

Distinguishing Between Methods, Design, and Methodology



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One of the most persistent challenges in teaching research methods, particularly to students who are new to the social sciences, is helping them to distinguish between ‘methods’, and ‘methodology’. At first glance the distinction seems semantic or even pedantic. Yet the difference is fundamental to developing a deeper understanding of research design and to making sense of why research is structured the way it is. The ‘aha’ moment often comes when learners grasp that methodology is not simply a long list of techniques, but the theoretical rationale for choosing and sequencing them.

One of the reasons, in my experience, for the confusion and even reluctance to engage with the distinction between methods and methodology lies in the lasting influence of what might be called the ‘metaphysical paradigm’ approach to social sciences research. In the social sciences, it has been common to link research training closely to concepts drawn from the philosophy of science—ontology, epistemology, and paradigms of inquiry. This tradition has a long history and an intellectual legitimacy of its own, but as a pedagogical strategy for introducing newcomers to research it often obscures more than it illuminates. While questions of knowledge and reality are important and certainly have a place in advanced reflection, they are not always the best entry point for students who are simply trying to make sense of how research is actually designed and conducted. I therefore reassure students that their difficulty with these abstract concepts is to be expected, and I encourage them not to become discouraged by it. Instead, I emphasise more pragmatic ways of understanding research practice—an orientation that resonates with the broader move in contemporary social science towards pragmatic and mixed-methods paradigms. My analogy of cooking, which I outline below, is one such way of providing a concrete and accessible entry point.

An analogy from the kitchen

In my teaching, I have found that a cooking analogy resonates strongly with students and provides a memorable entry point into the discussion. My analogy goes like this: imagine a cook in a kitchen. There are knives, pots, pans, and timers, together with processes such as chopping, boiling, sautéing, blending, measuring, or baking. A good cook needs to be both knowledgeable and proficient in these. In this analogy, these are the *methods*—the tools and the techniques for using them. They are what you do in order to prepare the food.

Methodology, by contrast, is the cookbook—but not just any cookbook. It is a cookbook that explains the reasons behind each process, why some steps are essential and why others, such as kneading in scone-making, are deliberately avoided. It contains the rationale and the logic behind the cooking process: why certain tools are used, in what order, under which conditions, and for what overall purpose. A recipe for scones and a recipe for bread both involve flour, water, and baking, but the underlying logic is entirely different. Bread requires yeast, proving, and extended kneading to produce gluten structure; scones avoid yeast, demand minimal handling, and rely on quick baking to achieve lightness. The key lies not in the list of ingredients or the physical actions alone, but in the structured, theory-based rationale that explains why the actions are sequenced in a particular way and what outcome they are designed to achieve.

And in between these two sits *research design*. If methods are the tools and actions, and methodology is the cookbook that also explains the reasons behind each process, then design is the recipe itself: the concrete sequence of steps and processes that bring methods together into a coherent whole. A recipe can tell you to knead bread dough or avoid kneading scone dough, but without the methodological rationale you may not know why these differences matter. In research terms, design refers to the structure through which methods are assembled and ordered—experimental, ethnographic, or action research designs are all recipes of this kind—while methodology provides the justification for why that design is appropriate for answering a particular question

When I present this analogy in class, I often notice a visible shift in students' expressions. The distinction suddenly clicks, methodology is not another word for methods, nor is it an obscure philosophical concept, but the guiding framework that shapes the use of the research tools. Design is the architecture that brings methods together. This clarity lays a foundation that can

be built upon in more advanced discussions of epistemology, ontology, and paradigmatic positions. Students are less likely to confuse the philosophical orientation of a study with the specific data collection and analysis techniques employed, and the analogy often helps to ease their anxiety about these philosophical concepts. I usually tell them: *First, get methods, design, and methodology right—this gives you control of the entire research process. Once you become a more experienced researcher, confident in both methodology and the substantive knowledge of your topic, you can then begin to engage with the higher, more abstract levels of philosophical debate.*

Why this analogy works

The power of the cooking analogy lies in its familiarity. Everyone has some experience of food preparation, whether cooking themselves or observing others. Unlike abstract discussions of positivism or interpretivism, cooking examples are concrete, sensory, and accessible. They allow students to transfer prior knowledge from an everyday domain to a new and more abstract one. Cognitive psychology refers to this as ‘analogical reasoning’: learning is made possible by mapping similarities between a familiar source domain and a less familiar target domain.

