

Assembling Reasons and Evidence

In this chapter we discuss two kinds of support for a claim: reasons and evidence. We show you how to distinguish the two, how to use reasons to organize your argument, and how to evaluate the quality of your evidence.

Readers look first for the core of an argument, a claim and its support. They look particularly at its set of reasons to judge its plausibility and their order to judge its logic. If they think those reasons make consecutive sense, they will look for the evidence they rest on, the bedrock of every argument. If they don't believe the evidence, they'll reject the reasons, and with them the claim.

So as you assemble the core of your argument, you must offer readers a plausible set of reasons, in a clear, logical order, based on evidence they will accept. This chapter shows you how to do that.

9.1 USING REASONS TO PLAN YOUR ARGUMENT

When you order your reasons, you outline the logical structure of your argument. You can do that in a traditional outline, but you may find it more useful to create a chartlike outline known as a “storyboard.” To start a storyboard, write your main claim and each reason (and subreason) at the top of separate cards or pages. Then below each reason (or subreason), list the evidence that supports it. If you don't have it yet, note the *kind* of evidence you'll need. Finally arrange the pages on a table or wall to make their logical relationships visible at a glance.



Read just the reasons across the tops of the pages to see if that order makes consecutive sense. If it doesn't, try out different orders until it does. Focus not on details, but on the major reasons; when you test different orders, move around whole reasons pages (and any connected pages). Don't worry if this chart makes your argument feel mechanical. At this point, it outlines only your argument, not your report. When you plan a first draft, you'll reconsider your reasons in light of your readers' understanding (and yours) and maybe plan a new order (for more on ordering parts, see 12.2.3).

9.2 DISTINGUISHING EVIDENCE FROM REASONS

Once you've arranged your reasons in a plausible order, be sure you have sufficient evidence to support each one. Readers will not accept a reason until they see it anchored in what *they* consider to be a bedrock of established fact.

The problem is, you don't get to decide that. Remember that to count as evidence, a statement must report a shared, public fact—what readers agree not to question, at least for the purposes of the argument. But if they do question it, what you think is hard factual evidence is for them only a reason, and you have not yet reached that bedrock of evidence on which your argument must rest.

Consider this little argument:

American higher education should review its “hands-off” policy toward off-campus drinking_{claim} because dangerous binge drinking has become a common behavior._{reason} **The injuries and death it causes have increased in frequency and intensity, not only at big “party” schools but among first-year students at small colleges.**_{evidence}

In that last sentence, the writer offers what she believes is a “fact” hard enough to serve as evidence to support her reason.

But a skeptical reader might ask, *That’s just a generalization. What hard numbers do you have to back up “increased in frequency and intensity”? How many schools do you have solid data on? And what do you mean by “big,” “party,” and “small”?* Such a reader treats that statement not as an unquestioned fact but as a soft reason still in need of hard evidence. The writer would have to add something like this:

In 2001–2006, there was a 19 percent increase in episodes of binge drinking resulting in death or injury by first-year students at a representative sample of small colleges (fewer than two thousand students; see appendix 1 for a list)._{evidence}

Of course a *really* skeptical reader could again ask, *What backs up those numbers?* If so, the writer would have to provide still harder data, the specific numbers for each school. If she did her own research, she could show her raw data and the questionnaires she used to gather them (which themselves might be subject to still more skeptical questioning). If she found her data in a secondary source, she could cite it and reproduce its data tables, but she might then be asked to prove that her source is reliable. Really skeptical readers just never give up.

If you can imagine readers plausibly asking, not once but many times, *How do you know that? What facts make it true?*, you have not yet reached what readers want—a bedrock of uncontested evidence. And at a time when so-called experts are quick to tell us what to do and think based on studies whose data we never see,

Careful readers have learned to view reports of evidence skeptically. Even when you think you have good evidence, be clear how it was collected and by whom. If it was collected by others, find and cite a source as close to the evidence as you can get.

OUR FOUNDATIONAL METAPHORS FOR EVIDENCE

When we talk about evidence, we typically use foundational metaphors: good evidence is *solid, hard, the bedrock foundation* on which we *build* arguments, something we can *see for ourselves*. Bad evidence is *flimsy, weak, or thin*. Language like that encourages readers to think of evidence as a reality independent of anyone's interpretation and judgment. But data are always constructed and shaped by those who collect and use them as evidence. As you build your argument, keep in mind that your evidence will *count* as evidence only if your readers accept it without question, at least for the moment.

