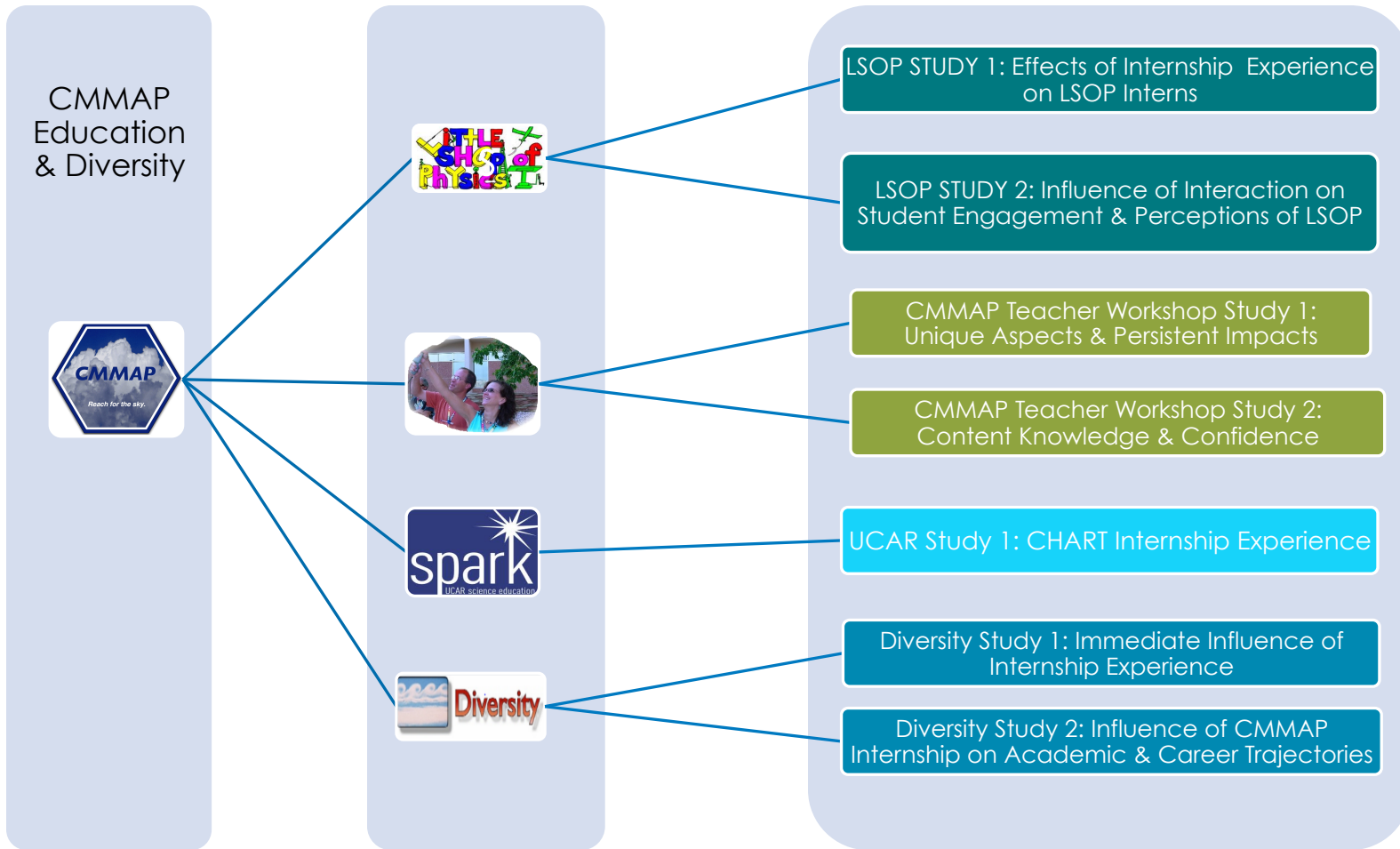


Annual Update:
CMMAP E&D
Evaluation
Studies

August, 2012

CMMAP E&D Evaluation



CMMAP E&D Evaluation Timeline

	Year 6 (7/1/11-6/31/ 12)	Year 7 (7/1/12-6/31/ 13)	Year 8 (7/1/13-6/31/ 14)	Year 9 (7/1/14-6/31/ 15)	Year 10 (7/1/15-6/31/ 16)
LSOP Study 1: Influence of Internship Experience on CSU Interns					
LSOP Study 2: Influence of intern Interactions on students	Design & Pilot			Analysis & Reporting	
TW Study 1: Content knowledge & confidence					
TW Study 2: Unique aspects & persistent impacts					
UCAR Study 2: SOARS/CHART Internship Experience			?		
Diversity Study 2: Internship experience					
Diversity Study 3: Academic and Career Trajectories					



LSOP Study 1: Influence of LSOP Internship Experience on CSU Students

● DATA COLLECTION

- **Jan 2012** Focus Group with 10 current LSOP Interns
- **April 2012** Online Questionnaire
 - Prior LSOP Interns (2006/07- 10/11)
 - 19 of 29 responded (65% response rate)

● OUTCOMES OF INTEREST

- Rationale for choosing LSOP internship
- Expectations
- Lessons Learned
- Influence on academic and career choices



LSOP Study 1: Influence of LSOP Internship Experience on CSU Students

- REASONS FOR CHOOSING LSOP INTERNSHIP

- Interest in physics or science
- Interest in science education
- The LSOP work environment

- EXPECTATIONS FOR THE INTERNSHIP

- Working with kids
- An Opportunity to be creative
- A chance to learn science
- Sharing science knowledge
- A challenging experience

All interns had their expectations met or exceeded

- LESSONS LEARNED

- improve their ability to communicate about science
- how to foster excitement about the discipline
- learned specific skills
- learned personal lessons and/or gained a new perspective

- INFLUENCE ON ACADEMIC AND CAREER CHOICES

- Reinforced or Influenced these for almost all interns



“Meeting others passionate about physics and helping the broader world access the knowledge we love was a great experience.”