In teaching practice, analogies are particularly effective in creating lightbulb moments because they reduce cognitive load. Instead of introducing students to new terms and abstract distinctions simultaneously, the analogy offers an already-known framework onto which new ideas can be mapped. Bread and scones, knives and pans, recipes and cookbooks—these are concepts students can immediately visualise. Once the analogy is internalised, the same structure can be applied back to research: surveys and interviews (methods) are guided by methodological choices such as whether the research seeks causal explanation, interpretive understanding, or participatory action, and these are assembled through a design appropriate to the question.

From analogy to application

The analogy is not intended to stand alone but to spark a conversation that moves students from recognition to application. After introducing it, I often ask students to generate their own examples from cooking, sports, or other familiar domains. For instance, students can compare it to training in athletics: methods are the drills, exercises, and equipment, while methodology is

the training plan, and design is the weekly routine that combines drills into a path toward peak performance. Another possible comparison is music: the methods are scales, practice routines, and instruments; the design is the programme of pieces selected for a concert; and the methodology is the score and style guiding interpretation. These extensions deepen understanding and encourage active engagement.

In classroom discussion, I then link the analogy back to specific examples in research. Consider a mixed-methods study on youth unemployment. The researcher might use surveys, interviews, and administrative data analysis—these are the methods. The design lies in how these methods are combined: surveys to capture breadth, interviews to provide depth, and administrative data to offer longitudinal perspective. The methodology explains why this particular combination makes sense, and why triangulation strengthens the findings. Students begin to see that methodology is not redundant, but rather the intellectual architecture of the study.

Building from first principles

Alongside this analogy, I often give students a simple definition of research to help them see the bigger picture: *research is a systematic, organised, and logical activity that uses information from and about the world in order to describe, understand, and explain phenomena*. It is self-correcting and generative. From this perspective, research has three essential components: the research question, the data, and theory. The research question determines what type of data is needed, and theory—both substantive and methodological—guides how that data is generated and interpreted. By returning to these three elements, students can situate methods, design, and methodology in relation to the purpose of research itself.

Creating ‘aha’ moments through layering

The cooking analogy is one tool among several that I use to generate ‘aha’ moments. What matters is the layering of learning activities. First comes the concrete, relatable analogy. Then comes guided discussion that draws parallels to real research projects. Finally, students are invited to apply the distinction in their own assignments, for example by articulating not only which methods they plan to use but also why those methods are justified in light of their research questions and theoretical stance.

I have observed that without this progression, the analogy can remain superficial. Students may parrot back that 'methods are the tools and methodology is the cookbook' without transferring the insight to their own work. The lightbulb moment only fully ignites when they can explain their methodological choices in writing and defend them in discussion. This iterative reinforcement is essential.

Pedagogical reflections

There are broader pedagogical lessons in this. First, 'aha' moments are rarely the product of a single dramatic insight. More often, they are the cumulative effect of building bridges between familiar and unfamiliar domains, revisiting distinctions in varied contexts, and enabling students to test out ideas for themselves. Second, analogies are most effective when they are dynamic. If I impose the cooking metaphor without inviting students to adapt it, its impact is limited. But when students generate their own parallel analogies, they take ownership of the insight, making it more memorable.

Third, such teaching moments remind us that research methods education is not only about technical competence but about epistemic awareness. Students need to see research not as a checklist of techniques but as a reasoned response to questions of purpose, logic, and evidence. By clarifying the distinction between methods, design, and methodology, we open the door to richer engagement with research paradigms, ethical considerations, and the politics of knowledge production.

Conclusion

The question 'How do you spark those "aha" lightbulb moments in research methods learning?' invites us to think carefully about what makes learning stick. In my experience, the breakthrough often comes when students realise that methodology is the rationale behind the methods, not merely a list of them, and that design is the way methods are assembled to answer a question. The cooking analogy helps to trigger this realisation, precisely because it translates abstract distinctions into everyday experiences. From there, the task is to build layers of reflection and application that encourage students to use the distinction in their own research design.

Ultimately, lightbulb moments matter because they transform learning from passive absorption into active understanding. Students who once conflated methods with methodology become capable of articulating why they chose interviews instead of surveys, or why they sequenced their analysis in a particular way. They see themselves not only as users of research tools but as thoughtful designers of inquiry. That, to me, is the essence of sparking insight in research methods education.