

Summary of Participant Evaluations for Smart and Connected Communities for Learning (SCCL): A Cyberlearning Innovation Lab

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CIRCL Report 7

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Participant Evaluations for Summary of Smart and Connected Communities for Learning Innovation Lab

Executive Summary

The Center for Innovative Research in Cyberlearning (CIRCL), led by SRI International, worked with KnowInnovation to organize and host a weeklong workshop to catalyze research concepts and partnerships to advance how technology can foster lifelong, life-wide learning across settings in communities. The Smart and Connected Communities for Learning (SCCL) Innovation Lab took place May 2-6, 2016. This report describes the event goals and activities, participant evaluations of the event, and the groups and projects that formed during the course of the week (See Appendix A).

The overall goal for the Innovation Lab was to stimulate research and development of projects that help create or play a part in Smart and Connected Communities for Learning. Some markers for a successful smart and connected community for learning would be marked improvement in (a) participants' awareness of opportunities in their locale for learning, (b) their ability to engage in and sustain related learning experiences in particular settings and across multiple places, and (c) their experience of their community as interconnected in support of learning.

Key challenges to be addressed at the workshop included:

- How to design for community-scale learning using emerging technology affordances?
- How to connect learning across settings while leveraging the context in each setting?
- How to measure and reward learning for individuals, groups, and communities?
- How to use data to continuously improve smart and connected learning communities?
- How might institutions of knowledge, places for learning, and the roles of mentors develop and evolve within connected learning communities?
- What new research about learning becomes possible in smart and connected learning communities?

Thirty-one participants were selected for the lab through an application process. The selection criteria emphasized accepting participants with complementary expertise and willingness to collaborate with others on challenging problems. In addition, four expert mentors were invited to guide the participants in their development of research ideas, and four speakers gave short, provocative talks to stimulate new thinking. To help further generate novel ideas, the attendees

also watched a film, “Web” (<http://webthefilm.com/>), that raised questions for the digital learning community, and visited an innovative digital art space.

The evaluation process focused on understanding what parts of the event were most helpful, what participants planned to take away from the event, and what next steps they would take. This was the first event CIRCL and KnowInnovation worked together to produce. CIRCL guided KnowInnovation about what the research community was like and they guided us in understanding their innovation lab process. Their process is designed to get ideas out on the table and facilitate discussions in new groups. In general, the participant ratings indicated that the meeting worked well for them. Specific ratings and the comments given by recipients on the survey are further discussed below. Areas for improvement include thinking about details of some of the activities, bringing in more technology innovators, commercial players, and researchers from the Smart Cities area to help make broader connections for the SCCL researchers.

Evaluation Methodology

On the final morning of the Innovation Lab (May 6), a link to an evaluation form was given to the 31 attendees and 4 mentors. Participants were also emailed two reminders and a link was posted in the online collaborative space for the participants who were part of the SCCL lab. The survey was closed on June 20, 2016. Respondent ratings were analyzed and are presented below. We received 22 completed surveys.

From this feedback, we hope to better understand the structure of activities and content that makes a successful Innovation Lab and what we can do to better support the process. The feedback could be used to inform the design of future Innovation Labs.

Evaluation Findings

Twenty-two of the 35 surveyed attendees responded to the evaluation survey form and 18 of the 22 completed the form.

Participant Background. Background questions were asked to determine the composition of the audience. Nineteen of the respondents indicated how long they had been in the field of Cyberlearning. In planning the Innovation Lab, we selected for early or mid-career professionals. Table 1 shows the length of time the survey respondents had been involved in Cyberlearning work and indicates a range of length of time but that the majority of participants were early to mid-career. Table 2 gives an indication of how participants are funded to do their Cyberlearning related work.

# of years involved in Cyberlearning work	#	% of respondents
n/a	2	11
0-2	3	16
3-5	6	32
6-10	3	16
11-15	3	16
16-20	0	0
20+	2	11

Table 1. Number of years participants have been involved in Cyberlearning work.

