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## Assessment of an Interdisciplinary Climate Change Faculty Learning Community: From Course Redesign to Implementation

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Dr. Elise DeCamp  
Sept 24, 2023

### **Final Report: Assessment Mini Grant**

**Award No:** 02-2023

**Award Amount:** \$1,300

**Principal Investigator(s):** 1) Elise DeCamp

**Period of Award:** January 17, 2023, through June 30, 2023

**Department:** Office of Faculty Development

**Project Title:** Assessment of an Interdisciplinary Climate Change Faculty Learning Community: From Course Redesign to Implementation

#### **1) Description of accomplishments**

As noted in the original application for the Assessment Mini Grant to the University Assessment Steering Committee, the primary objectives of this project were to evaluate the following:

- (1) the climate change learning community's success in supporting the integration of the complex topic of climate change across the curriculum through interdisciplinary faculty collaboration;
- (2) the role of this programming in promoting climate literacy among WMU students; and
- (3) the overall efficacy of this two phase model in terms of assessing faculty development programming with multiples steps of feedback, deliverables, assessment, and debrief reports.

This two phase model is comprised of: (1) an initial phase of facilitating and collecting a pre- and post-survey of climate change learning community faculty participants along with the deliverable of a revised course plan to focus 10%+ of the content on climate change, followed by (2) an implementation phase of the course changes (using feedback provided by the learning community facilitators), which included climate literacy and engagement student surveys and faculty debrief reports. I have been able to collect and share some insights from these data, supported by the comprehensive literature review completed by the graduate student research assistant for this mini grant project. The findings were compared, synthesized, and organized into both a conference presentation I gave at the Lilly Conference in Austin, TX in May 2023 (see attachment), as well as a manuscript (attached) currently being worked on as a "revise and resubmit" decision at a well-respected peer-reviewed education journal.

The core findings shared in the presentation and manuscript currently under review can best be categorized and discussed through the project objectives listed above. With respect to the first objective, findings from the faculty learning community surveys and implementation/debrief reports indicate high level of faculty appreciation of interdisciplinary dialogue and collaborative learning on this complex subject, though a need for additional training on climate change and guidance in assignment design and assessment was expressed. The surveys and faculty debrief reports also revealed a growing interest among participating faculty in addressing the subjects of climate justice (the disproportionate impacts of climate change on those most vulnerable to and least responsible for it), climate change anxiety among students, and to a lesser extent, student climate denial or skepticism about the urgency of addressing climate change in some disciplines.

The research assistant funded by the grant further assisted in addressing this first (and the second) objective. She completed an extensive literature review that covered the following areas: (a) learning

communities as a tool for longer term impacts on faculty development and interdisciplinary collaboration; (b) the diversity of approaches and lessons learned from efforts toward curricular integration of climate change and sustainability across disciplines; (c) other forms of faculty training in preparation to integrate climate change across the curriculum; and (d) methods of assessing student (and potentially faculty) climate literacy as well as general sustainability knowledge. Her literature search and annotated bibliography on over 90 publications on the topic offered guidance on the question of how other universities have promoted and assessed cross-disciplinary curricular integration of climate change through programming and training that incentivized faculty investment in this effort. The literature examples of faculty training programs on climate change and sustainability along with WMU faculty reporting to me their interest in how to address the topic in their classrooms have been most helpful in understanding how critical it is to supplement the learning community with other faculty development programming. Learning communities offered in tandem with climate literacy training/certifications and regularly updated off-the-shelf content, such as climate change modules and active learning exercises and assessment plans for faculty, would better support faculty in feeling prepared to address this topic in the classroom (virtual or in-person).

