

Evaluation of CIRTL MOOC-Centered Learning Communities

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This report is a compilation of three evaluation memos issued between March and November 2017, reporting formative and summative findings from qualitative analysis of interviews with facilitators of MOOC-Centered Learning Communities (MCLCs). The MCLCs were associated with two MOOCs developed by the CIRTL team, *An Introduction to Evidence-Based Undergraduate STEM Teaching* and *Advancing Learning Through Evidence-Based STEM Teaching*. The memo content is ordered nontraditionally, with descriptive information last and formative feedback first, in an effort to supply “just-in-time” evaluation findings to support team decision-making about the courses.

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MCLC Memo 1: FEEDBACK

This memo focuses on feedback from the MCLC facilitators and adjustments that the MOOC team can make now. I focus on feedback that may be useful to consider or incorporate before the end of the project funded period. Rather than summarizing ideas, I have included direct quotations to specify feedback as precisely as possible. Quotations have been edited for length.

Separate memos will address MOOC Sustainability Planning, and the MCLC in Action. The interview sample and research methods for all the MCLC Memos are described in Appendix A.

1.1. Advice to team

1.1.1. *Technical issues*

Interviewees raised a few technical concerns:

- The edX platform permits less personalization. Users are stuck with the first user name they picked and can't change it; most have names that are not identifying and don't complete a profile. On Coursera, "It definitely seemed like there was more genuine interaction," while on edX, "It's more the sense of interacting with a random comment session, a comment section on a website, almost, rather than actual fellow students." The speaker felt this led to less participation in the edX forums.
- Students had difficulty with Universal Time. It is possible to change the time zone in your settings, but many did not figure this out.
- It is very helpful to have the videos come out on Thursday or Friday before the new week starts, so there is a weekend with time to watch them.
- One facilitator was disappointed to lose material on the Coursera website without notice. She had wanted to review replies to particular posts.
- Institutions on the quarter system find the course timing sometimes difficult. One speaker suggested they may offer their own version of the MOOC in collaboration with other quarter-based schools.

They reported some issues for their students:

- Some students would like to be able to respond to their reviewer on a peer-graded assignment. Interviewees acknowledged that students are often "overachiever" types.
- Some students received "super easy graders" who gave no input. The speaker wondered if this should be factored into grading and completion somehow.

1.1.2. *Content*

Overall, the MCLC facilitators were very positive about the MOOC 1 content: "I would definitely recommend the course," said one. "I think out of all the things I did in CIRTLL, it was definitely one of the most helpful things that I did, just because it was so comprehensive." A speaker who had gone on to a faculty position said, "[Taking and facilitating] the MOOC course

was very valuable to me in the sense that it's prepared me for being able to apply and look competitive for a position like this."

One interviewee commented on the pitch or level of the material:

The material seems like it hits a nice middle ground. ...[When I'm advertising the MOOC on my campus, I can say that] it will go into some things in depth, some nice case studies, examples, interviews with faculty.... I think people don't feel like it's just gonna be a surface-level or very introductory kind of TA skills, but will actually look at some more advanced pedagogy techniques that they would use as an aspiring faculty member.

Other positive comments addressed the expertise represented by speakers in the videos, and the professional editing and polish of most of the videos. "If people are going to use these videos, that is a key thing," said one facilitator.

The module on inclusion, specifically the role play video, was a favorite piece of content. "We discussed that video. It was helpful to have this visualization of, 'These are some gross, terrible things to not do, but let's relate it to what you do in your classroom and how this made you think differently about something you might say or something you might do.'"

Suggestions offered include both possible tweaks to be made in a final review before course is 'put to bed' after the grant, and features that should be incorporated into any future work.

- One speaker noted, "I really liked the inclusion of literature. I think that appeals to scientists as well. I would appreciate [more inclusion of literature] in a user-friendly way."
- While they agreed the initial version of MOOC 1 had too much material, most found it much more appropriate after the revisions. Explained one facilitator, "I found all of the videos to be interesting and useful, even when there were a lot of them in the first year. But when I'm thinking about people who are less invested in this than I am, I thought it was a pretty big commitment to try to watch and absorb all of those." Some found individual videos too long, and found it helpful to watch them at faster speed.
- Most interviewees felt the content of MOOC 1 was in good shape. However, two experienced facilitators raised some issues that may be worth a look before the course is considered finalized, or perhaps addressed in the Facilitators' Guide.

Module three, learning objectives—I actually found this module a little challenging, mostly 'cause of the language between objective, and outcome, and goals. I'm not sure how to identify what exactly was hard about it, but I felt it was the language that was hard to work through.

There's one particular week that they introduce four different active learning concepts, and don't go into much depth about any of them, and people get very confused that week. Most of that content was moved into the second course, so there's inconsistencies, and videos that refer to things that are not actually seen yet. We've seen quiz questions not consistent with the actual video content, or quiz questions show up in week 2, but the actual video content they're quizzing

on is in week 3. Structural inconsistencies. That aside, I think MOOC 1 is really pretty solid, content-wise, with a little bit of tweaking.

- For MOOC 2, several speakers noted issues of alignment and lack of clarity about the intended audience and outcomes. Because these issues pertain to course use by CIRTL institutions in their TAR programming, I will include them in a separate analysis on sustainability planning.

1.1.3. Instruction

There were not many comments on the MOOC instruction, but a few interviewees reported that students responded well to the MOOC instructors' participation in the online forums. Behaviors perceived positively included, "Giving feedback, being involved as instructors, participating and interacting with the participants—just so that people don't feel like they're taking a class from a robot. It makes it feel more personal and interactive." One individual was very appreciative of the help Noah had provided her.

1.2. Use of MCLC Facilitators' Guide

In general facilitators spoke very positively of the Guide and had made good use of it to plan sessions for their group. They used or adapted activities, questions, and examples. Short activities were the most helpful; discussion questions gave them ideas even if they were not always applicable. Several mentioned using or devising warm-up and reflection questions. They appreciated that the Guide offered lots of options; they could always find something useful for their planning. One person thought the Guide assumed that the MCLC would be large enough to break into smaller groups, which was not her experience.

A couple of speakers found the Guide a bit uneven, with activities and suggestions better developed for some modules than others. "It seemed like the ones toward the beginning were a little bit more developed," one speaker noted. "Then the ones toward the end became—I don't know if people got tired, or if it was like, "Okay, you get it now. You get how to do this."

To further enhance the Guide, facilitators asked for

- A list of references in the Guide, for papers cited in the videos
- Better captioning for the videos on YouTube. The captions on EdX are better than the automated captions generated in YouTube (the latter can be edited). Students for whom English is a second language appreciated having the video transcripts on EdX, and captions have been shown by learning research to help comprehension.
- A good overview or summary, plus some detailed help with the MOOC logistics: timing, technology, navigation of the MOOC itself. One speaker said she had not realized she needed to sign up for the MOOC herself: "I don't know if this was right, but I enrolled as a student myself so that I could see their assignments. I didn't know if there was some other way that I was supposed to see their assignments." She suggested:

Maybe there's a little bit of an expert blind spot there, but just walk us through this: 'This is what the student's gonna see. This is what the facilitator will need to

do and know about. These are the tests. These are the quizzes. This is when they'll happen.' There was just a lot [that was confusing] in terms of timing and who's running it. It felt very amorphous.

