

Sociology from the Outside

by C.E. Larson

I am a mathematics professor at a large research university. My academic responsibilities include teaching a wide variety of mathematics courses and producing mathematics research. I interact with faculty from many departments in a variety of venues, including committees and faculty governance bodies. I don't actually know much about most other disciplines—I took General Education (“Gen Ed”) courses when I was an undergraduate and am well-read, but that's not the same as really knowing what happens in a discipline. Something happened recently to make me want to know more about Sociology.

A student that I was working with on a research project told me that he was studying to take a test that would give him credit for an introductory sociology course—which would count towards his Gen Ed requirements. The test was in two days and studying would interfere with our meetings. The test is “CLEP.” It's a test administered at many universities. Passing it for a subject X is called “CLEP'ing out of X,” and saves the students money; they have three less hours of tuition credits

to pay for. I asked the student: “Do you know anything about sociology?” He said, “No,” but explained that he had a practice test to study from. While this was a very good student, I still wondered: what kind of subject can you know nothing of, study for a couple of days, and get an entire semester's worth of college credit?

You couldn't do that, for instance, in a math course. If you don't already know College Mathematics (another of the CLEP tests) or Chemistry, there is no chance you could learn it in two days (or at least enough to fake it on a standardized test). He did pass, he did CLEP out of sociology, and he did get three hours of college credit. Is the CLEP sociology test just easy by design (unnecessarily easy), or could it be the subject itself? What would it mean though for a subject to just be easy?

I was intrigued enough to dive in and try to figure out an answer. What I will describe is what any other outsider might find. My aim here is to articulate what I found well enough that my colleagues in sociology (the insiders) might address these observations.

I had a vague idea of what sociology was: the study of groups of people and how they interact. I didn't have any concrete idea of what might be said about these groups, or what was known, or even what kinds of questions people are interested in. So, I naturally started by clicking around, reading Wikipedia, and doing what any educated person might do. I ended up identifying the big names in sociology, reading a variety of research articles, monographs, and books, including a textbook. I also examined the CLEP sociology, college mathematics, and chemistry practice tests. I think I've put my finger on the key differences between these tests.

When I read, I look for new data (new facts, particularly surprising facts), new concepts, and causal theories. Data is the starting point. It may be that planets travel around the sun in elliptical orbits. Why elliptical orbits? Why not circular orbits? Children tend to look more like their parents than to random non-relatives. Why? For some questions we have causal theories. We know that the further apart two bodies are the weaker the gravitational attraction will be between those bodies (and we have equations that will tell us exactly how much weaker, depending on how much farther apart the bodies are). The key feature of causal theories is that they tell you what input parameters can be changed that will lead to changes in output parameters. (The relationship might be probabilistic: if you weight a coin, so that it is no longer fair, you might be able to give a formula for

the probability that the coin comes up heads. The coin may no longer be fair, and it might no longer come up heads half the time, but if you can predict—correctly—that it comes up heads 70 percent of the time, that's still useful information.) Relationships between inputs and outputs are not always causal. It is a fact that a child's shoe size correlates with his reading ability (this and other examples are from J. Pearl and D. Mackenzie, *The Book of Why*, 2018). The data indeed shows a relationship. But it is not a causal relationship: if you buy the child a larger pair of shoes (vary the input), he will not be able to read any better (affect the output).

Causal theories involve concepts. When you are investigating gravitational attraction between bodies, it is not obvious what inputs might strengthen or weaken the attraction. A researcher might cook up or investigate a wide variety of concepts before he happens on something that is promising. Maybe the heat of the bodies matters? What inputs can we change in order to get better reading outcomes in children? Maybe shoe size is relevant? Maybe diet is relevant? "Shoe size" and (say) "units of calcium" are concepts. They might, or might not, appear in a causal theory. Work will have to be done. But it's an important fact that you can't have a causal theory without concepts; these are the ingredients of a theory. It is worth mentioning that my own discipline, mathematics, might be described as the investigation of mathematical concepts and the relationships between

them. The interest of mathematical concepts is exactly that they can—and do—appear in causal models.

The road to a useful (predictive) causal theory may be steep. Before it is discovered that distance between bodies and the gravitational attraction between them is inversely proportional, there may be large numbers of less useful theories, involving a variety of irrelevant concepts. Maybe all bodies are surrounded by vortices of invisible particles, that interact in yet-to-be-understood ways? It's an idea. Someone might think that providing a child with larger shoes does increase reading ability. It's an idea. It will have to be tested. We might call these preliminary theories "proto-theories." They often have ideas or concepts that appear in our final theories. Proto-theories sometimes sound silly or ridiculous—but until you have a reliable theory anything is worth considering. Many concepts might be considered—or even invented—along the way.