“While I initially had little direction planned out, now I fully intend to teach physics at the college level”

“It made me wonder what I can do to improve our community. I see so many problems that we face in the future, and the LSOP showed me how education could really make a difference. I am now open to more career opportunities...and I would now seriously consider devoting at least a portion of my life to education.”



Teacher Workshop Study 1: Unique Aspects & Persistent Impacts



- DATA COLLECTION

- October 2011
 - Questionnaire: 40 Summer 2010 Participants
- May 2012
 - Questionnaire to 40 Summer 2011 Participants
 - Interview four Summer 2011 Participants

- OUTCOMES EXPLORED

- Unique Aspects of Teacher Workshops
- Changes made as a result of Teacher Workshop
- Influences to change

Compared to other Professional Development activities, how would you rate the CMMAP Weather & Climate Workshop OVERALL?

Response		#	%
One of the best professional experiences ever		9	64%
Very good, among those on the top of my list of PD experiences		5	36%
About the same as others I've participated in		0	0%
Not quite as good as other PD experiences I've had		0	0%
Nowhere near as good as other PD programs I've completed		0	0%
Total		14	100%

"It was the perfect mix of good content, good pedagogy, and good hands-on experiences. Loved every minute of it and was especially impressed with the level of professionals we were working with."

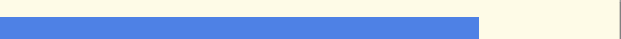

Compared to other PD activities, how well did the CMMAP Teacher Workshop PRESENT SCIENCE CONTENT?

Response	#	%
Much better than other PD programs I've attended	13	93%
Somewhat better than other PD programs	1	7%
About the same as other PD programs	0	0%
Not quite as good as other PD experiences I've had	0	0%
Nowhere near as good as other PD programs	0	0%
Total	14	100%

"I came in with a lot of the basic science content, but the activities associated with these topics allowed me to see them in a new light and find ways to apply them in my own classroom setting."

"Challenging for me, but perfect ... I really appreciate the intensity of it"

Compared to other PD activities, how well did the Teacher Workshop present SCIENCE PEDAGOGY/METHODS?

Response		Response	%
Much better than other PD programs I've attended		12	86%
Somewhat better than other PD programs		2	14%
About the same as others I've participated in		0	0%
Not quite as good as other PD experiences I've had		0	0%
Nowhere near as good as other PD programs		0	0%
Total		14	100%

"The hands on, inquiry-based activities constantly challenged me to experience the content. The variety of methods used to engage, explore, explain, and evaluate were marvelous."

Since the CMMAP Teacher Workshop, I have:

Responses	#	%
Used the CMMAP lectures in my classroom	5	36%
Used hands-on activities presented in the workshop	13	93%
Used the lesson plan I created	8	57%
Incorporated the 5-e model of learning into my classroom	8	57%
Shared what I learned with science teachers at my school	12	86%
Shared what I learned with non-science teachers at my school	8	57%
Become more confident in my ability to communicate about weather and climate	11	79%
Communicated about climate & weather to students	13	93%
Communicated about climate & weather to adults	8	57%
Communicated with a teacher I met at the workshop	4	29%
Communicated with one of the instructors/presenters from the workshop	4	29%

"This was the first year that I really didn't get a lot of negative comments about climate change. I really attribute that to the completely scientific approach I took and the slide presentation I gave that was built from the slides I received at CMMAP."



Other Representative Comments:

"It was one of the best experiences in my teaching career."

"It is the best use of my professional time that I have spent on something in a very long time. Extremely applicable to today's science world"

"I fell in love with the ideas of teaching again"

"It was just one of the best experiences in my whole 8 year teaching career. Teachers and knowledge were valued. It made me excited to teach!"

"I really like the way each day was well balanced with labs, discussions and lecture."



Teacher Workshop Study 1: Unique Aspects & Persistent Impacts

- Summary

- Overwhelmingly positive response
- Possible Response Bias

- Next Steps

- Annual Report August 2012
- Further explore the Teacher Workshops with second study



UCAR Study 1: SOARS/CHART Intern Study

- Longitudinal study of CHART interns
- Data Collection
 - Pre-internship interview
 - Post-internship interview
 - Follow-up interview
- Next Steps
 - **Feb 2013:** Conduct Follow-up Interview
 - **March 2013:** Annual Report
 - Repeat next summer (?)



Diversity Study 1: CMMAP Internship Experience

- Summary
 - Data Collection:
 - 2011 Participants: Focus Group & Questionnaire
 - Subsequent years: Questionnaire
 - Outcomes of interest
 - Quality of various aspects of the internship experience
 - Influence of internship on academic and career interests



Diversity Study 1: Overview of Findings

- **Overview of Findings:**
 - **Highly satisfied with the program and the research experience**
 - **Noticed Intellectual growth** over the course of their internship.
 - *conceptual and theoretical understanding*
 - *ability to apply knowledge and skills*
 - Reported **confidence** gains related to their ability to “do science”, “be a scientist”, and to contribute to the field.
 - Began to assume the **behaviors and attitudes** possessed by successful scientists.
 - Described great gains in **communication skills**
 - The CMMAP internship is seen as providing an **authentic research experience**.
 - Believe themselves to be more **prepared for graduate school and a career** as a result of their experience.
- First Annual Report Submitted October, 2011
- **NEXT STEPS**
 - Collect Data from 2012 CMMAP Interns (this week)
 - Continue the study with 2013 Interns

CMMAP E&D Evaluation