1.3. Advice

Interviewees were asked for their advice to other MCLC facilitators, and to MCLC students. This advice may be incorporated into the Facilitators' Guide or website if desired.

1.3.1. Advice to organizers

Interviewees offered advice about structures and tactics that were helpful for organizing an MCLC and maintaining participation. Campus CIRTl offices might consider these ideas.

Make it more structured and formal, and have incentives for people to come.

Meet at some location that's good for most of the university or the STEM-based part of the university.

Always have some sort of food, or have people bring food. I always had snacks, or I would make cookies and bring them. That was also an enticing incentive: 'Well, I don't have time to do this, so I'm not coming. Oh, wait, no, I'm getting dinner—I'm still gonna come.' The time was double-duty: go to the learning community and also get dinner.

Meet weekly. Don't do it every other week for an hour and a half. There is so much to cover, and also graduate students and postdocs have got crazy schedules. If you miss one week, you miss two weeks' worth of conversations.

Changing the days of the week is helpful... not always having it on a Tuesday or a Thursday. Every other week, or maybe two weeks in a row, have it on a Tuesday, then have it on Monday, Wednesday, Friday. At least at our institution, that's how courses were set up. For people to actually attend, that was helpful for them because they're like, 'Well, I can't make it this week, but the next week I can.'

Be sure you understand and think about timing. [Our group] met on Wednesdays last semester, so we wouldn't talk about the new unit that had just started on Monday. We would talk about the unit from the week before, so they'd had a whole week and a couple of days to look at it. But then it was hard sometimes to talk about the assignment aspect of it, because students would view generally on Sunday, almost time to be due again.

3.5.1. Advice to facilitators

Interviewees offered advice about preparing to lead an MCLC before it started.

Preview to get a really good sense of the course content and structure ahead of time. [This will give you] a huge leg up, in terms of understanding what students are gonna be talking about in the week-by-week schedules.

Read the facilitator guide closely that first time, because there's a lot in there. I didn't really catch or understand the depth of what all is found in that, until I myself had gone through the MOOC and was running the learning community. It was learning by doing.

Don't binge-watch the videos; they are more digestible if you spread them out.

Align with where the group is starting from and tweak what [you're] taking from the videos to fit how you are shaping those discussions. [My first time,] I hadn't thought enough about the fact that they weren't teaching at the time, [but that] came out as we were doing the activities; it was hard for them to think how to implement certain things.

Pick two or three top videos to tell people to watch, and try to keep those to about five minutes each. [We'd tell them,] 'Take some time to watch this one video, and you'll be set to come to the meetings and engage in discussions. That way you're still maintaining involvement. You're getting something out of it.' That seemed to make people feel a lot better about coming by. Even if they took a few minutes on their lunch break, they watched the video and they felt more prepared—they had something to talk about, instead of not showing up.

Figure out what your goal is for the day to pick an activity that serves that goal—it's backwards design. If you just randomly pick an activity that is tangentially related to the content, the participants might not really understand it, or might not do it in the way that you envisioned because they weren't clear on the goal.

Focus on active learning, but with definite, solid planning to back up the choices that you make about what activities.

They also offered advice about facilitating the group meetings.

Be open to input from the students. They are coming with more or less experience, at a variety of levels, and they are capable. They are going to be able to contribute to the discussion, so you want to be open to that. Run the MCLC the way we talk about running classes in the MOOC: look for peer instruction, have students take ownership of the work that you're doing, have them work on particular examples that are seem appropriate.

Have a game plan, but keep it flexible if there's something more interesting people want to talk about.

Take any chance for your participants to actually do an activity, do a task. Not only is that a more useful experience for the participants, but it gives everyone a lot more to talk about if you have a discussion portion of your meeting.

Try not to talk! If you've planned a discussion to have set in your mind how you want it to go, and if it's getting off topic, the easiest way to correct that is just to tell everyone what you think they should be talking about. That's a really difficult skill to acquire—to lead a discussion, but not be the strongest voice in the discussion. That just takes practice.

Try to create community, a sense of kinship and support, camaraderie between the participants. People seem to really appreciate that kind of kinship, so I've tried to reinforce that by having name tags, having people do the introductions around the circle, at least the first couple of weeks until we really have people's names down—just making a place to share experiences.

Always involve a reflective aspect into the meeting so that everyone can have a chance to decide what they're taking away from the session. That also gives you feedback so that you can guide how you're planning in the future.

Gather feedback. I had given a brief survey at the end and talked to them each week, and I sent lots of emails to people interested or those who came.

Relax.... If something doesn't end up going that well, then you have a chance next semester or whatever, or next week to change something.

1.3.2. Advice to students

Interviewees advised MOOC students to take advantage of the opportunity provided in this course and in CIRTL activities more generally, and to manage their time in order to do so.

Take advantage of all the professional development workshops that are available to you, 'cause they're all gonna be useful one way or the other somewhere along the line.

If you wanna do it, do it. Do it right. Don't just half-ass it. If you wanna get something out of it, you've gotta put something into it—you've gotta put your time into it. My advice is really understand what you want and why you're a part of the MOOC so that you can get the most and do the most with it. Meet people, talk to people. Get involved. Go to the communities. Be in the discussions. [Perhaps] that's not what everybody needs or wants, but I think that is what is best about it. You can go read your articles, you can go read books, you can go do other things to learn this stuff. [But] this is organized in a very specific fashion in a timely manner to get you to do it and get through it, and it offers community: Use those resources. That's what my recommendation would be, and talk to people. Don't be scared to talk to people or say something. You can be anonymous as you wish to be. You can be anonymous in discussions in case you're worried about tenure or some reprimand from your faculty advisor. You can do this on your own time, you can do it at midnight. [So] take the time. Block off time in your calendar to actually do it—because otherwise it's, "Hey, it's graduate school," or it's, "You're a new faculty," or whatever it might be—it's gonna be the last thing you get done. Have this as a way out for you, as a break from the craziness.

MCLC Memo 2: Sustainability

This memo focuses on sustainability issues that surface in data from the MCLC facilitators and adjustments that the MOOC team can make now. I focus on issues that will benefit from thought and planning before the end of the project funded period.

An earlier memo addressed feedback on MOOC operations and MCLC logistics. A later memo will address the MCLC in Action. The interview sample and research methods for all the MCLC Memos are described in Appendix A of MCLC Memo 1.

