2	3	4	5
I know how to find the StarLogo TNG blocks I need to create a program.	1	2	3	4	5

Outcome area #4 - Confidence in understanding of computational modeling

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I am confident in my ability to present information to an audience.	1	2	3	4	5
I am good at using technology for making presentations.	1	2	3	4	5
I am good at coming up with models to make in StarLogo TNG.	1	2	3	4	5
I am confident in my ability to work with other students on a team.	1	2	3	4	5
I have what it takes to be a good programmer.	1	2	3	4	5

Outcome area #5 - Desire to enroll in additional computer courses and/or pursue a career in computers

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I plan to take as many science classes as possible in high school.	1	2	3	4	5
I would like to attend a summer science program.	1	2	3	4	5
I want to spend more time learning about computational modeling.	1	2	3	4	5
I want to attend a college that has a strong science program.	1	2	3	4	5
I expect that I will complete a college degree.	1	2	3	4	5
I expect I will complete a college degree in a science-related area.	1	2	3	4	5
I would like to work in a computer related field.	1	2	3	4	5

ACHEIVEMENT OF PROGRAM GOALS - How well has the GUTS and SCC programs achieved these goals?

	Not achieved	Slightly achieved	Somewhat achieved	Achieved very well	Excelled achieving
Keeping you interested in staying with the program the entire year	1	2	3	4	5
Increasing your knowledge in computational thinking	1	2	3	4	5
Increasing your skills in doing computational modeling	1	2	3	4	5
Increasing your confidence in ability to do computational modeling	1	2	3	4	5
Increasing your desire to enroll in additional computing classes and/or take college classes in computing	1	2	3	4	5

How much gain have you experienced in the following areas because you participated in the GUTS/SCC program?

	No gain	Low gain	Moderate gain	Good gain	Great gain
My excitement in scientific discovery	1	2	3	4	5
My enjoyment of working with computers	1	2	3	4	5
My curiosity about computational modeling	1	2	3	4	5
My level of knowledge regarding computational modeling	1	2	3	4	5
My knowledge about running experiments using computer software	1	2	3	4	5
My ability to present information using charts and graphs	1	2	3	4	5
My ability to solve real world problems	1	2	3	4	5
My confidence in my ability to learn about computational modeling	1	2	3	4	5
My confidence in my ability to conduct scientific experiments	1	2	3	4	5
My confidence in presenting information to an audience	1	2	3	4	5
My desire to enroll in additional computer classes	1	2	3	4	5
My interest in attending a summer science program	1	2	3	4	5
My interest in attending college with a strong science program	1	2	3	4	5
My interest in working in a job in a computer related field	1	2	3	4	5

What specifically do you think you gained or how did you benefit the most by participating in the GUTS/SCC programs?

Has participating in the Supercomputing Challenge or Growing up Thinking Scientifically program influenced your college and/or career plans?

- ❍ Yes, please explain. _____
- ❍ No

What could GUTS/SCC teachers and staff do to make the programs better?