Funding Source for your work	#	% of respondents
I am an early career researcher (5 years or less since receiving Ph.D. or less than 5 years of active research)	8	44
My research or work is not funded by NSF	4	22
I work on NSF funded projects but am not a PI or Co-PI	3	17
I have funding from NSF	4	22
I have received 2-5 NSF grants	4	22
I have received more than 5 NSF grants	2	11
I have funding from other agencies (not NSF/DoE)	6	33

Table 2. Funding source for the attendee's Cyberlearning Work.

Eleven of the respondents reported they have not yet been an NSF PI or Co-PI. Two of the early career researchers indicate they have their own NSF funding.

Meeting Design for Innovation. KnowInnovation is known for their process to help groups come together, coalesce around an area, and think in new and different ways. During the planning process, CIRCL and KnowInnovation identified mentors who were at the Innovation Lab all week to offer ideas and connections, and help participants think through issues. “Provocateurs” who work in areas related to SCCL were also invited to provide new resources to the participants. Two of the provocateurs presented online and one presented in person.

The survey asked respondents to describe how helpful the lab was at promoting ways to identify new challenges, discover breakthrough ideas, develop ideas, make new professional

connections, build multidisciplinary teams, and lay the groundwork for a proposal or other work. The majority of the respondents agreed or strongly agreed with each statement. One hundred percent of the respondents thought the Innovation Lab was helpful for making new professional connections. See Table 3 for more details.

Statement	% agreed	% strongly agreed	% total agreed + strongly	Total N
Identifying new challenges.	35	35	70	17
Discovering breakthrough ideas.	59	12	71	17
Developing ideas	25	62	87	16
Making new professional connections.	18	82	100	17
Building multidisciplinary teams.	24	59	83	17
Laying the groundwork for a proposal or other work	41	53	94	17

Table 3. Percent of respondents who agreed with ways the Innovation Lab was thought to be helpful.

Some of the comments from the participants indicate how much they valued the connections they made. They also noted that they became connected not just to the other participants but to the other participants' networks.

I hope to be in continuous communications with the participants at the Innovation Lab and will refer back to the ideas generated from the Lab.

This has been transformative to my trajectory, I'd not been convinced this was the area I wanted to continue to work in prior to this. It felt like the hierarchy and established networks made it tough to innovate if you weren't well connected, but I actually am hopeful and inspired now.

Hatching potential collaboration with other researcher met. Spurring me to develop a new line of research around an existing NSF project, but in a new direction.

I plan to pursue ideas for two grant proposals with other SCCL participants; the lab also illuminated new trajectories for my current work with SCCL-related projects.

In addition to the projects presented, it seemed everyone had at least 2-3 more projects to follow up with, with fellow participants who may not have been known to them before.

The survey also inquired about the helpfulness of the mentors, provocateurs, KnowInnovation Facilitators, and NSF participants. The majority of survey respondents rated each group as Very Helpful or Extremely Helpful.

Statement	% Very Helpful	% Extremely Helpful	% total Very + Extremely	Total N
Mentors	12	71	70	17
Provocateurs	29	41	71	17
KnowInnovation facilitators	24	71	95	17
NSF representatives	24	71	95	17

Table 4. Helpfulness ratings of the different types of roles in the Innovation Lab.

Impacts of Activities at the Innovation Lab. Since this was the first Innovation Lab organized and hosted by CIRCL, we asked for detailed feedback on the various activities. During the course of the week there were 17 different activities. See Appendix B for the list of activities and their ratings by participants. We also shared the aggregate data with KnowInnovation so they can use it for their thinking.

The activities that were ranked the highest were those that occurred later in the week after initial “getting to know you” activities; those later activities were focused on getting participants to organize information related to their projects, or to specifically work on or give feedback the projects. The activities that were ranked “less helpful” were those that occurred at the beginning of the week and were focused on getting participants to feel comfortable with each other. These early activities asked people to begin sharing in low-stakes, friendly ways; comments suggested that activities focused on the content and the product of the workshop

would have been valued. We know that sometimes activities that are necessary aren't rated as the most enjoyable—even when those activities are an essential part of the process. Activities where the participants were focused on the product of the lab were highly ranked; this included conversations with mentors and NSF representatives. The most highly ranked activity was the informal meetings that occurred during lunch, evenings, and walks throughout the meeting.

