

Operationalizing Your Study With CLPRS

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Table of Contents

C: Clarify Your Research Question	2
L: Label Your Dependent Variable	2
P: Propose A Theory and Hypothesis	3
R: Represent Your Concepts As Quantities	3
S: State Your Hypothesis As A Testable Research Claim	4
Example: When Do People Sue Their City for Having Bad Sidewalks?	5
C: Clarify Your Research Question	5
L: Label Your Dependent Variable	5
P: Propose A Theory	5
R: Represent Your Concepts As Quantities	6
S: State your hypothesis as a testable research claim	7

Quantitative research can be a powerful tool for learning about the world. To get the most out of it, you need a clear research question. What exactly do you want to learn about the world? Once you have a question, you will probably imagine some potential answers to the question. This is your theory, or “hunch”. Quantitative research is at its best when it is used as an honest test of a hunch.

To get to a place where you can test whether your hunch is accurate, you have to first turn your abstract research question into a concrete, testable research claim. In general, a claim will sound something like “if my hunch is correct, I will see this pattern of results in my project”. You then compare the results of your project to your claim. If they match, you have provided evidence for your claim, and by extension your hunch; if they do not match, you have provided evidence against your claim, and by extension against your hunch too.

The process of turning a research question into a specific, concrete, testable claim is called *operationalization*. This all sounds very interesting, but how do I accomplish this? One way is to use CLPRS (“clippers”):

Clarify the research question

Label Your Dependent Variable

Propose a theory and hypothesis

Represent your variables as quantities

State your hypothesis as a testable research claim

If you follow CLPRS, you can work your way up to a clear research claim one step at a time. Then you can put your claim to the test and find out if you are right!

C: Clarify Your Research Question

The first step in CLPRS is to Clarify your research question. Sometimes you might be interested in a general topic, but don’t yet have a specific question you can answer. Quantitative data exists to answer questions, so it is no good to you if you don’t have a question in the first place. Answer the following questions to help you clarify your research question. Note that you might have to attempt this more than once - that’s perfectly normal!

Project Topic: What topic do you want to learn about, broadly speaking? Write it in one word or phrase:

Statement of Interest: What exactly do you want to know about this topic that I currently do not know? Write it in a sentence or two:

Research Question: Restate interest as a specific question. What question do you want your project to answer? Write it in one sentence:

L: Label Your Dependent Variable

Dependent Variable: What phenomenon do you want to explain, learn about, or influence?

P: Propose A Theory and Hypothesis

At this stage, you don't have to be too specific. Imagine for now that these questions are being asked by your friend's grandmother. Answer them in a way she could understand:

Theory: What do you think the answer to your research question could be, and why? In other words: based on your hunch, what is your proposed explanation for why the phenomenon (i.e., dependent variable) is the way it is? Write a two or three sentences:

Independent Variable: What do think might help you explain, learn about, or influence your dependent variable(s)?

Hypothesis: Assume your theory is true and accurate in reality. Assuming this, how would your independent variable(s) relate to your dependent variable? Write it down in a sentence or two (note: if OK if you have more than one hypothesis):

Counterfactual: Assume your theory is false and inaccurate. Assuming this, how would your independent variable(s) relate to your dependent variable? Write it down in a sentence or two:

R: Represent Your Concepts As Quantities

In the previous sections, you identified the independent and dependent variables of your study and hypothesized how they might relate to each other. Now you have to take those variables and represent them not as abstract concepts, but as concrete quantities that you can measure. In other words: Represent your concepts as numbers or labels that put the people you are studying into groups.

Start with your dependent variable - the concept you want to learn about or explain. Imagine you are talking to someone who has never heard of it before. How would you describe it to them? What would you say its core characteristics are, that any person could understand or recognize if they saw them? Write down three examples for your dependent variable:

- 1.
- 2.
- 3.

Repeat this for your independent variable:

- 1.
- 2.
- 3.

For each characteristic above, what is at least one way to attach a number or clear grouping label to it? If this is hard, sometimes it might help to imagine that you had to keep track of those characteristics in a spreadsheet or on a piece of paper. What would that look like? Start with your dependent variable:

- 1.
- 2.
- 3.

Repeat for your independent variable:

- 1.
- 2.
- 3.

