June 15, 2022 Education Working Group Call

Attendees: Anna Sjodin, Diana Dalbotten, Jason McLachlan, Jody Peters, Mary Lofton
Regrets: Alyssa Willson, Antoinette Abeyta

Agenda/Notes:
1. Virtual Conference Debrief
    a. Quick start guide of modeling approaches depending on the type of question you are interested in (from Mary and may have come up from the Aquatics Conference held the week before the EFI conference)
        i. Does anyone know of a resource for this?
        ii. Jason has a link that he is looking for. He is planning on using that to start his forecasting course this fall Link to modeling book
        iii. If this link isn't useful, then could look at the compiled list of educational resources
    b. Continued testing of Macrosystems EDDIE modules
        i. If anyone wants to test out the modules get in touch with Mary
        ii. For more advanced users are considering developing an R based resource rather than the point and click. Mary will be working on this for a couple of the modules over the summer.
        iii. Jason is teaching a short course in August and a semester long course and is planning to use the EDDIE resources for the both of those.

2. Ethics in Forecasting Project - Overview from Abby
    a. Goal is to publish this with 4 vignettes for teaching with 4 real examples thinking about ethical issues in forecasting
    b. None of the issues deal with diversity or cultural differences or who gets to make forecasts and the ethical side of that. Jason has been working with Georgia Smies from Salish Kootenai College on a module that could be a good fit and can work on that to add to the manuscript
    c. Jason will be working on this module with an incoming ND grad student to use in the upcoming Geoscience Alliance meeting at the end of July.
        i. This will make the module be a resource that is more accessible for others to use
        ii. Could be an early version of the set of modules we want to create for the Sloan funding and for potential future
    d. Other modules were on 3 topics
    e. Connect with Abby about the 3rd topic. Had been drinking water. Jason's example currently uses drinking water.
    f. Earthquake example connected to sins of omission/commission

3. Antoinette's learning goals and concepts - brainstorm case studies
    a. Antoinette wasn't available so we can follow up on this on the next call

4. Olivia's Population Ecology Class
    a. Olivia wasn't available so we can follow up on this on the next call

5. Alyssa - Ecoforecasting Educational Resources and Gaps Manuscript
    a. Updates from Alyssa: I have been collecting comments/edits from coauthors on the forecasting education manuscript and I'm looking forward to diving into them in more detail once most/all people have provided comments. The only other update on my end is that EFISA had some concrete interest in education related projects for students to contribute to during the conference. I am going to follow up with the folks who attended our networking session during which we brainstormed project ideas next week and I will try to foster connections between efisa and the education working group in that way!

6. Jason - Sloan-funded education activities.
    a. Will use the GA meeting to develop a one day workshop where we can try ideas or the ethics material with real people.
    b. It will give us the infrastructure and workflow so additional modules can be added more easily
    c. Something for the group to keep in mind from the CI/Methods call - There is a forecasting workflow example from the NEON Forecasting Challenge that is based on the Aquatics theme. Also, Mike is working on a forecasting workflow for a one-day workshop in Flux Course.

7. Anna - Forecasting, Prediction, Projection Manuscript
    a. Worked on the conceptual figure - wedding cake figure
    b. Idea was to have little examples of each step. But Frontiers does not like a mix of drawings and images.
    c. New idea is to instead of using the wedding cake, use a fountain idea which circulates to convey the iterative nature.
        i. This implies that the top tier flows back to the next layer of tier.
        ii. Shows it is not a static process
        iii. Don't worry about the specifics for getting the top tier flow back to the bottom
    d. Anna will reach out to Gretchen to confirm this idea

8. From the Steering Committee call a proposal was put out to share the relevant sections to education from the Strategic Plan. On the next call Jason/Jody will go over the Strategic Plan with the group.

