The pine and the oak tree: A metaphor to engage students in methods learning

Jo Edson Ferrie and Thees F. Spreckelsen

Teaching methods is hard, partly because learning is tough (see Nind & Lewthwaite, 2017). Students can feel disrupted by the unfamiliar, from endlessly new terminology, learning in workshops and computer labs, to producing reports instead of essays. One strategy is to help students orient themselves and to recognise the disruption as a positive challenge. As educators we can make explicit our pedagogical framework, and how it is different to one used in disciplinary courses. We will exemplify this point by introducing two metaphors that help us make our teaching strategy visible to students. These help students recognise, plan and appraise their learning as an informed response.

The metaphors make use of two types of tree species. The oak tree (see figure 1) is as broad as it is tall, with multiple trunks as well as numerous branches and twigs. The pine tree (see figure 2) clearly has one trunk, and it is quite a climb until a cluster of branches appear at the top. In 2023[i], we used the oak tree as a metaphor for qualitative methods:

- Some 'branches' are close to the ground, allowing us to observe individuals in detail
- Others give a view at a mid-level at a community for example, and others reach up to provide a top-down view, for example qualitative big data
- Some branches have grown in very different directions and learning one, may not really help you learn another
- The tree looks relatively easy to climb, but this is deceptive, it takes us much training to climb along a branch that appears grounded, as it takes to climb up a branch and see beyond the canopy

Figure 1: An oak tree. Picture taken/owned by JEF

And we used the pine tree to describe learning quantitative methods:

- It's hard to climb/learning but there is a harness/teaching to help
- You must though follow the learning pathway set out, you cannot jump up the trunk, you must climb section by section
- From the top you have a top-down view, and branches are relatively easy to climb between (once you've learned the fundamentals of probability, rigour, software and parametric testing). Put another way, clarity might only come at the end of the course.

This piece builds on the earlier paper (Ferrie & Spreckelsen, 2023), using the metaphor slightly differently to explain the way that we have designed method pedagogy, and how making the pedagogy explicit to learners, helps them navigate the learning opportunities.

Figure 2: A pine tree. Picture taken/owned by JEF

Methods learning – climbing a pine tree

The tree metaphors can help students approach their quantitative and qualitative learning and can also be used to help students see where they are on the learning journey, and we can use the pine tree to help imagine introductory courses and the oak tree to help them visualise advanced learning. Introductory social science research methods learning can be, metaphorically, like climbing a pine tree. Methods taught, are seen as connected by one trunk, with side-branches for specific questions, addressing problems, or different data types.

As discussed in our 2023 paper, pedagogically, climbing a pine tree to the top takes effort, and it requires help. Learning to work with data requires taking incremental steps. Students who miss a class must catch up before learning the next step. This particularly occurs when working with numbers. We can reassure students that course designs account for this, that the materials and resources support them, providing a kind of harness. In qualitative methods, the incremental strategy is used by thinking through the stages of a project: sourcing literature, designing a research question, selecting methods, recruiting participants, collecting or collating data, analysis and dissemination. At least with an introductory course, it can be useful to treat all approaches to data as linear.

Describing the pedagogy behind learning methods to students has three strengths. It helps explain *why learning the foundations* of research methods is worth doing, *how the learning is different* to their disciplinary norms and even *not directly connected* to their questions of interest. That is, we can ask them to excuse the abstract nature of some of the learning. We also argue that once the tree is climbed, and competency is established, learning new approaches will be

easier. This is because building blocks are similar, and students have mastered a language of methods.

Take as an example, a skilled researcher addressing a wide range of questions with complex data. They will have had a generic introduction to data management and analysis, followed by iteration of this learning addressing issues of causality or interpretation together with avoiding bias. A researcher will have learned the importance of asking an answerable research question, choosing a method that connects with the question, considering the challenges of recruitment or data curation, considering ethics and analysis and these building blocks are applicable to all projects, and all methodologies.

The pine tree helps them understand how to learn the fundamentals, when they may be abstracted from their own research interests (more typical if the classroom hosts many students from multiple disciplines): it is hard work, and it is incremental, and it is mostly linear. The students notice that their learning is more scaffolded, reinforced by assessments that include skill development. Hopefully this helps them feel that they have time and opportunity to practice the terminology and skills and develop confidence.

Methods learning – exploring the branches of an oak tree

Once foundational courses are complete, students will want to branch out, increasing the relevance of their training to their own research interests. This learning is better captured using the metaphor of an oak tree. Here, the structure is more complex, branches are as thick as the trunk of a pine tree, allowing us to signal that one semester-long course will not make a student an expert in any methodology (whether derived from quantitative or qualitative paradigms). This often will be reflected in who teaches the course, for example with teams used because each educator has an expertise in a different branch/methodology. As a result, the combined lectures/workshops may not provide a cohesive, holistic picture of methods. For example, learning one methodological branch (e.g., ethnography) may not help students learn another (discourse analysis). Thus, students will need some critical engagement to extract the learning relevant to them. We can help by describing the 'tree' and explaining why we have selected the methodologies that we have. We can also help by signalling the availability of appropriate advanced training.

The branches of an oak tree grow at different angles and can be used to illustrate how decisions made take the research into different directions. The linear approach of introductory courses can be subverted here, as students learn that the research question can evolve during a project as the researcher engages with novel data, that they may return to the literature or work with civil society to plan the dissemination strategy as a first step.

The metaphor helps *direct students towards relevant training*. It articulates that some branches of our oak tree require a difficult climb up (critical discourse analysis) but help us understand how shared language(s) produce societies, whilst others are very close to the empirical ground (phenomenology) examining rich, personal data. The metaphor helps us focus on *what learning is required* to achieve the relevant methods training. We can reinforce, that however easy it looks to climb onto a branch, there is as much technical skill required to climb along it, to be able to see beyond the canopy.

Students might see their learning as being about specific areas only. The metaphor encourages them to seek connections. Or they might find that despite a strong training in research philosophy, learning a branch requires a further, deep, engagement with the philosophical underpinnings of a method.

To students the oak tree metaphor clarifies that progressing in their methods learning means: a more expansive learning experience; with students making choices about where they want to invest (future) learning time. The combination of having a heavily scaffolded learning journey (the pine tree) before meeting the multiple branches/methodologies, should help students embrace opportunities to work more autonomously. Thus, it is a step towards dissertation and independent project work.

Understanding a methods learning journey to learn methods better

Students generally, have not been asked to engage with pedagogy so explicitly in their learning. Our metaphors work for students, as devices to recognise, plan, and appraise their methods learning.

Even if using the metaphors doesn't help them orient to learning methods, it serves to create a relationship between students and educator. It reinforces how important their learning is to us.

Using the metaphor explicitly in our teaching, we have found even the most reluctant students have been open to giving us some time to help them adapt to our classrooms.

References

Ferrie, J., & Spreckelsen, T. F. (2023). Teaching methods: Pedagogical challenges in moving beyond traditionally separate quantitative and qualitative classrooms. *Open Scholarship of Teaching and Learning, 2*(2). https://doi.org/10.56230/osotl.64

Nind, M., & Lewthwaite, S. (2017). Hard to teach: Inclusive pedagogy in social science research methods education. *International Journal of Inclusive Education, 22*(1), 74–88. https://doi.org/10.1080/13603116.2017.1355413