The second objective involved my examining the role of this programming in supporting growth in student preparation for and engagement with the societal and environmental implications of climate change. Results of the student climate literacy and engagement surveys demonstrate improved knowledge in the assessed areas and growth in levels of student engagement with the topic. This varied by the degree to which the surveyed knowledge areas of climate science/mitigation, adaptation, and justice were centered in the courses of the five learning community faculty participants (half of the cohort) in this voluntary component of the assessment process. The validity of the climate literacy and engagement survey results could be improved with a revision of questions to consider clarity of meaning to students and possible subjectivity in rating of the relative impacts of different climate change adaptation and mitigation efforts. This rather complex and fraught question of what constitutes climate adaptation and climate justice literacy is one I plan to discuss at greater length, through a comparative study of other climate literacy assessments, in a manuscript I will work on with the graduate research assistant from the project in Summer 2024.

The third objective of assessing this faculty development program assessment process was largely achieved through a combination of the literature reviewed by the project's research assistant and the data I collected from faculty learning community deliverables, surveys, and debrief reports. The learning community survey results and debrief reports offered guidance as to how such long term programming might be best adjusted by facilitators to suit faculty needs and interests (e.g., prior training on climate change subtopics such as climate justice and climate science) and greater instructional support during the process on assessment design in future cohorts. They also revealed that the intensive nature of the learning community's six consecutive weeks combined with multiple (optional) training videos and readings during the latter half of the Spring semester was difficult to manage while fulfilling the duties in their assigned workloads. This indicates that a more widely spaced interval of meeting every two weeks across a semester (or two semesters) would better support their engagement with the materials as they work on their course revision deliverables. The faculty debrief reports, when compared to the results from the student climate literacy and engagement surveys, also identified how having data from both of these assessment tools can be valuable in capturing what the participating faculty – during both the initial and implementation phases of this model – and students in their courses might need in order to improve the teaching and learning process.

## **2) Specific outcomes**

The specific uses of the outcomes of this project for the Office of Faculty Development do in some ways remain limited to the continuation of such efforts of supporting faculty integration of climate change as a topic across different disciplines. That said, this assessment research might also be useful in terms of the third objective for considering how learning communities that address course integration of other interdisciplinary topics – such as social justice issues and applications of AI in teaching – might also benefit from this two phase model. As discussed with respect to the third objective above, identifying faculty interests and needs at each step of the course redesign and implementation process, along with collecting information on any shifts in student literacy on the subject explored in the learning community, provide crucial data points for helping faculty and instructional support personnel (including faculty fellows) in improving their pedagogical and programming approaches, respectively. The climate literacy and engagement surveys certainly speak primarily to preparing students in an area that has defined competencies (though, as I mentioned earlier, climate justice and adaptation competencies are less well defined), so if student literacy surveys were to be useful in a similar two phase model on a different learning community topic, then it would be important for that topic to have agreed upon general knowledge or skill sets that could be evaluated. Another broadly applicable outcome that became clearer through this project, is the importance of combining trainings, workshops, and pedagogical resources on the interdisciplinary topic covered in the learning community, so that faculty with varying degrees of expertise on the topic – or in particular pedagogical strategies – feel more confident in effective and engaging methods of presenting and integrating that topic in their courses.

## **3) Summary**

The assessment impact of this grant is evident in how the completed research supports the value of this two phase model for learning communities, particularly in its ability to gauge faculty interests, assess and respond to instructional support needs, and gather student and faculty data regarding the efficacy of the implementation of the learning community deliverable in their classrooms. One additional point to consider for applications of this model to other learning communities facilitated through WMU is that some of the assessment components of the model require that the facilitator and instructional design staff involved collectively possess survey design and analysis competencies. This consideration along with an evaluation of the time the facilitator(s) and Instructional Development and Support team can devote to this more intensive process would be necessary before adopting it for future learning communities. If these requirements cannot be satisfied, then it may still be possible to modify the model into a simpler form that omits the student topical literacy assessment component and uses a simplified feedback process from faculty in the learning community. Indeed, the omission of the literacy survey would already be required for learning communities that are not focused on helping faculty to increase student literacy on particular subjects. Finally, this Office of Faculty Development programming assessment model highlights the potentially improved impact of a multi-pronged professional development programming approach, where the learning community is integrated and intentionally connected with supporting instructional development trainings and resources to better support the preparation and confidence of the faculty in implementing their revisions to course content and pedagogical strategies.