

Chapter 3

Basic Principles

3.1 Introduction

More principles are proposed and an additional foray into modeling is provided.

3.2 The Hypothetico–deductive Method

The researcher should not start putting up hypotheses around his emerging model yet—it is too early. His model is like a baby—let it reach maturity before the baby is asked to go to Harvard. The researcher should also know that in many articles he reads, the model he sees was actually created *after* the results were obtained, so it would fit the data.¹ Some people admit to it as it is a reality of academic life. At least with his proposed methodology whereby he builds his model as time goes on, the researcher will never be accused of falling into this trap. This does not mean that he cannot formulate various assumptions²; he is still in an inductive stage and not yet in a hypothetical–deductive stage. Figure 3.1 shows where he is standing right now.

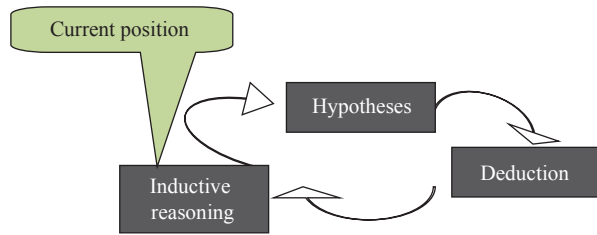
It is perfectly acceptable to resort to inductive reasoning and intuition. First and foremost, the researcher is searching for sensemaking.³ He should eventually use the hypothetico–deductive method, but this requires a large number of participants (approximately 135–200 at the very least).

¹ See Cossette (2007) and his idea on cooking up results and models, after he did research on the subject (p. 8).

² See Emory (1985, p. 26–27).

³ See Paillé and Mucchielli (2003, p. 9).

Fig. 3.1 A road map to building a model



3.3 Is Black or White?

It is far too early for the researcher to start discoursing on hypotheses as his key constructs have not yet been fully defined, despite the fact that he has identified at least some of the structural and functional variables.

The researcher has to define an object by what it is and what it is not. This helps delineate the area of investigation.⁴ It is also proof that he has thoroughly researched his topic.

It is important that he be able to say: “I researched the color white and I have discovered that white has the following properties: it is composed of a spectrum of colors that have the following wave lengths, etc. But there is more: I have also discovered, along the lines of authors so and so, that white is not black for the following reasons... I have decided to focus my attention on white, not black...”

It is crucial that he defines his core construct with what it is and what it is not. Remember that progress agrees with the contrasting ideas.⁵ In order to find contrasting cases, the researcher must dig into as wide a research environment as possible—this is considered a superior approach⁶.

3.4 Observables

To define constructs, the researcher must observe. What does he observe? He observes **“observables”**.⁷ An observable is something one can observe! Something one can see, hear, and touch. Can the researcher observe love? No. Love is a con-

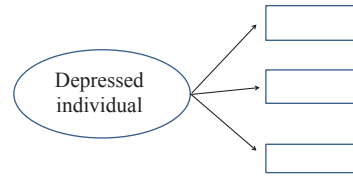
⁴ The researcher should try to find as many ways to define his topic as possible. For example, here are some descriptors that Ribstein gives to the same financial predators (2002–2003, p. 9): “Machiavellian, narcissistic, prevaricating, pathologically optimistic, free from self-doubt and moral distractions, willing to take great risk [...] obsession [...], intense”.

⁵ “... Science progresses through the accumulation of multiple confirming instances obtained under a wide variety of circumstances and conditions” (Anderson 1983, p. 19).

⁶ “...obtaining data from multiple informants has been recommended as superior to such an approach” (Wieseke et al. 2008, p. 324).

⁷ Multicriteria analysis uses the term “observable” and even recognizes that some phenomena are not observable, like thoughts.

Fig. 3.2 Observables



struct because it is not observable. What he can observe are behaviors that lead him to infer that love is present: two students in a public park constantly look each other in the eyes, touch hands, kiss, etc. All of these things are observables and are a pretty good indication that love is present. Gilbert (1992), for example, gives the following observables for parental acceptance: physical—kisses, hugs; and verbal—praise.