2.1. Executive Summary

Interviews with MCLC facilitators, several of whom are also campus CIRTl leaders, support the following conclusions from these well-placed observers:

- ✧ MOOC 1 offers a sound learning experience of content that is seen as beneficial to the intended audience. It is useful to institutions in covering essential content for campus CIRTl programs and offering a gateway to other programming.
- ✧ Two alternative delivery formats envisioned in the original proposal are underway and effective in their varied ways: MOOC-centered learning communities and blended learning experiences (in addition to single-learner use). The MCLC format is enriching for learning community participants, and the requirements for leading an MCLC are not daunting. Campus leaders are identifying a variety of other ways to use the MOOC materials in their programming. This is particularly true for MOOC 1.
- ✧ To sustain demand for the MOOCs and establish them as part of the suite of CIRTl Network offerings, communication should be deliberate and focused on ways for campuses to use the MOOCs, adapt them to their needs, and sustain them over time. Descriptions of two observed models for MCLCs, the mini-course and the book group model, may offer a useful starting point. MCLC facilitation offers an additional professional development pathway. It may be useful to convene a working group of MOOC-savvy campus leaders to document and share local strategies and identify ways to exchange ideas among users. Such a group may also help to institutionalize the MOOCs by expanding felt ownership of MOOC-based teaching to a wider circle within the Network.
- ✧ Those who had used MOOC 2 found it somewhat lacking in coherence. Combining advanced pedagogical topics with TAR content may be over-ambitious if it means that neither area is addressed in a fully satisfactory way. This lack of coherence means it is unclear to campus leaders whether and how MOOC 2 aligns with local TAR programming; thus it has made less of a footprint on CIRTl campuses so far. Marketing will not alone resolve the concerns about MOOC 2, if the learning goals are overly broad or if course materials are not sufficient for students to achieve the learning goals. The team may wish to spend some effort to review and improve the course design. Again, external eyes may be helpful in this process. Additional insights are forthcoming from ongoing interviews with campus leaders.

2.2. Background and Expectations of Facilitators

2.2.1. *Varied backgrounds for success*

Interviewees described varied backgrounds for leading an MCLC. They fell into roughly two groups: Some had backgrounds in scholarly STEM teaching or education research, and prior leadership of campus CIRTTL activities. These experienced facilitators tended to feel that their experience enriched the discussion and enabled them to answer participants' questions.

I would want to have very high expectations for the person who ran it as a facilitator. ...I think that, although it's nice to have a discussion, if you're having a discussion but you don't also have sort of an expert voice in the room to provide some guidance, it doesn't feel as worthwhile. (f1060)

The second group included STEM graduate students or postdocs relatively new to formal consideration of evidence-based teaching. Noted one, "Being a teaching assistant, I was used to facilitating a class or a group of people, but I'd never done the online format or the discussion part." (f1054) Another graduate student described how she had independently initiated an MCLC to benefit her own learning while enrolled in the MOOC.

I was ...looking for opportunities that wouldn't take away from time in the lab [for] learning to be a good professor, be a good educator—trying to balance my [graduate] study. ...I saw it was possible to participate and volunteer, make a local learning community. I thought that might help me to really stay committed to it, but also learn perspectives of others who held a similar interest, who might be looking for what I was. (f1058)

In the following exchange with the interviewer (I), she (P) went on to describe that her lesser experience level was not a barrier, because of how her group set expectations for the MCLC.

I: Did you feel like you were at any disadvantage or loss because you [in the learning community] were all relatively less experienced? Was the MOOC material, plus the group conversation, sufficient to have a good learning experience about this? Did you sometimes wish you had somebody who was more expert in the room?

P: I don't think we did.... I think it has to do with the expectation and tone we had from the beginning for our learning community. We didn't run it like a course or a specific workshop—it really was just an opportunity to come together to discuss the topics that were based around the videos for that week. For us, our expert advice and our expert knowledge came from just the materials offered through the MOOC—then we just expanded and discussed those. (f1058)

Overall, the novice facilitators felt that their own interest and participation in the MOOC were enough to lead an MCLC, particularly when backed by the Facilitator's Guide. One pointed out that, if needed, she could consult with more experienced colleagues and bring resources back to the group, as would be commonly true for MCLCs run under the aegis of a campus CIRTTL office.

2.2.2. *Prerequisite knowledge*

Given this variety in observed facilitator backgrounds, I explored the question of the necessary background to run an MCLC effectively: If you were handing off the MCLC leadership role to a colleague, what background would that colleague require? Content familiarity was a basic, shared expectation, whether gained through prior enrollment in the MOOC or through self-study. “It’s a lot easier to lead the discussions once you’ve been through [the videos] once, and know how it’s gonna be structured time-wise,” noted one facilitator (f1056). Noted another,

[New facilitators] need to go through all the material of the MOOC. ...They would have to come prepared, to have a successful discussion or conversation. The Facilitator’s Guide, though, provided a piece of expertise: ‘You don’t have to develop things for your community. We’ve developed it for you. Here, use this.’ That helped. But you’ve gotta be one step more in-depth, or one step ahead of what’s happening in the MOOC. ...Things come up that, if you didn’t see the whole MOOC or you didn’t have some experience, I’m not sure you’d be able to answer all of them. (f1061)

Speakers also concurred that some teaching experience was useful. One speaker described the needed expertise as typical among STEM instructors who used some active learning approaches.

I’ve had a couple of faculty members [say] to me, ‘Well, I should take that course.’ I looked at them and said, ‘No, you should teach that course, ‘cause you’re already using some of these techniques. You’re already an expert at least in part of it. It’s not gonna be something new, and by teaching the course, you learn more.’ (f1051)

Another person argued for more particular expertise, including subtle facilitation skills.

[Not] just a lecturer who’s flipped a part of their classroom, but someone who is really comfortable leading discussions. I think, actually, in all the active learning pedagogical classes that I’ve taken, and workshops, and et cetera, I think that’s the one piece that actually is hardest to teach people. I think we teach it through modeling it, mostly. We say, ‘And then you’re gonna have this group. They’re gonna have this discussion, and you’re gonna walk around and facilitate.’ ...I mean, we talk about how to get people to talk, but then how to get a deep conversation going? I feel like that that’s a skill that someone would have to have to do this well. (f1059)

Overall, it seems that a variety of people can lead an MCLC, even if the degree of difficulty varies by prior experience. As one novice facilitator put it, “It may be an easier step up for [my experienced colleague] to be able to facilitate than folks like myself who have less background than that. [But] I don’t see that as being an overwhelming problem to deal with.” (f1055)

2.2.3. *Implications: MCLC Models and Professional Development Opportunities*

The data suggest that we can view MCLCs as operating under two main models. One model is a mini-course, with an expert leader or instructor. Mini-course MCLCs allow leaders to work with the material and consider its potential for use in blended courses or other settings. Facilitators using the mini-course model described being selective with the MOOC materials and enriching the MCLC with their own activities. The mini-course may be a useful formal offering for new

institutions just starting CIRTTL programs; a CIRTTL leader can offer an MCLC without too much effort while the team is still identifying their local needs and plans. Because it requires a more experienced instructor, the mini-course may be harder to sustain, but it may be a good way to engage STEM faculty in local leadership roles that are rewarding but not arduous.