The three big historical figures in sociology are Karl Marx, Max Weber, and Emile Durkheim. Durkheim, for instance, reported in his 1897 book *Suicide* that men commit suicide more often than women and Protestants commit suicide more often than Catholics. Durkheim's book has some interesting data. And unanswered questions. What kind of theory explains why Protestants commit suicide more than Catholics? The word "explain," it should be mentioned, has a variety of uses. By an "explanation," I want to know causes. For

other people an "explanation" is something that has the psychological effect on them that their question goes away. I'm interested in causal explanations and not psychological explanations. A theory should be practically useful—what inputs can be changed in order to change outputs—not just useful in the sense that it impresses others. Outsiders want causal theories—everything else is irrelevant to them; while insiders might be comfortable with non-causal explanatory theories.

Non-causal (psychological, insider) theories might have considerable overlap with proto-theories (preliminary theories that evolve into future causal theories). Prior to Newton, Descartes proposed a vortex theory of planetary motion. He had a story for how all bodies move. The appeal of the theory might have been that it fit a wide variety of facts. Nevertheless, when Halley's comet passes through our solar system it is of no use for predicting the path or period of the comet. Newton's theory can do this (and does do this). Nevertheless, Cartesian theory held on among some scientists for one-hundred years. So, it's been over one-hundred years since Durkheim published the data about Protestant and Catholic suicide rates. Surely there is an explanation? I couldn't find one (looking, for instance, in various Google Scholar searches, all the citations to Durkheim's book, etc.). Durkheim proposed "social forces"—by analogy with the essential concept of force in physics—but this isn't specified in a way that any pre-

diction can be made. What inputs can be changed among Protestants in order, for instance, to decrease their suicide rates? What do Protestants do, for instance, that Catholics don't? Maybe there is a habit X or belief Y that can be changed among this group—so that Protestants who do X or believe Y commit suicide at lower rates than other Protestants? Durkheim suggests “social integration”: increase social integration and you'll decrease suicide rates. It's a standard feature of proto-theories to invoke new concepts like social forces and social integration. “Atoms” were conceptualized in the nineteenth century to explain chemical observations, and “genes” were invoked to explain heredity. But the existence of atoms was only accepted gradually, as evidence for them like Brownian motion built up; it wasn't until 1951 that Avery established that genes were part of DNA, and not elsewhere in the cell. Atoms and genes are essential to our predictive theories. Social forces and social integration are not. As an outsider I don't need to deeply understand a concept to see that it's part of a predictive theory. I don't know what “quantum tunneling” is, but I can read that physicists use this concept in their design of transistors (and thus computer chips). I don't really know what a social force is—but I know it's not relevant in the same way that quantum tunneling is.

The great difficulty here is that the benchmark for establishing causal theories (theories which justify conclusions about an input variable effecting a

treatment variable) is randomized controlled trials (RCTs), where a group is randomly split into a control group and a treatment group: RCTs are hard work and expensive. Maybe it is thought that social integration might be partially measured by participation in sports teams, book clubs, bridge clubs, etc. We might, for instance, take a large sample of Protestants and randomly assign half to participate in a bowling league. If the suicide rate among the bowlers is less than that of the control group, we have a causal fact (that should be further investigated—it couldn't be *bowling* that's the secret ingredient, could it?) The point of the random split is that you can avoid confounding variables. If you want, for instance, to investigate whether aspirin is a good treatment for depression, it is not enough to simply observe whether people who take aspirin have lower rates of depression. The aspirin-takers may be exactly the people who might be helped by *any* treatment—these might be the people who are already motivated to have a positive outcome. By taking a random sample, it will include a mix of these together with the ones who would not have taken aspirin otherwise. In some instances, it might not be ethical to do an RCT. Does smoking cause cancer? You can't ethically randomly choose some people to do something that might lead them to get cancer. There are alternatives to RCTs. It is possible to draw conclusions about causal theories without an RCT. These are observational studies. This is what was done in concluding

that smoking does cause cancer. In this case one theory was that some genetic factor *both* caused people to smoke *and* caused cancer. Somehow, you've got to be able to eliminate possible confounders like this; and, with great effort, it was possible to eliminate genetics as a significant cause of cancer in smokers.