9.3 DISTINGUISHING EVIDENCE FROM REPORTS OF IT

Now a complication that may seem to split hairs: we rarely include in any report *the evidence itself*. Even if you collect your own data, counting rabbits in a field or interviewing the unemployed, your report can only *refer to* or *represent* those rabbits and unemployed in words, numbers, tables, graphs, pictures, and so on. For example, when a prosecutor says in court, *Jones was a drug dealer, and here is the evidence to prove it*, he can hold up a bag of cocaine, even let jurors hold it in their own hands. (Of course, both he and the jurors must believe the officer who says it's the same bag he took from Jones and the chemist who says that the white stuff really is cocaine.) But when he *writes* a brief on the case, he cannot staple that bag to the page; he can only refer to or describe it.

In the same way, researchers cannot share with their readers "the evidence itself."

Emotions play a larger role in rationality than many think.^{claim} In fact, without the emotional centers of the brain, we could not make rational decisions.^{reason 1 supporting claim} Persons whose brains have suffered physical damage to their emotional centers cannot

make the simplest decisions^{•reason 2 supporting reason 1} For example, consider the case of Mr. Y, who . . .^{•report of evidence}

That argument doesn't offer as evidence real people with damaged brains; it can only report observations of their behavior, copies of their brain scans, tables of their reaction times, and so on. (In fact, we prefer to read reports of others than to have to test brains and read MRI scans ourselves.)

We know this distinction between evidence and reports of evidence must seem a fine one, but it emphasizes two important issues. First, data you take from a source have invariably been shaped by that source, not to misrepresent them, but to put them in a form that serves that source's ends. For example, suppose you want to show that the cult of celebrity distorts rational compensation, and you need evidence that athletes and entertainers are paid far more than top doctors, generals, and government officials. You could find government salaries in official reports. But unless you can peek at the tax returns of Oprah and Tiger Woods (and who knows how reliable they would be), you would have to depend on reports of those incomes that may or may not have been systematically collected and compiled from still more distant reports. Unless you can talk to those who counted, organized, and reported the original data, you'll be three or four removes from the evidence itself before you use it for your own purposes. (And at least one reporter in that chain of reports almost certainly miscopied some of the data.)

Second, when you in turn report that data as your own evidence, you cannot avoid manipulating them once again, at least by putting them in a new context. Even if you collected the data yourself, you tidied them up, making them seem more coherent than what you actually saw, counted, and recorded in your notes. In fact, even before you started collecting any facts at all, you had to decide what to count, how to categorize the numbers, how to order them, whether to present them in the form of a table, bar chart, or graph. Even photographs and video recordings reflect a

particular point of view. In short, facts are shaped by those who collect them and again by the intentions of those who use them.

This often squishy quality of reports of reports (of reports of reports) is why people who read lots of research are so demanding about the reliability of evidence. If you collect data yourself, they'll want to know how you did it. If you depend on sources, they'll expect you to use primary sources, and if you didn't, to get as close to them as you can. And they want complete citations and a bibliography so that they could, if they wanted to, look at your sources themselves. In short, they want to know that they can trust the complete chain of reports between what's "out there" and what they are reading.

We live in an age where we are all subjected to research reports and opinion surveys that are at best dubious and at worst faked, so you have to assure your readers that they can trust your data. The last link in that chain of credibility is you, so be thoughtful about whose data you use and how you use them.

TRUSTING EVIDENCE THREE HUNDRED YEARS AGO AND NOW

In the early days of experimental science, researchers conducted experiments before what they called "witnesses," reputable scientists who observed the experiments so that they could attest to the accuracy of the reported evidence. Researchers don't rely on witnesses anymore. Instead, each area of study has standardized its methodologies for collecting and reporting evidence to ensure that it is reliable (though some researchers still get away with fraud). When you observe the standard procedures in your field, you encourage readers to accept your evidence at your word, without their needing to see it themselves. So as you read secondary sources, note the kind of evidence they cite, how they cite it, then do likewise. When in sociology, do as sociologists do.