The other model is like a book group, where all participants are peers, including the convener: “[Just] watch the MOOC, then be ready to talk about things just like anyone else.” (f1055) While the book group model offers less customization, MOOC 1 was not seen to require this. In this model, graduate students or postdocs can serve as MCLC facilitators, and the data indicate that this is rewarding and professionally developmental for them, increasing their own expertise on teaching and enhancing their career prospects. The book group model can be grassroots-organized by an interested graduate student, with or without a formal CIRTTL affiliation.

Campuses might also consider a hybrid model, described as “a junior/senior model” (f1060) or a “train-the-trainer” model: “You bring them in to watch and see how it’s done. Then you step back the next time around, and then they run the show.” (f1055) For campus CIRTTL programs, such a model would offer continuity and some degree of quality assurance while allowing staged professional development opportunities for facilitators. One speaker had used just such a model:

Twice I had a graduate student who was interested in facilitating discussions. We did it together. I handled the logistics, “All right, I’ll get the food, I’ll get the room set up. I’ll get you the technology. You decide what activities and questions, and what discussion we’ll do.” That, I think, was some help in terms of time, for me, facilitating. It seemed like good professional development experience for those people—that was the main reason they were interested in doing it. (f1056)

2.3. Fit of MOOC 1 with Institutional Programming

Interviewees described how the MOOCs and MCLCs fit within their local CIRTTL programming. Where possible, I separate comments about MOOC 1 (this section) and MOOC 2 (Section 2.3).

Both new and well-established campus CIRTTL programs had found the MCLC format useful. One speaker from a long-established CIRTTL program described MOOC 1 as “an introduction to CIRTTL,” “a gateway drug to some of the other support mechanisms.” “Now I’ve got a list of people to advertise some of our workshops to,” he noted. (f1051)

A speaker from a new CIRTTL institution also noted this “gateway drug” role of the MOOC, but from the institutional perspective. Indeed, the MCLC was the first program her CIRTTL office had offered. “It was a good place to start because it was all there for you,” she said, “because you really get a sense of, ‘This is what CIRTTL does and has to offer.’ It’s one of the things that you can offer that’s very direct.” (f1059) “We’re thrilled with all the hard work they did for us,” noted another (f1057).

A leader at a well-established program described how her campus had integrated the MCLC into their regular programming, with cohorts of 8-10 participants who “really take it seriously—participate and complete every assignment and quiz, and are in it, committed for the certificate and everything. That has made the discussions a lot easier,” she noted. At this institution,

graduate students did not enroll in many graduate courses, so credentialing was offered, but not course credit. She continued:

I think people like the idea of the certificates. A MOOC has some level of credibility, or legitimacy, these days, it seems like. People do list them on their CV. The fact that people participate in a local learning community around the MOOC seems to be resonating with them as well—I've seen people put that on their CV as well.

(continuing) We don't offer local course credits, [but] it can be used toward the CIRTL Associate level certificate [here]. We think it meets most of the learning outcomes at the Associate level—if people have done that, then basically that counts for pretty much the entire workshop side of activities. We would then ask them to do a statement to go along with it, for the Associate certificate.

For this institution, the MCLC was a stand-alone offering, not tied to faculty development or TA training. “For us, just creating the community, and following together as a group, is seeming to run pretty well with mostly mid-stage, reasonably experienced students, and postdocs,” she concluded. (f1056)

Others described MOOC 1 as an alternative to campus programming: “an additional resource to use for the [face-to-face] classroom, [or to] bring in more individuals who can't actually take the class.” (f1053) Together these differing perspectives, viewing the MOOC as an on-ramp to other programming, a stand-alone offering, or an alternative delivery mode, show that it is important for the MOOC team to communicate the different possible models to campuses, and for campuses to customize how they use the MOOC. One leader spoke to this customization:

The MOOC-centered learning community ...still requires you to have local participants. [So the MOOC is] just the vehicle to provide these vignettes for you to watch, then you import it... you cut and paste, and put it together with your own information, [so] that [it] fits in with the model of what you have on your campus. (f1055)

2.4. Integration of MOOC 2 with TAR Programming

Overall the interviewees had less experience with MOOC 2, but the interviews did explore the relationship of MOOC 2 to on-campus TAR programming with speakers who could address this.

Three facilitators who had not yet worked with MOOC 2 were optimistic that the course would find a role in their programs, but had not yet identified that role, as these examples show.

I think the MOOC offers us some opportunities. ...We can use those video lessons—either as a whole course, or in the case of TAR, for training our TAR Fellows, and giving them some insight into some of the dos and don'ts of TAR, issues that come up. (f1055)

I think that the MOOC will provide a little more content and a little more structure ...[but] I think I'm still gonna be running the two groups simultaneously [MCLC and on-campus TAR course]. Our CIRTL team needs to talk this out.... Whether we require that the students who are doing the TAR projects take the second MOOC is a good question. I think I'd have to look at the details. (f1051)

Two facilitators who had experience with MOOC 2 had not yet found strong connections to their current on-campus TAR programming. For example, one of them described it as raising awareness about the TAR concept, “piquing people’s interest to go further, or helping them settle on an initial idea. It hasn’t been a very direct pathway or pipeline to our TAR programs.” (f1056) But for programs that had students investigate TAR methods before they developed an idea, MOOC 2’s final project to develop a proposal was not well aligned as a prerequisite to local programming. Others commented that proposal development required more expert feedback than the MOOC could provide.

In general, this feedback contrasts with more strongly positive responses to MOOC 1. One experienced leader elucidated her analysis, that MOOC 2 offered mixed messages:

MOOC 2, I think, right now is really difficult to approach. It’s trying to do two different things. There’s the whole more advanced investigation of pedagogies from the first MOOC—then there’s the whole teaching-as-research thing. I don’t feel like they’re totally doing justice to the topic of teaching-as-research. There’s not much direct instruction on ‘This is how you design a question,’ or ‘These are some methodologies you can use.’ Most of the content on teaching-as-research is opinion videos... ‘What did it feel like to do a teaching-as-research project? What did you learn from it?’ It’s not really instructional, as a pedagogy or as a process. ...I’m definitely gonna continue to approach the second MOOC with caution, realizing that it leaves some gaps. (f1056)

Her analysis that the TAR segments were not enough to prepare students to do a TAR project was corroborated by a second speaker who took MOOC 2 while leading an MCLC with other graduate students.

When I’d gotten to the end of the course, I wasn’t as certain how to put the pieces together to form a research project or hypothesis. We went through the motions of doing the sample project, but I think I was still a little lost on how to put all these things that we learned together and actually do a unique project. ...They gave great suggestions on where to look for the literature—but what might be the difference in scientific literature and looking at the science education literature? (f1058)

She felt uncertain whether the goal of a TAR project was to learn something brand new and contribute to the research literature, or to think critically about her own teaching and discover a “local answer” for her own situation: “What is the answer for how it works for me?” Other discussions of MOOC 2 outcomes were also mixed, some highlighting impacts on teaching and others valuing the introduction to discipline-based education research.

2.5. MOOC and MCLC Features that are Relevant to Marketing

Interviewees described some general advantages and disadvantages of the MOOC as a delivery mechanism for professional development for STEM instructors, and of the MCLC in particular. These features may be highlighted in communicating the value of the course to potential users.

