



Evaluation Findings for QUBES EDSIN OEC Fellows Program

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Prepared by Robin T. Taylor, PhD
RTRES Consulting, Principal and Senior Evaluator

Nomenclature.

QUBES. Quantitative Undergraduate Biology Education and Synthesis

EDSIN. Environmental Data Science Inclusion Network

OEC. Open Education Community

OER. Open Education Resources

B[ui]LDS. Biological, Universal, and Inclusive Learning in Data Science

The purpose of this report is to understand the experience of participants in the EDSIN-QUBES Open Education Community (OEC) Fellows program and to share lessons learned and best practices that may be used to inform future programming. The EDSIN-QUBES Open Education Fellows program was created to support leadership within the undergraduate life science and bio math open education community. I interviewed or met with all participants indicated as Fellows, Mentors, or Staff in May 2020, with the exception of one fellow who responded to interview questions via e-mail. Interviews followed a semi-structured format; and a general template of the questions asked is attached.

The fellows program evolved from an NSF INCLUDES conference: Bringing Conversations on Diversity, Equity, and Inclusion in Data Science to the Environmental Sciences in April 2019. A total of six fellows participated in the program with three mentors (e.g., subject matter experts) and three staff members. The fellows were at different stages within their careers with half the fellows being early career (e.g., completing a doctoral program, postdoc, or pursuit of a career position after recently completing a postdoc position) or mid-career (faculty member or split appointments at a 2 year or 4 year institution). A timeline of OEC activities is shown in Figure 1.

Most of the fellows attended the BioQuest/QUBES Summer Workshop in Williamsburg, VA from June 14 -19, 2019 (2 fellows in person, and 3 remote). Following the workshop, fellows met bi-weekly using the Zoom virtual meeting platform and collaborated within two QUBES platforms: an EDSIN-QUBES Open Education Fellows: An Open Education Community platform and the creation of B[ui]LDS: Biological, Universal, and Inclusive Learning in Data Science platform. In addition, fellows were asked to identify a tagging ontology for UDL, Inclusive pedagogy; Biology; Data Science; or Open Education Resources/Open Pedagogy. Finally, fellows were encouraged to submit a proposal or action plan aligned with EDSIN's vision and goals.

The following are the major, positive themes which emerged from interviews:



Interviews revealed that all participants have a passion for equity, diversity, and inclusivity with strong commitments for incorporating these beliefs and practices into their work-life.



The OEC Fellows program offered fellows access to information and influence across a community of like-minded educators with shared interests for assimilating inclusive teaching practices into life science, math biology and data science education.



The majority (if not all) of OEC fellows indicated how the social media platform, Twitter, has been used to foster connections (new and across OEC participants) for continuing interactions and collaborations of building a diverse and equitable life science and bio math education community.

