

July 22, 2020 Education Working Group Call

Attendees: Anna Sjodin, Alyssa Willson, Jody Peters, Mike Dietze, Shannon LaDeau, Gretchen Stokes

Agenda/Notes:

1. Update from Anna and Gretchen about the forecasting vs prediction survey/manuscript
 - a. n=106 respondents to the survey
 - b. They have created a draft of figures
 - i. Figures 1 and 2 are results from the open-ended question asking people to give their definitions
 - Histogram is what words were used and how often
 - Network - words used in the same definition
 - ii. Nested bar plot of survey respondents current and educational training backgrounds and plots of the end goals of forecasts, e.g., theory, systems, decision, methods, other vs what the most important end goals are (the majority of respondents said decision making)
 - iii. Data supported what we have been thinking and connect well to the Conceptual Diagram
 - c. Conceptual Diagram Slide
 - i. Top tier = understanding the system/decision making
 - d. Given the survey data/figures, Anna and Gretchen came up with two ideas for forecast definitions, based on interpretation of the survey data and from talking with the Theory group. Here is the definition so far:
 - i. A forecast is an estimate, and the associated uncertainty of that estimate, about an out of sample state (into the future, or different geographic or phylogenetic space) of a system.
 - e. From Theory call that Anna presented these results to a big thing that came out was we can define what is a forecast and what is not a forecast and acknowledge that there is a gray area in
 - f. **Next steps: Want help with making the figures pretty - important for Frontiers. Frontiers likes photos and need a box which could include the vocab list**
 - g. Glenda's suggestion from Theory call - take the first 5-ish words from the histogram and do searches for those terms in Web of Science - can we find publications about forecasting. Can we use a definition that we have developed from this survey to find more forecasting papers?
 - i. This can be used as a validation. If things come back that you clearly agree are not forecasts that means we have missed something in the definition.
 - h. Figures 1 and 2 - uncertainty comes in late and is small. Are there are other words related to uncertainty that show up?
 - i. Could put together probability, uncertainty, likelihood

- ii. Currently, these are considered different words, but they could be lumped together since they are the 3 that come up that are most similar to uncertainty.
 - iii. Anna can send a list of words that are used and if people think words can be combined, we can do that.
 - iv. Can color code words in the network or think about
 - v. Lump uncertainty and probability that will jump to #3 on the histogram
 - Include likelihood? Likelihood is stemmed to Like.
 - Need to read the definition people gave to see how the term is used. Could be used colloquially which doesn't relate to a likelihood function. But if it implying that it is a probabilistic quantity, then it would make sense to lump it with uncertainty and probability
 - i. Survey questions not currently in figures
 - i. Haven't shown how long anyone has been forecasting
 - ii. Compare prediction & forecast and projection & forecast
 - iii. Made word cloud of histogram - not as formal, but it may be more flashy for Frontiers
 - j. Next step - outlining writing and getting it nailed down. Will send it out and people can add where they are willing to provide input
 - i. Also continuing to work with the Grad Student group to get input on the manuscript.
 - k. Frontiers Concepts and Questions Article
2. Update from Alyssa - grad student efforts to compile resources for undergrad education
- a. Group is meeting on Friday - goal for everyone to do ½ hour research on active forecasting resources
 - b. Lots of courses are now online and are public (thank you pandemic). Alyssa has been compiling.
 - c. Jody will be sending out an EFI Newsletter next week before ESA. She will work with Alyssa to get info about Alyssa's survey to collect information about educational resources into the Newsletter
3. RCN Education Efforts - Jason to lead discussion about prepping for the RCN meeting next year (Jason is off this week, we will catch up with him on the next call).
4. Concrete Forecasting Example
- a. Updates from CI/Methods group plans for example of forecasting workflow
 - i. **UPDATE:**
 - **Plan is to use a Phenology example. Kathryn has a test case that has a Docker.**

- **NPN and USGS just created a video that features Kathryn and Mike that provides a nice overview about the “why care” about phenology.**
 - **Use this existing video to introduce people to phenology**
- b. The Education Working Group had originally talked about examples for ticks or aquatic instruments since those have a clear connection for people wondering “why forecast”. Since the phenology example is further along, we’ll start with that.
- c. Previous notes about creating the example
- i. Trailer Video that explains why people care about the topic, what is the problem, how do we get the data, etc
 - ii. If we go ticks, put together trailer video work with folks at Carey
 - iii. What is the code - we’ll add a repo to the eco4cast GitHub group:
<https://github.com/eco4cast>
 - iv. What do we need to annotate/make videos
 - v. The ideal thing to show is that you learn something from the forecast.
 - vi. It is nice if the example has some counterintuitive results, e.g., I wouldn’t have learned that if I didn’t have the forecast.
 - vii. Uncertainty blows up when you make the prediction. For people who do standard regression they think big confidence intervals are bad.
 - viii. If there was a decision about something and you can go one of both ways and if the forecasting helps you see that way #1 is better than way #2.
 - ix. Want to have modular videos that are useful at the undergrad level, the grad level, and for a professional manager.
5. NEFI team update - the team still plans to update materials from the course, but this will need to wait until we get through ESA