S: State Your Hypothesis As A Testable Research Claim

So far, you have written a clear research question, identified its core concepts, stated your hypothesis about how the concepts relate to each other, and redefined those concepts as measurable independent and dependent variables.

The last step is to ReState your hypothesis as a testable research claim. Don't over think this part: earlier, you described how your independent and dependent variables would relate to each other both if your theory was accurate and if it was inaccurate. Now, you just want to describe how *measurements of your variables* would relate to each other. Just that one small change.

Hypothesis: If you assume your theory is true, then what happens to the value of your dependent variable when your independent variable changes?

Counterfactual: If you assume your theory is *not* true, then what happens to the value of your dependent variable when your independent variable changes?

You now have gone from research topic to a testable research claim! Now you can collect data, and see which of the hypotheses you've just written actually happens. If the pattern of your results best match the hypothesis, then you have evidence that your hunch was correct. If the pattern of results better matches the counterfactual, then you've provided evidence against your hunch. Either way, you have learned something new that you didn't know before. Be happy, no matter what the results, because you are now wiser than you were before!

Example: When Do People Sue Their City for Having Bad Sidewalks?

To show CLPRS in action, let's take a look at an example: *Slip n' Slide, A Guide: Media's Influence on Civil Tort Litigation in New York City*. This capstone project (available here) was inspired by the increasing rate of so-called "tort litigation" arising from injuries allegedly caused by sidewalk defects. To put in more simply: over time, people in New York City have been suing the city more often than they used to when a bad sidewalk caused them an injury, such as a sprained ankle. This researcher wanted to understand why people might be more likely than they used to to take up a lawsuit against for the city for injuries caused by bad sidewalks.

Although this researcher did not explicitly fill out this form themselves, let's pretend they did. These are the answers the researcher might have given. This can serve as an example for what useful answers to these questions might look like. Having these examples may help you come up with your own answers.

As a reminder, the process of CLPRS is as follows:

Clarify the research question

Label Your Dependent Variable

Propose a theory and hypothesis

Represent your variables as quantities

State your hypothesis as a testable research claim

C: Clarify Your Research Question

The first step in CLPRS is to Clarify your research question:

Project Topic: What topic do I want to learn about, broadly speaking? Write it in one word or phrase:

Personal injury tort litigation in new york city.

Statement of Interest: What exactly do I want to know about this topic that I currently do not know? Write it in a sentence or two:

I've recently learned that the number of tort lawsuits has increased. I would like to know why.

Research Question: Now that you know what your interests and goals are, restate them as a specific question. What question do you want your project to answer? Write it in one sentence:

Why are people filing more sidewalk injury lawsuits than they used to?

L: Label Your Dependent Variable

Dependent Variable: What specifically is the phenomenon that you want to explain, learn about, or influence?

Citizens' use of tort lawsuits.

P: Propose A Theory

Theory: What do you think the answer to your research question could be, and why? In other words: based on your hunch, what is your proposed explanation for the phenomenon (i.e., dependent variable) being the way it currently is? Write a two or three sentences:

My literature review shows that exposure to news about other lawsuits might be correlated with whether a person files a lawsuit themselves. So maybe whether a person files a lawsuit depends on whether their

awareness that they can sue if they wanted to. People might become aware when they read about lawsuits in the news, or hear an advertisement for legal services relevant to what happened to them, which would make them more likely to file a lawsuit. Also, lawsuits are perceived to be long and expensive, so people might think the cost of a lawsuit outweighs the benefit. However, when people have plenty of time and money themselves, they might feel more up to the task of filing a lawsuit, so will do so.

Independent Variable(s): Consider your theory that you just wrote. What specific factors(s) can you identify in your theory that might serve to explain, or influence, your dependent variable(s)?