An observable is a behavior; it has movement. The Beck inventory is not composed of observables but rather of states of mind. If, instead of having a question asking whether the respondent feels his life was a failure or not, the question was: “I had x number of failures” (which could be counted and proven with facts), then these would be observables. What the researcher really observes is the change, the movement, not a construct or state of mind or an assumption about a state of mind. An observable is a movement that can be observed, that can be heard or filmed. Observables are behavioral expressions of structural or functional bubbles.

As a rule of thumb, they are represented as follows (Fig. 3.2):

Observables are graphically depicted by rectangles (never by bubbles, circles, rectangles with rounded corners, triangles, pentagons, etc.); there is a minimum of three observables per construct; and the arrows all start at the same point (because observables are not sensitive to time in relation to the construct they refer to). The researcher wants a minimum of three observables. In case two observables do not seem to agree on how they allow him to infer the latent construct, the third observable will resolve the debate just like a third judge would seal the decision on the winner in a boxing match after the first two judges arrive at a split decision.

Let us take anger, or more precisely an angry individual. How will the researcher know that there is an underlying construct of anger for this individual? By finding meaningful and measurable observables such as red face, aggressive tone, and pointing a finger. The researcher is not likely to conclude that the individual is happy if he sees these behaviors (these movements). Let us take a happy individual: he has a big smile on his face, he walks with his back upright, etc.

These are observables.

There is an additional level in the hierarchy of bubbles and observables, which is the level of clues. Clues are used mostly in forensic and anthropological studies. Judging from materials found at a scene, the forensic expert can start inferring behaviors, and then motives (a construct in itself). Similarly, archeologists look at mummies in Egypt and can infer the likelihood of Nefertiti being the possible biological mother of Tutankhamen and of having been assassinated by an archrival.

There are two types of observables. **General observables** pertain to a general context; for example, it is fair to assume that most, if not all, people smile when they

are happy. But the researcher can also use *specific observables*, which pertain to a specific context. For example, in extreme fighting sports, it is customary to bump chests to show victory; however, in a daycare center, it could be interpreted as a gesture of confrontation.

Unfortunately, not everything is observable (and some things can only be observed at a very high cost, such as using functional magnetic resonance imaging (*fMRI*) to detect a change in the brain in order to infer that a situation has affected the participant—this is referred here to *micro-observables*). A suicidal intention is not observable per se; hence, it is a very poor construct. The researcher could try to measure it by looking at the number of times Mrs. X, the suicidal patient, talks negatively about life, or the number of times she visits the gun store on an exploratory mission, or the number of times she clicks on relevant web sites. But these are rather difficult to measure and there is no guarantee that they really measure what the researcher wants to measure. Finding meaningful and measurable observables is a big challenge, yet it is absolutely necessary. From the observables, questions will be generated to become part of qualitative and quantitative studies using general or specialized questionnaires.

The researcher also runs the risk of participants trying to please him⁸ or trying to hide the truth when filling out a questionnaire; when the researcher observes, he can reasonably rest assured that the participants are not cheating (if they do not know he is observing them).

So the next big step after the researcher starts building his model is to make sure that his constructs can be related to meaningful, measurable observables. If not, it is a pretty good sign that his model does not stand firm and that his constructs are poor (they may be good, but poor from a research perspective).

By definition, observables are functional, as they are nontemporal expressions of the construct. This is important to keep in mind when the time to run statistical analyses comes. For obvious reasons, the researcher does not need to find observables for binary structural bubbles (bubbles that use (*Sb*) arrows).

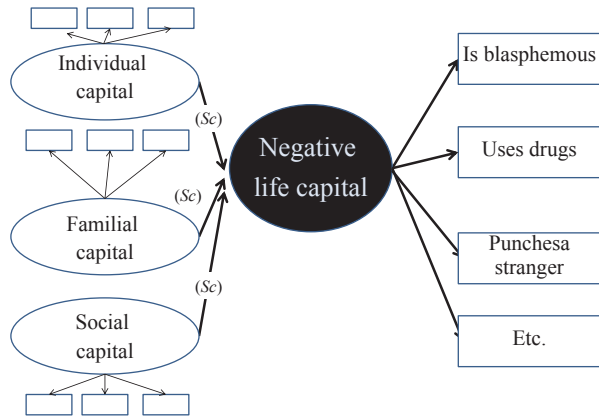
When he starts drawing observables around his initial constructs, his model will quickly become complex. See Fig. 3.3 as an example.

