

# Grab Your Spoon

Every year, for the past few years, I have had the privilege of teaching the Institute for Engineering Education Research (IEER) with a changing cast of wonderful people. We did this in person, when that was possible, and in 2020 we offered it as a set of two workshops remotely. The workshops have had great attendance and I thought that while I am on leave, holed up at a desk in my closet during a pandemic, I might start a series of short pieces that each discuss just one concept in engineering education research. Many of these topics are covered in our workshops, but not all. And, addressing them one at a time might provide a digestible pace of information for people interested in EER. So grab your spoon....



Adapted from Patel (2015) and Crotty (1998)

The umbrella diagram we use in the workshop shows a cascading set of elements that make up a research study. This diagram was adapted from Patel (2015) and Crotty (1998). While it is shown as a cascade, in fact this is not a unidirectional process. In developing the framework for a study, we often move back and forth, iteratively, much as we do in engineering design.

All studies have all of these elements. They are sometimes labelled differently (e.g. Creswell refers to “worldview” instead of ontology, epistemology, and axiology), but they are always present. For example, all research has an axiology and logic, whether the researcher intentionally selected or considered an axiology or not, it is there. However, not all research studies are well aligned. For example, the methodology may not fit the research question. That is, the methodology may not be a valid, reliable means of addressing the research question. One goal of intentionally considering each of these elements in your research plan is to create a well aligned framework. The process and thinking that goes into this will result in a better design piece of research, and help you think more deeply about what you are researching.

Crotty, M. Foundations of Social Research: Meaning and Perspective in the Research Process. London; Thousand Oaks, Calif.: Sage Publications, 1998.

Patel, S. (2015). The research paradigm – methodology, epistemology and ontology – explained in simple language. Retrieved from:  
<http://salmapatel.co.uk/academia/the-research-paradigm-methodology-epistemology-and-ontology-explained-in-simple-language/>

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