9. The Synthesis Center Proposal was not funded. But there was an invite to submit a full proposal for a Science an Technology Center due in late August.

a. During next meeting - run the education ideas from the proposal through this group to get feedback.
b. Diana's perspective - STCs are great. She has been part of one and it was really fun. But let's not wait for the big grant to come through. Focus on one to two good small calls for something from $400-500K this fall. One diversity focused proposal one education focused proposal. Don't wait for the big one.
c. We also have a Sloan proposal about diversity and bolstering the STEM pipeline due this summer if a full proposal is requested.
d. Have Education/Diversity group write their own proposal.
e. Transforming Culture NSF call
f. Mary and Anna are happy to help with writing
g. Have a joint Education/Diversity meeting and have it specifically for visualizing a proposal. Figure out the opportunities and talk through them. Come up with 3-4 things we want to get done and come up with a theme around them.
h. Use the Strategic Plan to get inspiration for the 3-4 things to go into the proposal
i. Share the Strategic Plan, the Sloan DEI text, the STC and Synthesis Center proposal text
j. Get list of RFPs
k. Make Google folder with all the documents - will share with the group on this call and then can include others as needed
l. Agenda

10. Forecasting Ethics material
a. Here is an overview of what was developed: start with a think-pair-share to discuss the Ecological Forecasting Ethics: Lessons from Covid-19 post in Dynamic Ecology. This would then be followed by 3 topics presented in the post, 1) uncertainty, 2) unintended consequences and conflict of interest, and 3) sins of omission vs commission. The material provides a hypothetical ecological example with questions and real-world examples/news stories. There are also a couple of examples of further readings and suggestions for the next steps forward.
b. Idea from Mike on Slack: One other thing we always talk about in my class when we cover forecast ethics (and which might build well off the "sins" example in the slide deck) is the question of which forecasts should be public goods and which are appropriate for private investment. If all forecasts have to be public goods, there will be a lot less forecasting and possibly less innovation than if the private sector invests, but on the flip side there may be forecasts where there's a moral obligation to disclose the prediction to everyone.
c. Update from Abby: I actually put a bit of work into this last semester and drafted the start of a formal resource that we could publish
d. The core group that worked on this project (Abby, Sydne, Ryan, Quinn) were potentially interested in trying to publish it at Teaching Issues in Ecology and

Evolution. Sydne had suggested this journal, but Abby is open to others. Think about putting it up on QUBES to get DOI, but make sure that uploading to QUBES won't affect submission to a journal.

    i. Looking for people to help write one of the examples. If there are 1-2 people who are motivated this can be helpful. Abby can't work on this for the next 2 weeks

    ii. If anyone is teaching an interested in trying this out, or reviewing it from a pedagogical perspective

    iii. Short workshop during EFI meeting to walk through as a group as an activity or collaboratively write one of the case studies. Is there anyone in the education group willing to lead this?
  - Talk about discussion questions for each case study

    iv. Sydne is happy to provide some rubrics for assessment of student learning to this document once the examples are nailed down

    v. Jason willing to include in his course next fall

e. Is there a model that was connected to the example?

f. Put in context about decisions people are making about the model have ethical challenges that people need to consider

g. Could talk to Georgia about the drinking water example and check in with Abbyt o see. Would be a nice one to emphasize that the communities affected by environmental decisions - how are they involved with the decisions that are made.

11. Open Book Project to keep in mind and mash up of notes from previous calls

a. There is potential to use the educational materials developed for the Sloan grant or with Olivia's class to start providing content for this that other EFI members could contribute to.

    i. This is a book you would read before you read Mike's Forecasting book

    ii. If we start to develop modular materials they could be included in such a book

    iii. Can start to develop a list of the components that would be useful to include in a book and think about how to make it applicable to a wide range of students from many different backgrounds

    iv. Think about developing slides/materials that provide context

    v. Running list of who has expressed interest at one time or another
  - Jason McLachlan, Shannon LaDeau, Elva Escobar

    vi. Has anyone seen the [Open Forecasting Textbook](#) (does exist as a [paperback](#) as well)
  - In the Preface this is for a 3rd year undergrad intro master's course

- Interesting template. Success in part due to free online and R packages are nicely user friendly
- This is a bookdown format where R code is integrated and is a living document
- Wouldn't get the credit of something like an AGU Monograph, but would be more broadly available.
- Could do something that are RMarkdowns that could be combined as a book
- Loop John Zobitz into this. He is also writing a book for his courses. Mike has used some of his chapters in his 300 level course.
- Do this in the context of NEON data and walking through all the steps of forecasting. Could get long, but would be a nice resource.
- A self-contained book to walk through. Could reference other books.

vii. This sounds like a strong potential for a proposal for NSF Education Directorates, especially if we could bring in an education evaluator who evaluates the open source, collaborative textbook.
- If we structured it well it could have a strong educational research component