9.4 EVALUATING YOUR EVIDENCE

Once you know the kind of evidence your readers expect, you must test the reliability of yours: is it sufficient and representative, reported accurately and precisely, and taken from an authoritative

source? These are not exotic criteria unique to academic research. We all apply them in our most ordinary conversations, even with children. In the following, “P” faults “C” on all those criteria:

C: I need new sneakers.^{claim} Look. These are too small.^{evidence}

P: Your feet haven’t grown that much in a month, and they don’t seem to hurt you much [*i.e., your evidence could be relevant, but I reject it because it is not accurate and because even if it were accurate, “too small” is not sufficiently precise*].

C: But they’re too grungy for school.^{reason} Look at this dirt and these raggedy laces.^{evidence}

P: The dirt will wash off and the laces can be replaced. That’s not enough to buy new sneakers [*i.e., you may be factually correct, but dirt and raggedy laces alone are not sufficient evidence that they are unfit for school*].

C: They hurt.^{reason} Look at how I limp.^{evidence}

P: You were walking fine a minute ago [*i.e., your evidence is not representative*].

C: Everybody thinks I should get new sneakers.^{reason} Harry said so.^{evidence}

P: Harry’s opinion doesn’t matter in this house [*i.e., Harry may have said that, but his opinions are not authoritative*].

Readers judge reports of evidence by the same criteria P uses. They want evidence to be accurate, precise, sufficient, representative, and authoritative. (Readers also expect evidence to be *relevant*, but we’ll discuss that in chapter 11.) As you assemble your evidence, screen it for those criteria before you add it to your storyboard.

9.4.1 Report Evidence Accurately

Careful readers are predisposed to be skeptical, so they will seize on the most trivial mistake in your evidence as a sign of your irredeemable unreliability in everything else. Whether your paper depends on data collected in a lab, in the field, in the library, or online, record those data completely and clearly, then double-check

them before, as, and after you write them up. Getting the easy things right shows respect for your readers and is the best training for dealing with the hard things. You can sometimes use even questionable evidence, *if you acknowledge its dubious quality*. In fact, if you point to evidence that seems to support your claim but then reject it as unreliable, you show yourself to be cautious, self-critical, and thus trustworthy.

9.4.2 Be Appropriately Precise

Your readers want you to state your evidence precisely. They hear warning bells in words that so hedge your claim that they cannot assess its substance:

The Forest Service has spent **a great deal** of money to prevent forest fires, but there is still **a high probability** of **large, costly** ones.

How much money is *a great deal*? How probable is *a high probability*—30 percent? 80 percent? What counts as *large* and *costly*? Watch for words like *some*, *most*, *many*, *almost*, *often*, *usually*, *frequently*, *generally*, and so on. Such words can appropriately limit the breadth of a claim (see the Quick Tip in chapter 8), but they can also fudge it if the researcher didn't work hard enough to get the precise numbers.

What counts as precise, however, differs by field. A physicist measures the life of quarks in fractions of a nanosecond, so the tolerable margin of error is vanishingly small. A historian gauging when the Soviet Union was at the point of collapse would estimate it in months. A paleontologist might date a new species give or take tens of thousands of years. According to the standards of their fields, all three are appropriately precise. (Evidence can also be too precise. Only a foolhardy historian would assert that the Soviet Union reached its point of inevitable collapse at 2:13 p.m. on August 18, 1987.)

9.4.3 Provide Sufficient, Representative Evidence

Beginners typically offer too little evidence. They think they prove a claim with one quotation, one number, one personal experience

(though sometimes only one bit of evidence is sufficient to *disprove* it).

Shakespeare must have hated women because those in *Hamlet* and *Macbeth* are evil or weak.

Readers need more than that to accept such a significant claim.

Even if you offer lots of evidence, your readers still expect it to be *representative* of the full range of variation in what's available. The women in one or two Shakespearean plays do not represent all his women, any more than Shakespeare represents all Elizabethan drama. Readers are especially wary when your evidence is a small sample from a large body of data, as in surveys. Whenever you use sampled data, not only must your data *be* representative, but you must show that it is.

Different fields define and evaluate evidence differently. If you're a beginner, you'll need time to learn the kinds of evidence that readers in your field accept and reject. The most painful way to gain that experience is to be the object of their criticism. Less painful is to seek examples of arguments that failed because their evidence was judged unreliable. Listen to lectures and class discussions for the kinds of arguments that your instructors criticize because they think the evidence is weak. Failed arguments help you understand what counts as reliable better than do successful ones.