- 1. whether a person learns about other lawsuits*
- 2. whether a person learns about legal services*
- 3. whether a person fears that lawsuits take too long or are too expensive*
- 4. whether a person has access to time and money*

Hypothesis: Assume your theory is true and accurate in reality. Assuming this, how might your independent variable(s) relate to your dependent variable? Write it down in a sentence or two (note: if OK if you have more than one hypothesis):

Your sentence will take the form: [independent variable] -> [how it relates to] -> [dependent variable]

- 1. When people who have been injured on the sidewalk learn about other similar lawsuits, they will be more likely to file a lawsuit themselves.*
- 2. When people learn about legal services relevant to their situation, those people might also be more likely to file a lawsuit.*
- 3. When people see lawsuits as expensive and time consuming, those people will be less likely to file a lawsuit.*
- 4. Lastly, people who have more time and/or money will be more likely to file a lawsuit, because they can afford it.*

Counterfactual: Assume your theory is *false* and inaccurate. Assuming this, how might your independent variable(s) relate to your dependent variable? Write it down in a sentence or two:

- 1. When people who have been injured on the sidewalk learn about other similar lawsuits, those people will not be more likely (or less likely) to file a lawsuit.*
- 2. When people who have been injured on the sidewalk learn about legal services relevant to their situation, those people will not be more likely (or less likely) to file a lawsuit.*
- 3. When people see lawsuits as expensive and time consuming, those people will be not be less likely (or more likely) to file a lawsuit.*
- 4. Lastly, people who have more time and/or money will not be more likely (or less likely) to file a lawsuit.*

R: Represent Your Concepts As Quantities

Now you have to take those variables and represent them not as abstract concepts, but as concrete quantities that you can measure. In other words: Represent your concepts as numbers or grouping labels.

Write down three examples for your dependent variable:

- 1. overall trend of lawsuits in the city*
- 2. whether or not a person who was injured on a sidewalk actually went on to file a lawsuit*
- 3. people's willingness to file a lawsuit if they were to be injured on the sidewalk*

Repeat this for your independent variable(s):

Exposure to other lawsuits or legal services:

1. *how often they talk to their friends*
2. *what their impression would be, hypothetically, of seeing someone winning a similar lawsuit in the media*
3. *whether or not they like to watch the Judge Judy courtroom TV show*

Fear of time and/or money:

1. *how afraid they say they are of spending time and money on a lawsuit*
2. *whether time or money are an obstacle to pursuing a lawsuit*
3. *ask them whether fear of time and/or money caused them to not pursue a lawsuit*

For each characteristic above, what is at least one way to attach a number or clear grouping label to it? Start with your dependent variable (bold indicates what the researcher actually does in their study):

1. *the number of lawsuits filed under the relevant category, in public records*
2. *label people who filed a lawsuit as "filers" and those who did not file one as "non-filers"*
3. *ask people how likely they would be to file a lawsuit if they got injured on the sidewalk, on a scale of 1 to 4, with 1 = "not very likely" and 4 = "very likely"*

Repeat for your independent variable(s):

Exposure to other lawsuits or legal services:

1. *the raw number of times people say they have spoken to friends or family about pursuing lawsuits*
2. *Ask them how likely media stories showing people winning lawsuits would influence their decision to file, on a 1 - 4 scale with 1 = not very likely and 4 = very likely*
3. *label people as "yes" or "no" for the question "do you regularly watch the Judge Judy courtroom TV show?"*

Fear of time and/or money:

1. *ask people how afraid they are of spending time and/or money on a lawsuit, with 1 = "not very afraid" and 4 = "very afraid"*
2. *ask them what their income is*
3. *label people as "yes" or "no" in response to the question "would lack of time and/or money prevent you from filing a lawsuit if you wanted to file one?"*

S: State your hypothesis as a testable research claim

The last step is to State your hypothesis as a testable research claim.

Hypothesis: If you assume your theory is true, then what happens to the value of your dependent variable when your independent variable changes?

1. *The higher someone scores on the question of how likely media stories showing people winning lawsuits would influence their decision to file, the higher their scores on the question that asks them how likely they would be to file a lawsuit following an injury.*
2. *The higher someone's income, the more likely they are to file a lawsuit.*

Counterfactual: If you assume your theory is *not* true, then what happens to the value of your dependent variable when your independent variable changes?

- 1. There is no relationship between the scores on the question of how likely media stories showing people winning lawsuits would influence their decision to file and the scores from the question that asks them how likely they would be to file a lawsuit following an injury.*
- 2. The higher someone's income, the less likely they are to file a lawsuit, or the income is unrelated to the scores on the question about likelihood of filing.*