# EDLD704

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# Preface

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# Questions, Methods, and Data

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In your setting, surely you've seen data collected and presented in various ways to get your attention, stimulate your thinking, illuminate an issue, and the like. Maybe you've done such data-related work yourself.

Like appreciation for fine art or food acquired over time, you probably have a sense of "bad" data when you see it.

Do you also have a sense of *good* data when you see it? Even if you don't like what it suggests?

I want this course to help you collect better data from now on by focusing your attention on *how data are collected* – that is, **methods** – for conducting inquiry, which includes considerations how to collect data in ways that optimize their quality.

This central concerns of this first module are the question and decision of what method to use to carry out a study. As I see it, methods depend, fundamentally, on the nature of the question being asked: What specific kind of information or understanding does the question seek? Here I make a fundamental and admittedly over-simplistic distinction between **qualities** and **quantities**.

To investigate questions that betray interest in quantities – *"To what extent...?", "How prevalent...?", "What predicts....?"* – one should use quantitative methods. This includes surveys, experiments, quasi-experiments, and the like.

To investigate questions that betray interest in qualities, we employ qualitative designs and instruments. These include interviews, observations, in-depth case studies, analysis of content, and so on.

Often the research question is so self-evident that the choice of method and instrumentation is obvious.

But perhaps just as often we are interested in *both*, and the qualities-quantities distinction is not so clear cut. To illustrate, consider this case study:

## A Case Study

In 2006, all public high schools in Washington State were required to administer the state's large-scale assessment, the Washington Assessments of Student Learning (WASL) in mathematics and reading, to all tenth grade students. By law, these students were the first graduating class required to pass the test in order to receive their high school diplomas. High stakes accountability testing was getting "real."

Public educators throughout the state were anxious. Questions abounded:

- How many students would meet the standard? How close are we?

- Which students are less likely to reach the standard?

- What reforms, interventions, or other restructuring are necessary in elementary and middle school to better prepare students for the high school proficiency standard?

- What exactly are the high school proficiency standards in reading and math?

- What reforms, interventions, or other restructuring are necessary in high school to better prepare students who failed the test in tenth grade to pass the test by their senior year?

This state policy had many critics. Many decried the requirements as fundamentally unfair. Leading psychometricians (experts in test design) criticized the high stakes policies as invalid uses of (largely high quality) standardized tests. Some public educators retired early or found other jobs.

Others defended the policies as necessary to bring about long overdue reforms. Many of my colleagues in the district where I worked understandably grumbled and complained … then we all got to work to help our students succeed.

At the time, I was early in my career in public education. I was employed as a data analyst in my district's Curriculum and Instruction department while working on my doctorate. My job, in essence, was to help educators understand student achievement data. I was unique because I had come to education not from classroom teaching but the academic world: sociology. I saw things differently. At the risk of being dismissed as young, naive, and "ivory tower", I was decidedly *less partisan* and *more curious* than others. Accountability policy created pressure to make difficult changes, and many resisted, but that didn't mean some change was necessary, and I cared more what the *data* said than what people claimed.

Here are the kinds of questions I asked at the time:

- What is the historical and/or social scientific evidence that these high stakes accountability testing policies actually work? Where and when have these policies already worked?

- And what does "actually work" really mean: To improve instruction? To help students overcome demographic disadvantages?

- Part of the theory of action of these accountability policies is "measurement-driven instruction": testing data should provide instructionally valuable feedback. Teachers should look at data; and when they do, they should see and do .... *what*?

- "Data-based decisionmaking" is all the rage. But what exactly does it mean for a district or school to be "data-driven"?

- How does a district or school become "data-driven"? By what process of evolution?

- High school teachers already see state assessment at a high level in the summer during inservice days. How often do they look at the state assessment data for their own students? And when they do, how much instructional utility do they derive from the data?

- The policies assume that external accountability pressure will cause teachers to look at data. Can I test that empirically? Do teachers who perceive more pressure tend to look at state assessment data more often than teachers who perceive less pressure?

- Professional learning communities are all the rage. They are hailed as a very effective model for organizing and motivating teachers to collaborate. Are high school teachers in professional learning communities more likely to use high school assessment data to improve instruction than those not in professional learning communities?

Now let's consider all the different kinds of research questions in this topic.

## Questions for quantitative data

The quantitative questions are fairly obvious:

*How often* do high school teachers use state assessment data? This is a question about *frequency*, which ranges from less frequent ("hardly ever') to more frequent ("all the time"). To study this I needed a sample of teachers who used data with this full range of frequency.

