

**Educator-Scientist Concept Mapping Workshop
University of Connecticut, Avery Point Campus
Hosted by the University of Connecticut
& Facilitated by COSEE-Ocean Systems**

**October 8 (12:00-5:30 pm) – Scientists Only
October 9, 2009 (8:30-5:00 pm) – Both Groups
October 10, 2009 (8:30-12:00 pm) – Educators Only**

AGENDA

Notes to Facilitators:

In addition to the "icon reminders" placed at specific points in the agenda, we should strive to:



Take photos of educators interacting with scientists.



Take more "coverage" video (conversations, evolution of CMs, scientists commenting on their experiences, etc)



Distribute hand-outs (see agenda)

Thursday, October 8 – Scientists Only

12:00 PM (45 min) Lunch in meeting room (University of Connecticut)



Video: Empty room prior to arrival of participants arrival (Sean's request)

12:45 PM (15 min) Welcome and Overview of the Workshop Goals (Diana and Annette)

- Discussion of workshop as new model of interaction between scientists and educators (informal vs. formal – each having unique strengths)
- Background of how the groups were chosen, and why
- Go over goals of workshop and afternoon agenda so we are all on the page
- Scientist Participants: David Avery, Kari Heinonen, Jim O'Donnell, Penny Vlahos, Michael Whitney

1:00 PM (30 min) Concept Mapping: The COSEE-OS Approach (Annette)



Distribute EOS article and (possibly) example scientist CMs



Pass out the Applicant Survey Report which includes focus questions for each scientist

- Short discussion of history/theory (reference EOS Article)
- Good examples from previous workshops
- Use a focus question to guide the design of your concept map
- Explain how the focus questions were chosen based on OL/CL principles (Annette)
- Realize that concept maps require an iterative process that is ongoing and collaborative- each concept map is unique to person, time and context.

1:30 PM (30 min) Let's Warm-up! Pre-activity for Concept Mapping (Annette)

Watch 'Watercolumn' movie from Phytopia (optional- may nix), Given six "starter concepts", scientists will individually write down main concepts, and then pair up with another scientist or facilitator to create a "warm-up" CM before launching the design of their own concept maps)

- Make sure that there is some time to discuss their maps...



Take video of: Scientists working in pairs on their first concept map, and discussion of this first trial of concept mapping.

2:00 PM (15 min) Tour the COSEE-OS “Ocean-Climate Interactive” website (Carla)

- Briefly describe the theoretical design of the website (how was it designed? who helped design it? who is the intended audience?)
- How would your concept maps be integrated into and become a sustained part of these online tools?
- Don't forget to bring up: We can bring in your maps - you can be part of this!



Solicit "action photos" from scientists (= get a jump start on their web pages! Ask them to give/send the photos to Facilitators before workshop end.)

2:15 PM (30 min) Getting to the Meat of the Matter: Create first draft of your individual concept maps! (Amy)

- Learning about your intended audience- an eighth grader with basic life and earth sciences background.
- This first version is created on paper. Facilitators make themselves available to help scientists in this process, while scientists start by writing down the core concepts their audience needs to know to understand their focus question.
- Why did we pick this level? The usual informal education target audience = eighth grade. Teams are allowed to adjust audience level if educators want to target to another age range.



Pass out document on: "what eighth graders know..." (e.g., 5-8 National Science Education Standards: Physical Sciences, Life Sciences - need wording to help scientists determine if they have the correct audience level - (Amy will work on)



Video 'the first efforts' at concept mapping with each scientist.

2:45 PM (15 min) Coffee and Tea with light refreshments

3:00 PM (60 min) Group Feedback: Putting our heads together... (Amy)

- Scientists will describe their maps (5 min each), ask questions, brainstorm, and refine maps based on collaborative input. The group starts to think about how the individual maps can be linked/connected.
- Discuss with scientists the "presentation order" for the next day, and topics they should focus on during their presentations. Explain the scientist feedback forms and what the educators will be looking for in their presentations.)



Video presentations of scientists to their peers (to be used for web pages)



MAKE SURE TO TAKE PHOTOS OF THE ORIGINAL PAPER MAPS for each scientist (don't let them throw them out!)



Pass out scientist feedback forms (blank) to scientists - ask them to keep evaluation parameters in mind for their next day presentations.

4:00 PM (60 min) Taking a second look at your map...