In the above example inspired by the works of Sylwester et al. (2013) discussing punishment at individual, group, and culture levels, a negative life capital is *formed* of three bubbles (individual, familial, and social capital) through structural arrows and each one of these three sub-constructs can be measured with at least three observables (do not use more than 9–13 observables; more than that would be unmanageable—one has to be able to visualize them all at once). In turn, negative life capital is measured by observables such as delinquent behavior (in a specific context, it could be further characterized, for example, by the breaking of a bottle of beer in the street during a riot) and drug use. A vice grip has been put around the concept of negative life capital.

Once the researcher has identified the meaningful and measurable observables, he will be able to construct qualitative and quantitative questionnaires.

⁸ What is called the Hawthorne effect.

Fig. 3.3 Possible observables



Suppose he collects a vast number of observables for his construct of predilection (with a minimum of three) and he does not know what to do with them. Here are a few tips that can help: he can conduct more observations on larger groups with the hope that some observations are found irrelevant, keeping only those that seem to be universal or consistent. Alternatively, he can merge some of the observables, estimating that they mean essentially the same thing. He can also try to connect these to some existing theory. For example, it may be the case that his observables fit well into an existing model, such as the Interest–Activity–Opinion or the perceived threat models. Finally, he can see if the observables belong to a sub-construct instead of to the main construct.

Once he starts identifying observables and testing them in the field with structured or unstructured interviews, he knows he is deeply rooted in reality, and he knows he is starting to talk the same language as the participants (who should validate his effort and final results).

One fundamental rule, as far as observables are concerned, is that the researcher should be able to express them with one subject, one verb, and one object at most (at times, an adverb, or adjective may be necessary).

3.5 Conclusion

The researcher should develop his skills for finding meaningful and measurable observables and expressing them properly.⁹ Modeling and listing observables is where he starts showing and proving that he works rigorously.

⁹ Nunnally and Bernstein (1994) identify five key criteria for questions (that derive from the observables). They must be: (1) meaningful; (2) relevant; (3) measurable; (4) objective; and (5) not linguistically inflated!

Let us turn now to a methodology called *data percolation*. The next chapter digs deeper into this exciting subject starting with why it is necessary: models quickly become very complex. There are many differences between data percolation and triangulation,¹⁰ even in its most advanced form.¹¹ To start, triangulation is essentially a post-research technique for analyzing data.

3.6 A Short Clinical Case

“In the course of my practice, I regularly come across significant changes in behaviors as the therapy session develops. For example, a patient may walk in my office and talk with a loud and energetic voice, his shoulders proudly occupying space, his discourse fast and self-confident, and his hand movement being both eloquent and matching his high spirits. However, as we dig deeper into his real emotions, the voice becomes more subdued, the shoulders fall, the hand gestures slow down and diminish in scale, and his eyes seem to focus more on the inside than on my presence. These are all observables that allow me to infer that the patient has moved from a posture (construct) of self-control to one of self-assessment that is filled with emotional experiences.” (Claire Poulin, psychologist 2014).

3.7 A Few Questions and Definitions

A few questions and definitions	
Observables	“When I was a kid, how did I know my parents were mad at me?”
List of words	Has a list of words, authors, and theories that are closely associated with the researcher’s key constructs been made?

3.8 A Few Keywords

A few keywords	
Observable	A physiological and/or behavioral change that can be detected and measured, and that is meaningful to the underlying construct, being its representation. Minimum of three per construct. Preferably in odd numbers. Maximum 13. They can be general or specific

¹⁰ Hall and Rist (1999, p. 297) refer to four types of triangulation: data, researcher, theory, and method.

¹¹ Robson 2002, p. 174.

3.9 A Few Tips

The researcher should:

- Start drawing bubbles
- Pull out his arrows
- Describe his model in as many ways as he can think of
- Describe his core constructs in as many ways as he can think of