Are teachers who perceive more external accountability pressure to improve test scores *more likely* to examine their own students' state assessment data more often? A pretty unmistakably quantitative research question (or hypothesis). Implied is comparison between two groups (which is "more likely") along scales of intensity for accountability pressure (less to more intense), frequency ("rarely" to "often") of data use. To study this I needed a sample of teachers who varied in their perceptions of accountability pressure and their frequency of data use.

Notice that questions for quantitative data come from an understanding of the situation of enough sophistication to know what the important variables are and how the variables might be related. In most cases, quantitative analysis is **deductive**; we know what to look for and we understand the situation well enough to test competing theories or understandings.

Quantitative methods are also appropriate when you want to make generalizations about a population. They seek to show what is ***generally true*** of a ***large number*** of "cases" (most often, people).

## Questions for qualitative data

Notice the questions that are more obviously about qualities than quantities.

What does it mean for a district or school to be "data-driven"? Nothing here is quantified or quantifiable. The quest is for *attributes* or *states* of "data-driven". The result could be a typology of different kinds of "data-driven"-ness.

What does it mean for a teacher to "use" state assessment data? "Using state assessment data" could mean different things among high schools than my understanding from the district office or from professional research literature. I needed to talk to sample of teachers to ask them to describe how they use data in their own words.

What do high school teachers learn from state assessment data?

What sense do high school teachers make of state assessment data? Similar to the question above, I needed to ask teachers to describe what (if anything) they learn from state assessment data in their own words. How do state assessment data help high school teachers' classroom instruction?

For each of these questions, the focus is full understanding of a small number of cases (most often, people). Generalization to a large population is *NOT* the point of qualitative methods. Qualitative methods aim to understand what is ***deeply true of a small number of cases***.

## Your turn

Having considered the different angles for research in this case study, now think about your own problem of practice as it seems to you in your setting or milieu. Ideally this is your nascent capstone project.

Write down your guiding question/s that best capture your true interest. Use the Hemingway method to write "the truest possible" question/s.

Then consider the words you've used.

Are you looking to explore something that is not well understood? Do your questions seek understanding of *kinds*, *ways in which*, *processes*, *stages*, *distinctions*, *classes*, *forms*, and the like? Are these things you can average? (No?) Do you seek understanding of the mental *models*, *theories*, *understandings*, and the like, of how someone in your setting of interest perceives something, or understands what they're doing? Do you want their own words? Are

you interested in the "theory of action" behind a program or organization? Are you interested in *identities* and *self-understandings*? Are people's own *metaphors* interesting to you? Do you want to deal primarily with "words" data? If yes, then you may be primarily interested in qualitative methods.

Do you have a good enough understanding of your topic that you know what the *important factors* or *variables* are? Is one variable more important than another? Do you want a sense of *scope*, *estimate*, *size*, *frequency*, *magnitude*, *intensity*, *extent*, *prevalence*, *risk*, *predictability*, *regularity*, or *relationship*? Do you want to deal with primarily with "numbers" and "scale" data? If yes, then you may be primarily interested in quantitative methods.

Now a final word, for now, about mixed methods:

There are good reasons to use mixed methods. You may want to collect some qualitative data (from interviews, observations) from a few cases to more deeply understand something. With better firsthand understanding you can then develop more accurate survey items, frame more relevant questions and hypotheses, and test competing explanations of something.

My doctoral dissertation was de facto mixed methods. It began with qualitative work. From my role in the central office I knew a lot about my topic from a global perspective and from the professional literature, but I did not understand teacher work life very deeply. Interviewing a small sample of them helped me better understand my topic from their perspective. But I didn't stop there; I wanted to make generalizations to a population of teachers. Based on this more sophisticated understanding I was able to frame smarter research questions and better survey items and to specify and estimate more grounded statistical models. My quantitative dissertation study proper owes its quality to the preliminary qualitative work that informed it.

Mixed methods are possible, and may appeal to you philosophically: "Why choose between the two if I can do both? Wouldn't mixed methods make the most sense and do the most justice to the topic?" True enough. And what more appropriate laboratory for learning different research methods than your doctoral program? But to do any research method well is to negotiate a learning curve, and your time and energy are limited in this fast-paced doctoral program. Do factor that into your discernment of methods. Whatever you decide, I will help you as best I can.

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# 1 Summary

In summary, this book has no content whatsoever.

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# References