2.5.1. The MOOC in general

Interviewees perceived some strengths of the MOOC, emphasizing flexibility of several different types. First, learners can engage at their preferred time and place, “schedule it around their life and their commitments” (f1055) and “watch a lot of videos on their mobile devices” (f1059). A second type of flexibility arises because the MOOC is a free-choice learning format allowing different depths of engagement.

The lives of new faculty trying to get tenure, postdocs or graduate students—they are not balanced normally. ... Whether it’s tissue in the laboratory or they have to teach a class here or there, there are things out of their control associated with their schedule. So having these variety of options is helpful for not only scheduling, but also how much they wanna get out of it. If they just want something as a reference, they can go and grab it. [Or they can] do the whole course. (f1061)

Third, the MOOC supports varied ways to engage: self-paced and self-directed, or organized and accountable to a group. Some learners “don’t necessarily wanna talk with other people about it, or they have their own communities that they talk to. The wide range [of options] is really helpful for the desires of what they wanna learn, how much time they wanna put into it, and if they wanna do face-to-face discussions, online, or they just want the information.” (f1061)

One other advantage was the opportunity to interact with “people from everywhere” on the discussion boards. “Even someone who didn’t have the opportunity to be in the local learning community could still participate with the broader community,” noted one speaker (f1054). In general, however, the discussion boards were viewed as a place for moderate interaction: “a great place to ask questions and maybe gain resources and clarification” (f1061), but a less rewarding type of exchange than the discussion that occurred in MCLCs.

These comments about format were predicated on the MOOCs offering high-quality content. Facilitators described MOOC 1 as “well put together, and thoughtful. I liked the way it flowed. I liked the topics that were covered.” (f1059) Another remarked, “The videos were professional for the most part; they were put together and edited very well.” (f1061).

Especially for novice facilitators, the MOOC had been professionally beneficial. “Out of all the things I did in CIRTLL, it was definitely one of the most helpful..., just because it was so comprehensive,” said one speaker (f1054). Another offered, “I didn’t realize until I’d done this course about how much there was to offer in the realm of looking at a scientific way of teaching and learning, and bettering that side of my duties.” (f1058)

2.5.2. The MCLC format

Interviewees identified several strengths of the MCLC format. For individuals, MCLCs offered a forum to discuss the material and engage with peers’ diverse perspectives. “We had this real body of resources, and knowledge, and expertise to draw from ... as a backdrop to then being able to do delve deeper into those ideas and applications in person.” (f1059)

Several facilitators noted that the group offered accountability, “a support group to keep people moving through the MOOC” (f1051). Others suggested that learning the material multiple ways—through videos, assignments and group discussion—cemented the ideas.

I liked the idea that you can watch things online, and it’s more passive, and then be able to be active in person and all draw from the same place and expertise. (f1059)

It's like watching a commercial: maybe after a while, you start humming the jingle. But the more you practice it, or talk about it to someone else, the more likely it's gonna be part of your deeper learning process. (f1055)

The unit on inclusive teaching, an interviewee favorite, particularly benefited from discussion.

I don’t think you can process some of that material about microaggression and about inclusive teaching without talking about it, without articulating it, without hearing other people’s stories. Especially if you don’t have any experience with it or weren’t even [likely to] recognize it for what it was. ...White students, male students, yes—people bring different experiences to the room. (f1051)

For institutions, MCLCs offered a means to expand CIRTl’s campus constituency. Some felt that different people were drawn to the MCLC than attended face-to-face offerings; having consumed the “gateway drug,” they could then be invited to other CIRTl offerings. For example, at one campus, the MCLC had established a foothold with postdocs in the schools of pharmacy and medicine, who had not previously been involved in CIRTl activities. The MOOC also offered a general platform from which they could customize learning experiences to fit their local programs. “The MOOC-centered learning community ratchets [the MOOC] up a level—offers you the opportunity to add in your local culture that connects with this. It's a way of building a broader teaching, pedagogical-focused community on your campus.” (f1055)

But just how to think about such customization was of keen interest to local CIRTl leaders, and they wanted to hear about ways other campuses were using the MCLCs. Topics of interest including the timing of meetings, coupled or decoupled to the online schedule; ways to recruit and retain participants; whether and how to customize MCLCs for different groups, such as for faculty, graduate students and postdocs. “The local learning community meetings are kind of what makes the course worthwhile for the participants [here]. I would love for there to be 20 people there every week. It makes it easier to do small group activities and things like that. I wanna think about ways to make it seem more valuable to people to actually attend,” noted one campus leader (f1061). One leader planned to convene a focus group of MOOC graduates to discuss how best to use the MOOC material. Another suggested that the MCLC terminology was somewhat fussy; she saw no need to differentiate a MOOC-centered learning community from other local learning communities.

While MCLC leaders were interested in others’ ideas, it was clear across the data set that no one size fit all, and speakers described experimenting to see what worked locally. For example, some felt it was important to formalize the program, while others felt equally strongly that informality was what made it work for participants. Describing the mini-course and book group models as

possible starting points may help campuses assess their options and find ways to adapt the MCLC format to their local culture and context.

Overall, the MCLC was seen as well aligned with the values and culture of the broader CIRTl Network. “This is something that is not just a one-stop and you’re done. It didn’t feel like that. The MOOC learning community felt like something that you joined and were a part of, different than the feel within the MOOC. ...People kept coming back. If they couldn’t come, they wanted notes from the meeting, and they wanted to talk about it, and they wanted to meet for coffee. ...They would meet outside, or they would stay a half hour longer and talk to each other. ...[The MCLC] took it to really what I think CIRTl is about, and that’s bringing people together around this topic and having more in-depth longer discussions.” (f1061)

2.6. Blended Courses and Other Uses of MOOC Materials

Here I highlight the ways institutions were using or imagined using the MOOC materials other than the single-learner and MCLC modes. Most of these depend on the availability of the videos as stand-alone materials. “What we really appreciate about the MOOC is we can utilize the videos and not have to ourselves reinvent the wheel,” noted one facilitator (f1053). It’s a “tremendous resource,” said another (f1055). Examples of actual and intended use included:

- A flipped course on preparing for STEM teaching, making use of Ambrose and coauthors’ *How Learning Works* (2010) to organize the course and plugging in videos from the MOOCs that fit the topics. “It’s easy enough just to make a quick YouTube channel that everyone could link to and watch the videos they needed as they needed them.” (f1053)
- Supplemental material for a faculty course: “We’re going to teach faculty about the research on how people learn, and then have them design and implement part of their class or whole class, ...how[ever] they want to do it. I could definitely see using pieces of this to help them hear what other faculty are doing....” (f1059)
- Framing for a periodic seminar for graduate TAs, perhaps weekly one afternoon a week for a month: “a menu of stories that we can stitch into our professional development for our graduate TA training. That’s my vision.” (f1055)
- A focused mini-workshop on selected ideas from the MOOC. “The idea right now would be that, rather than having eight weekly meetings, we could make it a more manageable size both for participants and for me—take the MOOC materials and do a three-week series of hour-and-a-half workshops that are centered around three key ideas.” (f1060)
- Independent video clips to enliven another workshop: “I’ve used the dramatization of a physics TA’s first day of class before, with other workshop discussions.” (f1056)
- Advertising for the MOOCs, like movie trailers: “It’s been really useful just to preview for people what the MOOC will be like before they register.” (f1056)

These concrete examples point to expanding use of MOOC materials by those familiar with them.