- Based on discussion in group feedback, scientists have a chance to take a second look at their maps and then continue on with their design.
- **When you are ready:** Go digital! Learn how to recreate your concept map in COSEE-OS “Concept Map Builder” (CMB): Facilitators will do this on an individual basis training scientists as they are ready.
- Learn how to translate your concept map from paper into a digital interactive form as the facilitators lead you through a few exercises to 'get you going' in this multi-media environment.
- Your goal should be to add and connect all your concepts, and attempt to add 1-2 assets to each of your concepts through CMB



Video 'second round' of effort on CMs by scientists (videographer should ask more pointed questions such as "What do you think of the CM process?" "Do you foresee this process helping you as a scientist?")

Make sure before the end of the day, we sit down with each scientist to go over their map:

- is it legible? can we understand connections and/or color-coding?
- have they articulated the focus question?
- do they understand we will be helping them create a digital version to present to educators the following day?

5:00 PM (30 min) What was your experience? Examining the process of sharing 'your story' through concept mapping:



Video this entire discussion.

SurveyMonkey homework: "Scientist Evaluation (UConn_0609)

- Name
- What did you think about today's experience?
- What was easy/hard about this process?
- How did you modify your map based on your target audience? (eight-grader)
- Given this experience, what would you like to learn from the educators tomorrow?
- Do you think that this experience/products from this workshop, will be useful to you in your work?
- GROUP DISCUSSION: Did the group weave their research topic(s) into a cohesive story about climate change? (The group will take a new look at their concept maps to articulate how individual 'pieces' contribute to the larger story we must relate to the public.)

End of Day 1 at 5:30 pm.

Note to Facilitators:

- Create digital CMs for each scientist (if they didn't already do this themselves). COSEE Facilitators will help scientists get their maps into the CMB for the next day's digital presentation.



Send a pdf and/or jpg file of the digital CM to each scientist via email so they can have a copy of their digital map to view as prep for their presentations.



Print copies of each CM for each workshop participant to help 'orient' Educators, other Scientists, and Guests during the scientists' presentations on Day 2.

Note to Facilitators: What are the naming conventions for all these versions of maps?

Scientist Maps: Please name them: " ScientistLastname_DDMMYY "

Consensus Group Maps: " ScientistLastName_Consensus_DDMMYY "

Customized Educator Maps: " EducatorLastname_DDMMYY "

FRIDAY, October 9, 2009 – Educators and Scientists

Continental BREAKFAST at

8:30 AM (20 min) Welcome, Introductions, and Overview of the Workshop Goals (Diana & Annette)

- This workshop is a new model for interactions between scientists and educators.
- Why did we ask you all those application questions about Ocean and Climate Literacy Principles? (**Christy**)
- Introduction of workshop facilitators and scientists
- Brief summary of how scientists have prepared for this workshop and our goals and agenda for today.



Distribute Workshop Packets, Ocean and Climate Literacy Principle pamphlets

8:50 AM (50 min) Scientists in the Spotlight: Presentation of concept maps (Amy as Moderator)



Distribute Scientist Feedback Forms, Copies of Scientist Concept Maps...other docs? (Note: make sure to have enough copies for all participants at workshop (15 Educators + 5 Scientists + ? Guests)

- Scientists present their concept maps to educators (short presentations – 10 min). Please comment on the full concept mapping process: how did it work (or not work) for you?
- Educators will have copies of concept maps with focus questions from each scientist to follow along with their presentation
- Talk to educators regarding evaluation/feedback
- Order of Presentation:
 - David Avery (topic)
 - Kari Heinonen (topic)
 - Jim O'Donnell (topic)
 - Penny Vlahos (topic)
 - Michael Whitney (topic)



Video each scientist's presentation of their concept map + feedback discussion from audience.

- Please follow naming conventions!
- (Put up slide with naming convention) - Carla will create

Note to Facilitators: What are the naming conventions for all these versions of maps?
Scientist Maps: Please name them: " ScientistLastname_DDMMYY "
Consensus Group Maps: " ScientistLastName_Consensus_DDMMYY "
Customized Educator Maps: " EducatorLastname_DDMMYY "

9:40 AM (15 min) Educator-Scientist Teams are announced (Carla)

- Introductions are made between team members.
- Educators: please provide feedback to scientist on his/her presentation (emphasis on original eight grade audience...)



Take photos and video of educators interacting with scientists. For photos, try to get a good headshot of each participant.

Note to Facilitators: Don't forget to make a duplicate copy of the Scientist Feedback forms (1 copy for person entering data into SurveyMonkey to send to Ted , + 1 copy for archives with Annette at DMC.)