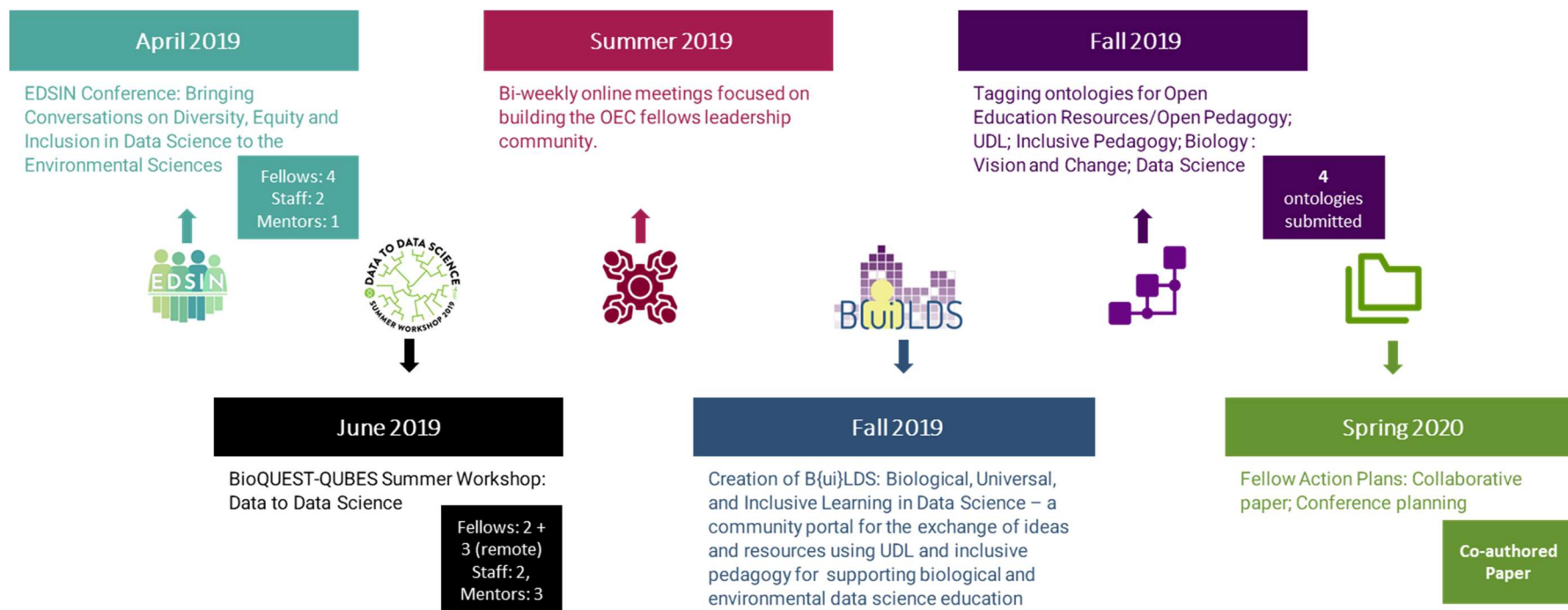


Figure 1. Timeline of QUBES EDSIN OEC Fellows 2019-20 Activities



The impacts for the OEC Fellows program are difficult to measure and quantify as fellows indicated they would continue to:

- Adapt inclusive pedagogy within their own teaching;
- Share information gained and learned from participation in the online community with peers and colleagues;
- Engage in future activities through network connections made through the OEC Fellows program;
- Reflect and learn from those participants of the program as well as gaining new knowledge and awareness from an expanded network of shared interests.



However, the following direct outputs are evident for the 2019-20 OEC Fellows program:

- Tri-authored paper for inclusivity practices within ecology classrooms, labs, and field work.
- Increased efficacy for one fellow to lead a faculty mentoring network focused on data literacy and inclusion.
- Tagging ontologies submitted for OER/Open Pedagogy; Biology; Inclusive Pedagogy and UDL.
- New involvement and awareness gained with conference planning for one fellow (although conference was cancelled due to COVID-19).
- The creation of the B[ui]LDS online community.

The following challenges were identified for the 2019-20 OEC Fellows program with recommendations offered.



The fellows indicated uncertainty in the purpose and mission for the program as well as ambiguity with respect to expectations and deliverables. Fellows acknowledged that the lack of program vision at kick-off was an attempt to not constrain the fellows' development of their own vision and mission for the program. However, fellows unanimously agreed some structured programming would be beneficial to future cohorts.

- **Recommendation.** Create a structured program to commence with opportunities which support differing levels of expertise within the community. Having mentors (subject matter experts) lead discussions during initial meetings could support fellows' progression from novice to expert and increase their willingness to subsequently take more leadership roles.
- **Recommendation.** Having a general timeline for meetings (timing and frequency) and deliverables of the program during the application process could increase applicants' awareness of their availability to participate and engage in the community.



Several fellows indicated a lack of familiarity with the QUBES virtual platform as well as Zoom which resulted in confusion and decreased participation across some project activities.

- **Recommendation.** Provide technical support at the beginning of each program to ensure each user's efficacy with the platform. When new platforms are identified (such as the B[ui]LDS site), clearly communicate expectations for how users engage each of the online virtual platforms.



Attitudes were mixed regarding the relevance and utility for completing the tagging ontology assignment.

- **Recommendation.** Engagement and satisfaction can be affected by numerous factors (e.g., personal, situational, and contextual) which make it difficult to pinpoint a recommendation that would account for increasing satisfaction with the tagging ontology activity in the future. However, one consideration would be to consider each participant's 'zone of proximal development' and familiarity with OER and scaffold an activity that mediates across differing levels of expertise. Having fellows work in teams might be useful or offering different activities according to fellow's interest might be beneficial.



Fellows engagement faltered after completing B[ui]LDS, resulting in withdrawal/attrition for participating within this virtual community.

- **Recommendation.** Consider facilitation techniques for how the B[ui]LDS platform will be used to support an online community focused on UDL and inclusive teaching practices for biological and environmental data science education.

Interview Script

The following items are intended to help understand the involvement and experience of fellows with the QUBES EDSIN Open Education Fellows program for 2019-20.

1. What activities of the program did you participate in, and with what frequency?(e.g., frequency: None, Very little, some, most, all)

- ☐ Online meetings
- ☐ Peer mentoring
- ☐ Summer workshop
- ☐ Co-design/build OEC space
- ☐ Create tagging ontology
- ☐ Other: (Please specify:)_____

2. If applicable, what prevented your participation in any of the fellow activities?

3. What do you feel were accomplishments for the 2019-20 OEC fellow's program?

- a. Personal
- b. Open Education Community

4. What type of collaboration or networking did you have with other:

- a. Fellows?
- b. Peer mentors?
- c. EDSIN OEC Staff?

Action Plan.
















5. Briefly describe your action plan for the OEC program and indicate your current progress towards completing the plan.

- a. Did you encounter unexpected challenges? Please explain.
- b. Do you see the work evolving into future work? Please explain.

6. How satisfied are you with the format for the program? (e.g., very dissatisfied, dissatisfied, satisfied, or very satisfied)

- a. The OEC Fellows program could be more effective if:
- b. The most useful aspect of the OEC Fellows Program is/was:
- c. Suggested changes for the program format or content?

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