MCLC Memo 3: MCLCs in Action

This memo focuses on interview data that shed light on the workings of MCLCs: their audience, activities, and outcomes, as observed by MCLC facilitators. This evidence may be useful in refining, adapting or building upon the MCLC model in future projects.

3.1. Executive Summary

Interviews with MCLC facilitators indicate that:

- ❖ The MCLC format offers benefits to participants and facilitators as a type of on-campus CIRTL programming around the MOOC.
- ❖ The interview evidence suggests outcomes that may be probed in future evaluation studies of MCLC facilitators or participants.
- ❖ Facilitators offer thoughtful advice from their experience about how to organize and run MCLCs.

3.2. Audience

3.2.1. *Who and how many*

Consistent with survey responses from MCLC facilitators (see Laursen, 2016), MCLCs served a variety of audiences both across and within campuses. Mid- to late-stage graduate students were the main audiences from survey information, but many MCLCs also served first-year graduate students, postdocs and faculty from a range of STEM disciplines, as described here:

We're right around 50/50 postdocs and graduate students. We're actually pulling from all of the schools across the campus, not just the college of arts and sciences. We've got school of medicine, public health, nursing, engineering. It makes for a very interesting and fun blend of different disciplines in the classroom, with all different kinds of thoughts about how things work. All STEM. (f1053)

MCLCs were thought to work best with a “small” group, “just because you're navigating through some muddy waters. It feels a little easier to get people to talk in a smaller group,” said one speaker (f1051). Some explained that a dozen participants could divide easily into small working groups and report back. But what counted as small varied by context. Professionals—faculty or learning center staff—tended to prefer a group of 10-12 participants, indicating that a groups smaller than this offered a less positive cost/benefit ratio considering their work to host the course. But graduate student facilitators running ‘book group’ style MCLCs (see MCLC Memo 2, 2.2.3) reported having good discussions with more intimate groups of 4-5 participants, which may reflect the added value they perceived for their own learning.

3.2.2. *Participants' motivations*

Concomitant with the range of audiences, facilitators described MCLC participants with different reasons for taking the course. One facilitator noticed a mix of intrinsic and extrinsic motivations among the three audiences he worked with:

One, it may be part of a required course. In fact, I'm teaching a group right now—they're first-year [STEM] graduate students. They are taking a course that's introducing them to the department but also introducing them to concepts in teaching and learning, because they're all employed as graduate TAs. Then others are doing it as a warm-up to a TAR project. Others think they might wanna go into teaching or want to see what teaching is a little more like, in terms of thinking about the scholarship and the science of teaching. They're motivated by the job market.

Those are the three big ones: Either directly required; they're looking to do a TAR project—which then you can ask, what's the motivation for the TAR project? Or they're looking to beef up their understanding of teaching as a way to enter the job market. (f1051)

Facilitators did report connections between motivation and participation. One facilitator found that the MCLC “brought them in for the first time,” while another described that some commitment was required to retain participants if the course was not required.

Most of the folks were beyond the curious stage. The folks who were curious may come only for the first meeting, and then they decide, “I now know what it is. I don't have the time.” The hard-core folks that followed through the course, they were committed—saw this as having value, either preparing for the future job or learning how to improve their teaching. (f1055)

Some had noticed that an initial extrinsic motivation—such as improving one's job placement—could turn into intrinsic motivation to learn more about teaching.

A lot of individuals just want that [CIRTL] certification. Initially they're joining because they want any little bit of extra help they can [get] to help them get that faculty position in the future. In many ways, we've found that the course turns out to be—as a colleague referred to it—like a gateway drug.

(continues) It got people very interested. Initially, they were coming in wanting to earn the certification, but then they got interested in the teaching techniques and how better to be a better instructor in the future. ...Then they get so much excitement about what they're doing that they actually wanna move on and do the next level as well, the [CIRTL] practitioner level. What may initially start off as something where they just want a line item on their CV actually turns into something that they thoroughly enjoy learning about and participating in. (f1053)

3.2.3. Working with a group of mixed teaching experience

Most facilitators had worked with mixed groups where some individuals had no experience of teaching, and others had several experiences under their belt. Most valued the differing perspectives that such participants brought to the conversation, as this speaker noted:

I think it's valuable to have the mixed experience... because it brings those different perspectives and different depth of conversation and different types of questions that

come up, and [different] understanding. While it might complicate it sometimes, I think it's a very good thing. I wouldn't wanna separate the different people out. (f1061)

One speaker suggested that the learning outcomes were not as deep for less experienced instructors, yet the MCLC could still be valuable for them:

Interviewer: Did it matter that [some of your group] didn't have much experience yet?

Participant: I think it did, but I don't think that they were aware [of that].... They were really so curious; ...it was all so new to them. I think that they were really enjoying learning the concepts. Then we would, in the learning community, try to apply it.

Because [some] weren't teaching, the ones that *were* were able to really show how they used it. The others were just fumbling through it, enjoying it and appreciating it, but not getting the depth of learning that would take place had they been able to really practice it in their classrooms. It didn't turn them off. They were excited to be able to have this toolkit that they could use. (f1059)

Another interviewee described some problems that could arise in a mixed group, and how she handled them as a facilitator:

If there were just a couple of people in the room who had had teaching experience, it was difficult to prevent them from dominating the conversation by kind of providing too many anecdotes or advice. If you're not teaching, you don't necessarily need an immediate intervention about an issue; it might be more useful to frame the discussion on What are all the possible ways that this problem can manifest itself? What would be the solutions that would be best suited to different student populations or different topics in your content?

...The second year we had a few that had never taught. [For them,] this was a picture into that world. They were able to [contribute] from the student perspective and what they thought they would do as an instructor, during our conversations. They were just as active, if not more active, 'cause they were like, "What does this mean?" and, "What do you mean, you had that experience?" or, "Students did this?" It was fun to see that dynamic. (f1060)

In general, facilitators felt able to handle these issues related to mixed groups, but they did prefer to have advance knowledge of group members' backgrounds as they planned their MCLC.

3.2.4. Recruiting participants

Some ideas for organizing and attracting participants to MCLCs were offered in a prior report (1.3.1)—addressing considerations of timing, food, and incentives. In general, facilitators used their campus networks to recruit MCLC participants: lists of participants in past local CIRTl events; weekly graduate school announcements; postdoc mailing lists; directors of graduate studies in specific departments. One person scanned the MOOC online forum for people at her institution who had already enrolled in the MOOC and invited them to join the MCLC.