9:55 AM (35 min) Break-out Session I: Educator-Scientist Team discusses Scientist Map

- Directions are given for break-out sessions.
Each scientist will meet with 3 educators to collaboratively view the scientist's concept map in detail.
- Who is the team's new audience? Educators and Scientists decide how to reconfigure the map for that group's new audience: High school students? Middle school students?
- Do you like the focus statement? Should it be changed for new audience?
- Which concepts do the scientist needs help clarifying?
- Which concepts do the educators need help teaching?
- Identify "good/bad parts" of map ('reality of the informal educators' settings')
- **Session Goal: Strategize how to "revamp" scientist map for new audience.**



Take photos and video of educators interacting with scientists - "first round" of discussions. Before end of day, make sure to get good shots of each team (= photo with 'face views' of each group member)

10:30 AM (15 min) Coffee and Tea with light refreshments

10:45 AM (1 hr 15 min) Break-out Session II: Educator-Scientist Teams design Consensus Map

- Educator and Scientist teams should now be actively engaged in creating a consensus map (= based on scientist's original map but now with added educator input)

- *Educators can help shape/frame the concept maps to guide their development towards national or state standards, when appropriate, and the new audience's learning level and learning progressions for their grade levels.*
- *If you are ready...Go digital! Learn how to use the COSEE-OS online tool "Concept Map Builder" (CMB) to create concept maps. (Facilitators will do this on an individual basis training in each educator-scientists teams as they are ready. If your team is not ready for this step, there will be a tour at 1 pm to go over this in more detail.)*
- **Session II Goal: Create Consensus Map for new audience on paper.**



Take photos and video of educators interacting with scientists - 'second round' of discussions. For photos, try to get a good headshot of each participant.

12:00 PM (45 min) Lunch



Take **Group Photo** now (before anyone leaves!)

12:45 PM (15 min) Concept Map Builder -Great Tutorial Challenge! (Annette)

1:00 PM (45 min)

Ocean-Climate Interactive (OCI) and Concept Map Builder (CMB) Preview Tour – (Carla)

- *Explain that 20 mins will be overview, 20+ will be breakout session*
- *Working your way around within the group profile - going from CMB to OCI and back (and what each is for) - "workbench" vs. "stage".*
- *Start with posting maps to the group file, remind them about naming conventions (slide)*
- *Based on the pre-workshop materials in your welcome packet plus computer tutorials available on website, you should already be familiar with the Ocean-Climate Interactive (OCI).*

Further Hands-on Training in Teams (Groups, Carla as moderator)

- *Take what you learned from the preview tour, and go!*
- *Facilitators will be available to work with each educator-scientists team to answer questions about what you learned in the tour or in the tutorials.*

Note to Facilitators: Ask educators to close their computers and just watch the demo (or follow along silently on their computers...) so they can concentrate on the big picture, and then they can ask questions in small group tutorials.

Note to Facilitators: Consider making step-by-step instructions for each topic above.

Note to Facilitators: What are the naming conventions for all these versions of maps?

Scientist Maps: Please name them: " ScientistLastname_DDMMYY "

Consensus Group Maps: " ScientistLastName_Consensus_DDMMYY "

Customized Educator Maps: " EducatorLastname_DDMMYY "

1:45 PM (1.5 hr) Break-out Session III: Educator-Scientist Teams Make Customized Educator Maps (Groups, Amy as moderator)

- *Each educator takes the consensus map (from Session II) and customizes it to her/his individual classroom needs. Emphasize that scientists and educators are recreating and re-imagining the map **together** - the educators are not doing it "for" them.*
- **Session III Goal: Create Customized Educator Map** (Your goal by the end of the day should be to add and connect all your concepts for your customized map.)



Photo/Video educators and scientists interacting - 'third round' of effort on CMs (videographer should ask more pointed questions such as "What do you think of the CM process?" "Do you foresee this process helping you as an educator or scientist?" "Does this process help scientists and educators communicate better?")



Distribute 3x5 index cards (specific to educators or scientists) with bulleted text of:

For Scientists: "During consensus building your role as a scientist is still an important one, but may shift slightly as you take on more of a consultant role in your group:

(a) Continue to clarify content and help with organization of the map, if needed.

(b) Learn from the teachers how they are organizing this new version of the map and for what reason.." Note how this map is being transformed/modified to meet the needs of the new audience level in the teacher's classroom or program."