Some suggestions from the participants in the open-ended comments may be helpful in thinking about new activities;

It would have been helpful to spend more time defining "Smart and Connected Learning Communities." One of the best conversations I had all week was when we were trying to drill down on the exact definitions of those words.

To spur new collaborations and innovative thinking, I ask groups to leave behind talk of existing projects and think fresh would be helpful. Much group talk seemed to be about munging existing projects/platforms together, rather than starting with no prior commitments. Discussion that had that flavor were much more productive.

I think that many of the groups could have benefitted from time devoted to quick-and-dirty searching for relevant prior work, with help from the rest of the community (like - find the top 10 papers on this topic and check their abstracts for relevance to your ideas)

More technology innovators would have been helpful to spark thinking as well as business/commercial players who actually have access to data and platforms at the scale we need to build innovative learning communities where people are already interacting.

The ratings on the quality of the workshop and likelihood of future activities related to SCCL showed that most participants found the meeting format to work well, found the meeting a useful investment of time, have the intention of continuing working in the area of SCCL, and are likely to help others understand it. See Table 5 for details.

Statement	% agreed	% strongly agreed	% total agreed + strongly	Total N
The meeting format worked well.	53	41	94	17
The meeting was a valuable investment of my time.	29	71	100	17
I am likely to continue working with other participants on an idea.	24	72	96	17
It is likely that I will be part of group that submits a proposal to NSF to support a SCCL.	18	53	91	17
My team is likely to write a white paper on a topic.	18	24	42	17
I am likely to participate in future work related to SCCL.	47	47	94	17
I am likely to try to help others get familiar with work in this new area.	29	59	88	17

Table 5. Ratings of the Meeting and likelihood of future SCCL work.

Logistics. To understand the quality of the attendee’s experience, the evaluation survey included a series of questions on meeting logistics. Participants stayed at 3 hotels and there was a wide range of quality ratings on the hotels (from Fair to Excellent). The conference facilities and catering were rated good or excellent by 94% or more of the attendees. Communication before the meeting was rated good or excellent by 100% of the attendees. Finally, helpfulness of the CIRCL staff was rated as excellence by 100% of the survey respondents.

Conclusion

The responses on the evaluation form indicate the meeting was overall helpful for the process of an Innovation Lab. In general, the speakers and panelists were found to provide useful insights and help with the process. This first meeting served to help people feel more comfortable in thinking about SCCL work and generate new ideas. In addition, most plan to help others understand this new area. In the future, it would be good to include more technology innovators, Smart Cities researchers, and those with commercial products with data and platforms that can handle the scale needed for creating innovative learning communities. For future Innovation Labs with CIRCL communities, while keeping things low-stakes and friendly, to promote collaboration, we should also think about including more activities on the first or earlier days of the week that have a more clear relationship to the product of the workshop.

Appendix A: Projects

While not part of the evaluation, we wanted to document the projects that developed and groups that formed in the course of the week. By the end of the workshop, six groups had formed. These groups had worked together for 2-3 days and had worked to create project that they wanted to pursue. The projects are described below.

Love to Learn

Zerrin Ondin and Donna Auguste

This group proposed writing a paper that would help bring together work on emotions and learning. They were especially interested in making emotional obstacles to learning visible and using emotional data to design instruction.

Community-Based Smart BrokerZ

Girlye Delacruz, Remi Holden, Katie Headrick Taylor, Dustin Stiver, Andrés Henriquez, Nichole Pinkard, and Tammy Clegg

The group had several different ideas. They discussed using common design principles (such as smart brokering) to examine learning ecosystems across different communities (NYC, Chicago, Denver, DC) and settings (formal and informal) while facilitating and mapping brokering opportunities between stakeholders (credZ and PathwaZe)." One of the parts of this project has been funded by a CFLT Eager. The new project is studying how urban youth collect data and map their communities with location aware mobile technologies and then how this information supports educators to create curricula and other experiences relevant to youth. The project will study Mobile City Science at a Digital Youth Network (DYN) site in Chicago and at New York Hall of Science (NYSCI) in Queens, NY. Mobile City Science uses technology to produce data-driven insights to understand complex urban spaces.