One interviewee felt that campus MCLCs, and the MOOCs more generally, could target another important audience, non-tenure-track academics who teach many undergraduate courses

Facilitator: I wanna really throw this at non-tenure-track faculty, too, to improve their classes and help them. Adjuncts are part-time; having those different types of the MOOC allow them to be a part of it and gain that information and gain those resources—because their schedules are very different. They aren't necessarily paid for the [learning] time [so] this allows them to do it on their own. It's a MOOC, it's not a course that they have to pay for. It's not something that they have to necessarily go to, but they *can* go to. That's something that I'm starting to feel very strongly about, is adjunct support.

Interviewer: Yeah, even in CIRTl's own self-framing, I think there could be more recognition that both in the CIRTl institutions, many sections of introductory STEM courses are taught by part-time or adjunct or non-tenure-track faculty. And also that that is a career path for many of the people they educate. It could be viewed as a greater resource. I think there are also people who choose these positions because they like to teach. Those are great allies to have in the effort, yourself included.

Interviewee: When I say faculty, I mean not just tenure-track faculty. There were participants that wanted to work at a community college, others that had families who wanted to adjunct. They wanted to do part-time teaching at a university. That word faculty to me is non-tenure-track, tenure-track, part-time, full-time, whatever. There's 57 different names that you can call faculty. All of those are included. Specifically with our MCLC, that was interesting. That's what people want—based on their lifestyles, their desire to teach, their desire to not be in a laboratory or have to do that research or worry about grants.

To achieve change in STEM teaching both within and beyond the CIRTl institutions themselves, it may be interesting to seek out MOOC participants who hold these teaching-focused roles and figure out ways to support them to lead MCLCs in their own institutions.

3.3. Activities

MCLC facilitators practiced the active learning methods that they and the MOOC preached. As discussed earlier (Memo 1, 1.2), they valued the MCLC Facilitators' Guide as making the job "more manageable" and helping them avoid "lesson planning block." They made good use of the Guide especially their first time through the MOOC. Suggestions to improve the Guide have already been made and are being addressed.

I found that the suggestions for short activities [in the Guide] were usually much more useful than just lists of questions. Discussions are useful, but I think the more people can actually see real examples and try their hand at the techniques that are being described, the more [they] feel like it is worth their while—actually doing something, producing something, and feeling like you really engaged with the material, the people who were participating seemed to really think that that was an interesting use of time. (f1060)

Facilitators also used activities already familiar to them, or invented new ones. In general, facilitators leading course-type MCLCs tended to plan more carefully, but also were more likely to have prior instructional experience to draw upon and stronger opinions about what to cover.

Rather than just a chat session where we come together, ...I think that the MOOC-centered learning communities need to have some structure. That was provided by these outlines of things that you might do with your group. Because it's like you've invited folks over for dinner, and everyone brings something. Sometimes everyone brings mashed potatoes, and you don't have anything else to eat but mashed potatoes. You want everyone to be connected and participate. You have to at least plan for those kinds of things. (f1055)

“Book group” facilitators were comfortable with a more casual and conversational approach.

We kept it very casual. I would come prepared with some ideas and topics we could discuss. Then I just let everyone look through that agenda and then ask, Which questions do you really wanna talk about in the time we have here? It may not be number one that I listed. Those were based on the facilitator guide, the prompts. It worked well when everyone just engaged and looked through and said, “Well, I have a thought on this topic.” We’d just start discussing from there. (f1058)

We emphasize that both of these models (and variations between) can happily coexist on a campus and provide different opportunities for both MCLC leaders and participants to engage.

3.3.1. Sample class plans and activities

Here we quote a number of examples at length that detail how facilitators planned their sessions, and some specific activities they described. The team may wish to include these in the MCLC Facilitators’ Guide as general ideas to aid facilitators’ thinking, rather than associated with a specific module.

- a) Oftentimes I’ll break them up into groups. I give them a shared board space to work on, either large sheets of paper or some whiteboard slates, and will have them engage in an activity. In the situation where there were peer-graded assignments, I’d have those people who had done the peer-graded assignments—not everybody had done them—take the lead in their own individual discussions and walk their small groups through what some of the issues that they ran into and some of the—what their challenges were.
- b) Alternatively, again breaking them up into groups, I’ll have the students pick a portion of the topics that were covered. Those particular students do a little bit of an activity around that focused on their particular issue and then share that out with the group. I do different things from week to week depending on what’s happening. Usually it’s centered around having them talk to each other in small groups.
- c) We treat it like pseudo-like a flipped classroom in which everyone has to come to class ready to discuss the book chapter and having watched the videos. Primarily, what we do in there is activities related to the discipline.

For example, when we talked about prior knowledge being one of the major things that can affect student learning, we had the students all split themselves up, self-select whether they fit more in the biological sciences or in the physical sciences, or engineering—basically, what they saw themselves teaching. We had them select a basic introductory level course that they would end up designing a lot of things throughout the semester for. From there, in groups, they worked on learning objective, or, in groups, they would work on what possible misconceptions our students might face. We used a lot of the active learning techniques, such as think, pair, share.

- d) We also used jigsaw to help split everybody up, learn a different classroom assessment technique that wasn't one of them that we'd been typically using, that we hadn't discussed. [They] developed questions that you would use for this assessment along those with your learning objectives.
- e) Typically, we did one of the little ice-breaker things at the beginning, or a thinking exercise of some kind. Then we just had open discussion. Sometimes when there were activities, like practice writing something or making a lesson plan, we would try to do that during the session.
- f) In some cases, we gave some advance assignments to have people think about. It enables us to start the discussion. When someone watches these MOOC videos, it's not clear how engaged they may be in watching them.
- g) One of the things that you need to do to start things off, is to have some sort of warm-up activity that brings people together. At least reminding them, "Oh, we remember you talked about this. Or saw that."
- h) One group needed very little direction. They came in with strong feelings on what they wanted to talk about. They had clear suggestions about hey, let's present our draft assignment work to each other; were really eager to use each other as a sounding board for their draft work, their application to their own classes, and things like that. Honestly, even if I came in having some things I wanted to talk about, usually I scrapped it because I figured it was their time and their ideas were the most important.
- i) I would say, 'Give me the salient points you really wanna talk about or get engaged or learn about more.' Based on the class [feedback], we would try to hit on three major themes from the MOOC, and do exercises or talk more about that, and help them get resources.
- j) When we teach a one-credit seminar course, we use the MOOC as the pre-work. Then, when they come into class, we usually just may spend—tops—five minutes reviewing the salient points from the MOOC. Then, we engaged in some activities, where we're practicing aspects of the MOOC, along with some other things that we do. We also have the students read *How Learning Works* by Susan Ambrose. It's a very active-oriented classroom. We're using the MOOC in a flipped classroom approach.
- k) I would select a couple of the videos from the online course, ... something where they kind of posed a question that would serve discussion. I used to be a classroom science teacher, so I

couldn't help but kind of run it a little bit more like a class than a discussion group. Especially because it makes sense—if active learning is one of the major focuses of the MOOC—then to actually model those things for having the participants act as students at least for part of the meeting I found to be useful.