I read Anthony Giddens best-selling *Sociology* textbook (5th ed., 2006). This did not contain any examples of causal theories (or evidence for them). The 3,300-page *Encyclopedia of Sociology* (Blackwell, 2nd ed., 2000) contains only three pages on "experimental method." There is a section on "causal inference models"—but only a couple of examples from sociology. What a sociological *insider* might want to know are what words and ideas sociologists use to argue with other sociologists, gain status and approbation, academic jobs, etc., but what a sociological *outsider* wants to know is how to change outcomes, often to figure out what can be done to achieve better outcomes. Consider, for example, the problem of evictions in the U.S. Matthew Desmond is a well-known sociologist at Princeton and author of the best-seller *Evicted* which has tons of good data. What someone might want to do is *cause* the U.S. to have lower eviction rates. The rest of us might speculate on what might be done but, you'd think, sociology would *know* what to do, that there would be a relevant causal theory: do X and eviction rates can be predicted to go down. But it's not here.

In 1958 sociologists Jack Gibbs and Walter Martin wrote a journal article ("A Theory of Status Integration and Its Relationship to Suicide") where they point out that Durkheim's theory is missing the *meat*: there's no operational meaning yet for "social integration." You can't use this concept in a causal theory if you can't measure it or its relations with other measurable concepts.

While Durkheim's study provides the most promising point of departure for an attempt to formulate a theory of suicide, it must be emphasized that his assertion of an inverse relationship between social integration and the rate of suicide has never been subjected to formal test and is not testable in its present form. At no point in Durkheim's monograph is there an explicit connotative definition of social integration, much less an operational definition. It is not surprising then that there is not a single measure of social integration correlated with suicide rates.

Gibbs, in his 2018 book *Science and Sociology*, points out that no progress had been made on finding a causal theory of suicide in the previous sixty years. There are "theories" of suicide—but they seem to be less proto-theories (theories intended to be a step forward on the road to causal theories) and more psychological theories (non-causal, for insiders-only, to talk to each other in convincing ways). What is wanted is to *know* what will cause lower suicide rates. It's irrelevant to outsiders what sociologists say to each other about non-causal theories.

To return to my student, his CLEP Sociology test, and the question of *why* he could get a semester of Gen Ed credit for passing this test with minimal studying when this wouldn't be possible if he were taking the Chemistry CLEP, consider a sample question from the CLEP Sociology Practice Test: "Which of the following BEST expresses the functionalist explanation of social inequality?" This is followed by multiple choice answers. Of course, what people want to know is what *causes* social inequality? If you want to change something (what an outsider would want to do with sociological knowledge) you want to know what inputs can be changed so that relevant social equality measures would change. There might be twenty kinds of "explanation" of social inequality (including "functionalist explanations"), and these might be of interest to insiders—but they would all be missing the point. It would be like a physics test that, instead of asking about how to lessen the gravitational attraction between two bodies, asks about the "theological explanation of gravitational attraction"—but this question would be missing the point. Outsiders care about causal explanations from physics: the reason that the public supports the study of physics is because it produces actionable theories; we use what comes out of physics departments to change the world. If physics insiders only talked to themselves, it would be of little interest to the public. A question on the CLEP Chemistry Practice test asks, for instance, which of four atoms will form

"ions with +1 charge in solution." This question is substantively different than the just discussed sociology question: it is really a *causal* question. What input can you add to a solution that will lead to a positively charged output? The comparative depth of the chemistry question is exactly because lots of causal theory is known. Then questions can be asked that depend on knowledge of a variety of causal facts. Theory must be built-up, and conclusions must be drawn. There aren't complicated questions on the CLEP Sociology test, it would seem, because there is no building-up of causal theories: all you need to do is memorize some of the language that sociologists use to talk to each other. It takes memorization ability—but that's it. It seems that the *subject* of sociology is less cognitively demanding, rather than the test.

While sociologists might dismiss my questions as the questions of an ignorant outsider, they *are* questions that any outsider might ask. No discipline will continue to exist without outsider interest. There are sociology departments, for instance, and in order to grow or attract more students they need support from the outside—from educated people interested in sociological questions and who are convinced sociology is doing the hard work of answering the questions society is interested in. We outsiders want to know, for instance, what *causes* men to commit suicide at higher rates than women and what

causes Protestants to commit suicide at higher rates than Catholics?

My conclusion is that sociology is not producing causal knowledge, and that sociology CLEP tests are easy primarily for this reason. The subject is replete with interesting data and interesting questions but impoverished in its results. Sociologists, what are outsiders like me missing?

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