For Educators: "During consensus building, you will work alongside your scientist to create a map together for your chosen audience."

(a) Be willing to ask questions to make content more accessible and help with organization of the map.

(b) Continue to discuss the evolution of your consensus map as a group. " Note how this map is being transformed/modified to meet the needs of the new audience level in the teacher's classroom or program."

3:15 PM (15 min) Coffee and Tea with light refreshments

3:30 PM (70 min) Presentations of Maps, Report Back (Groups, Amy as moderator, Christy as the map "driver")

- Educator-Scientist teams report back to group (15 min per group) to show their maps online, and comment on the evolution of maps (scientist concept map - consensus map - customized educator concept map)

Questions to discuss:

What was it like to work with a team of educators and a scientist?

- *Each Team: Please comment on the full concept mapping process: how did it work (or not work) for your team?*
- *Educators: How will you use what you learned today in your teaching and learning? What was most valuable to you in working with the scientists?*
- *Scientists: Based on your interactions with the educators, how could your research and expertise directly improve the situation?*
- **Ask each group: "Link it up: How do these maps link/connect together to show the "BIG PICTURE"?"**



Take photos and video of discussion about the CM experience.

Suggestion: This section could be a verbal discussion for 10 minutes within teams, and 20 minutes 'open discussion' with the larger group.

Our vision for this section was in part to discover the 'bigger picture' connections between the institutions/people at the workshop - in addition to the connections between concepts/ideas on the team maps.

4:40 PM (40 min) Building Bridges: Fostering Educator-Scientist Communication Networks (Groups, Annette as moderator)

• Demo of Workshop pages: Scientist and Educator Collaborative Pages

How we are building a community of learners based on participant feedback.

- *How do we continue these conversations and improve the dialogue beyond the day-long workshop?*
- *Ideas for future workshops from COSEE; Web events*
- *How will we create pre-post materials for audiences?*



Take photos and video of discussion about the Educator-Scientist Communication Networks



Facilitators will put up flip charts so the Educators can write up questions they would like answered or topics they want to discuss on Saturday.

5:20 PM (10 min) ? Wrap Up of Day 2:

- 'Thank you' to Scientists, and
- Discussion of plan for Day 3 with Educators
- Dinner logistics, carpooling



Hand out dinner location and directions

5:30 - 6:30 PM (1 hr) Break before Dinner at Seaman's Inn

6:30 PM (1 hr) Group Dinner

SATURDAY, October 10, 2009 – Educators Only

BREAKFAST

8:30 AM (15 min) - Overview of Agenda for the Day & Questions from Educators (Amy as Moderator)

Goal: by the end of today, we hope you will be proficient in:

- sharing your maps, creating your own profile
- adding assets
- be well equipped to translate this into your own classroom or work environment

What we want educators to know before they leave: (internal)

- *Search and add assets to their concept maps*
- *How to create a personal profile and share the maps.*
- *How do these maps link/connect together to show the "BIG PICTURE"?*
- **** Make sure we ask Educators to sign up for COSEE directory (since we have almost all the information needed - except:
(1) Education/Training, (2) Publications*

8:45 AM (60 min)

A. Clarify on how to create personal profile and sharing maps.

B. Populate your concept map with assets: Images, Videos, Resources, and News - OH MY! (Carla as Moderator)

- ***Educators work individually on their customized maps to add assets to each concept***
Facilitators help individuals with questions about assets or other inquiries about tools/software/next steps.
- ***Session Goal: Add at least 1-2 assets to each concept on your concept map***

9:45 (15 min) break

10:00 AM (1 hr) Translation: Break out sessions for informal and formal educator groups

- Brainstorming Activity: How can you use COSEE-OS resources and multimedia online tools?

What are some of the different ways informal educators and formal educators perceive using these tools?

Review list of options and add to them.

Discussion of how to utilize these tools & content in your home environment

Work in small groups to brainstorm ideas about how to use these tools/new methods in classrooms

Potential Discussion Questions:

- *How do you visualize using the concept mapping to explore ocean-climate concepts?*
- *How do you plan to use the COSEE-OS website in your classroom?*
- *What do you need from COSEE to help you bring the workshop experience/tools back to your classroom?*

11:05 AM (15 min) Thank you to Educators & Closing Remarks (Annette & Diana)

11:20 AM (30 min) Evaluation Time: Tell us what you think about this workshop experience...

- ***Email URL for Survey to participants (Carla)***

12:00 PM Lunch