After having run it once, I had a lot of information about the kinds of questions that people found really interesting to discuss. Usually I'd start with a free-write to get people thinking, and then we would share a little bit and see if anybody had questions or would also try to get a sense of whether anybody in the meeting had already looked at the online materials or was planning to use the discussion to then get them interested and look at the materials online afterwards. That would kind of affect whether I needed to provide any additional background on the material. Then we would usually watch one or two of the videos and then I would try to have a hands-on task that we could do in pairs or small groups, depending on how many people attended.

- l) [One thing we did was] find some sample learning goals from different science courses online and giving the relevant goals to somebody who was actually in that field and then having them change them, for example, based on having different levels of Bloom's Taxonomy. Or how would you do this if it were a large class or a small class? How could you assess this? Then having people share together. And then I would usually close with some kind of summary writing activity that I would collect to see if people felt that they had gotten something out of the day.
- m) I've done this in a group, aligned with the [MOOC topics]. It was, "Okay, how would you structure your class, or how do you think people learn? Let's make a diagram of that." Whether it was my knowledge goes to theirs, or it was this journey of a car—some drew pictures. Some just wrote diagrams. It was an organization of their knowledge, and then the changing of that organization based off of what they learned. Some of them had not actually reviewed the material yet, so I made them do it when they first came in. We talked about it. Then later I had them review it, like, "What would you change? How would you know students learn now? How would you think about them differently?"

3.4. Outcomes

3.4.1. MCLC participants

Facilitators described outcomes that they had observed or inferred for MCLC participants. The outcomes that were mentioned included four main types of gains:

1. Gains of conceptual knowledge
 - a. Awareness of alternatives to lecture for teaching
 - b. Personal experience of some of these active approaches within the MCLC itself
 - c. Awareness of the body of research behind active teaching approaches. "They see that there's some science behind it, right? There's some research, some scholarship... it's not just some guy's crazy idea." (f1051)

- d. Some understanding of how different teaching methods were connected or fit into a broader landscape of ideas about human learning; terminology and frameworks
2. Gains of practical knowledge, including
 - a. Concrete ideas and examples for teaching in ways other than lecture, and encouragement to try these in their own teaching (which many did)
 - b. Ideas for TAR projects (which some then pursued)
3. Attitudinal gains, especially
 - a. Appreciation of diverse perspectives; recognition that experiences of learning and teaching differ
 - b. Enjoyment and stimulation; a sense of camaraderie with others who are interested in teaching and learning
4. Gains of professional legitimacy, such as
 - a. Concrete ideas and general background for writing a teaching statement for a job application
 - b. An entry for their CV to document interest in teaching and effort to develop as a teacher (especially for local certification, certified MOOC completion)

Not all facilitators observed all of these, and not all participants made all of these gains; facilitators noticed variations in outcomes depending on participants' experience, as noted earlier. That is, we do not have evidence on the extent or strength of these gains, nor can we distinguish gains made from the MCLC from those the broader experience of the MOOC (but see Memo 2, 2.5 on the perceived advantages and limitations of each format).

Nonetheless, the facilitators' observations do serve as evidence for the kinds of outcomes that are *possible* from the MCLC (distinguished from outcomes that are typical or widespread). It seems plausible that the attitudinal outcomes stem primarily from face-to-face engagement. It is also plausible that MCLC participants led by an experienced facilitator may emerge with a stronger conceptual framework.

3.4.2. MCLC facilitators

Facilitators described positive outcomes for themselves as a result of leading an MCLC, including:

- Learning from the MOOC (particularly for graduate student or postdoc facilitators)—exposure to specific techniques, encouragement to try them, ideas for how to be a better teacher oneself.
- Learning from MCLC participants: what they are thinking about, how to help them
- Preparation for their own future careers (particularly for early-career facilitators)
- Understanding what different departments are doing or communicating about teaching (primarily for those involved in other campus CIRTl activities)

- A stronger sense of the legitimacy of their own teaching beliefs and teaching-related career interests, e.g.

It's kind of useful for me to be able to extend my interest in promoting good teaching by being able to point to its validity as a research topic, especially among scientists. I think... an interest in teaching is kind of looked down upon among serious science researchers. The more you can kind of point to its validity in actual research kind of helps to convince people that it's not a waste of time to think about. (f1060)

- Feelings of community and collegiality, as articulated in these quotations.

A sense of being part of a larger movement. This is happening across a number of institutions, rather than just something I'm slaving on individually, alone. (f1051)

It gave me more contacts, more conversations that I wanna have every single day that aren't just normal. It's hard to find those people to have those conversations with and connect with on a regular basis. (f1061)

The interview evidence suggests outcomes that may be probed if future evaluation examines MCLC facilitators as a group.

3.5. References cited

- Laursen, S. (2016). Summary of MCLC Facilitator Survey Data. [Report to the CIRTL MOOC team] Boulder, CO: Ethnography & Evaluation Research.
- Laursen, S. (2017). MCLC Memo 1: Feedback. [Report to the CIRTL MOOC team] Boulder, CO: Ethnography & Evaluation Research.
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Appendix A: Methods

I conducted eleven interviews with people who had facilitated a MOOC-centered learning community (MCLC). The interviews were conducted by telephone or video-chat (at the interviewee's choice). While they varied in length, most were about 40 minutes long.

The interview sample was drawn from two sources: survey data from MCLC facilitators who had voluntarily offered their names and contact information on a question about availability for follow-up, and a list of people who had served as MCLC facilitators for MOOC 1 in fall 2015, MOOC 2 in summer 2016, and/or MOOC 1 or 2 in fall 2016. (Several had also facilitated an MCLC for the first offering of MOOC 1 in fall 2014.) The sampling emphasized facilitators who had led an MCLC multiple times (9). After the first interviews were conducted, special effort was made to include people who represented leadership roles in their CIRTL center (5) and people who were graduate students when they led the MCLC (4), because people in these groups raised interesting issues that I wanted to explore further.

Most of the interviewees were part of a CIRTL institution at the time they led the MCLC. One had initiated an MCLC before her institution joined the CIRTL Network, and two had moved to new institutions since their work with the MCLC.

Interviews were solicited by e-mail invitation; 14 people were invited and 11 interviews were conducted, for a 79% response rate. The interviews were digitally recorded, transcribed, and coded using *Nvivo* 10. One interview recording failed; ideas from this interview were incorporated into the analysis based on notes taken during the call and upon re-listening to the one-sided recording, but was not coded.

In all 255 passages were coded using 19 codes. Each code was applied in 3-10 sources, with 3-28 references in all.

When analysis of these interviews revealed some issues of fit for MOOC 2 into institutional TAR programming, six additional interviews were conducted with leaders of institutional TAR programs or leaders of campus CIRTL offices that had strong TAR participation. These interviews sought data to better understand institutions' experience with the TAR-related material in the MOOC, and their needs around TAR programming that a MOOC might fill. Because these interviews were short (15-30 minutes) and very specifically targeted, they were not formally coded, but were summarized in a set of analytical notes for the MOOC team's discussion. These perspectives were also incorporated into MCLC Memo 2.