Path Finder

LouAnn Lyon and Howard Shen

In this project, they proposed to work with the technology affordances from many existing systems to help understand self-directed pathways to learning including motivations and incentives for different populations.

Datavist

Erika Tate, Ruth Kermish-Allen, Cindy Graville, Marti Louw, Jay Pfaffman, Steve Zuiker

This project was about helping connect community resources. Data is stored in many different fragmented systems and *Datavist* could be a new social infrastructure that could help community experts use data from multiple systems. It could identify gaps in roles, expertise, availability and usability of data, and sense making to for evidence-based informed community action across diverse contexts and agencies.

Flipped Museum

Daniel Menelly, Eliza Reilly, Ibrahim Dahlstrom-Hakki, and Lin Lin

In this project, artifacts would be scanned and made available as 3D models for schools and students to work with and use to learn. There are many wonderful artifacts that students view only briefly on a trip to the museum. By scanning and producing 3D models, this could situate students' formal and abstract STEM learning into the museum objects, and activities could be designed to help the students learn more about context, and culture.

Enchanted City

John Stamper, June Ahn, Victor Lee, and Jen Groff

This project was about playful engagement with cityscapes (such as fountains or lights where kids might be able to program them) to build computational thinking. For more smart and connected work, there might be new technological ways to get the information about kids' out of school activities to their teachers so their teachers could further support the learning.

The poster below was created for Cyberlearning 2016 to share information about the Lab with the cyberlearning community.

Smart & Connected Learning Communities: **Cyberlearning Innovation Lab**



 #NSFSCCL

Essence of SCCL: Making invisible opportunities, barriers, and connections to learning visible so that they can be acted upon
Tamara Clegg @tcclegg

Thinking of learning as a property of communities—spaces, people, structures, practices—is what’s coming out of the #NSFSCCL workshop
Chris Hoadley @tophe

Need to address invisible obstacles that impede learning: Appropriate Emotional Adaptation. Yes!
Girle C. Delacruz @GirleCDelacruz

Living laboratory for embodied, object-based, hands-on experience: augment, sample, remix to learn! Assess differently!
Vera Michalchik @verasafa

Smart & Connected Learning Communities “assemble networked technologies to create culturally-responsive, place-based curricula.”
Manuelito Biag @doctorbiag

“Love to Learn” at #NSFSCCL Emotion affects learning, and affect is embedded in social networks, so we deal with affect as a community.
dan_suthers @dan_suthers

CIRCL works with projects in the emerging field of cyberlearning to support, synergize, and amplify their efforts. This material is based upon work supported by the National Science Foundation under grants IIS-1233722, IIS-1441631, and IIS-1556486.

Poster presented at Cyberlearning 2016 about the SCCL Innovation Lab.

Appendix B: Event Activities and Ratings by Participants

Statement	Not at all helpful	Slightly helpful	Moderately helpful	Very Helpful	Extremely Helpful	N/A
Territory Map – your country (Monday)	12	41	26	18	6	0
Me sheets – 4 quadrants (Monday)	0	12	35	35	18	0
Jig Saw Storyboard / Story telling (Monday)	6	18	29	35	6	6
Lab Trips (Monday)	0	29	47	12	12	0
Knowledge From the Room (Monday)	0	20	13	53	13	0
Question Wall (Monday)	0	6	23	41	29	0
Buddy Presentations (M, T, W)	6	12	12	35	35	0
Speed Networking (Tuesday)	0	0	6	35	47	12
Foursight (Tuesday)	6	12	53	12	6	12
Evening activities: Movie (Tuesday) Museum (Wednesday)	0	6	29	29	24	12
Clustering post it questions (Wednesday)	0	6	24	65	6	0
Group Project Iterations – 3 rounds (Wednesday)	0	0	18	32	47	0
Post it Note Feedback on presentations (Wednesday & Thursday)	0	0	29	53	18	0
Soap Boxes (Wednesday & Thursday)	0	0	29	24	47	0
Octopus Garden Meetings (Thursday)	0	6	6	12	71	6
Coffee with Chris (Thursday)	0	6	0	18	47	29
Informal meetings – lunch evenings and walks (Throughout)	0	0	12	12	76	0