

9 Assembling Reasons and Evidence

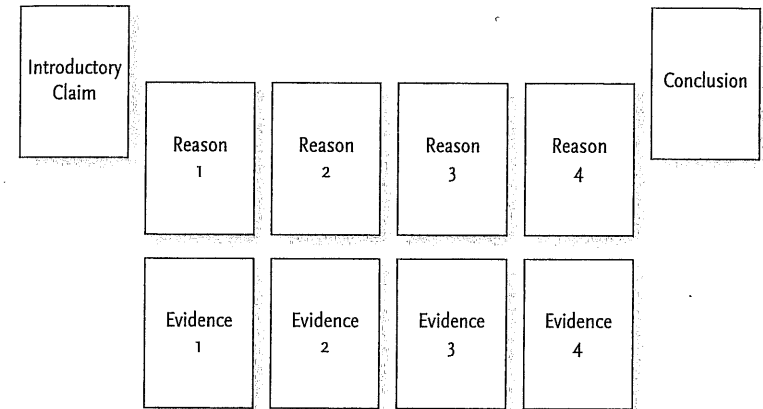
In this chapter, we discuss two kinds of support for a claim: reasons and evidence. We show you how to distinguish between the two, how to use reasons to organize your argument, and how to evaluate the quality of your evidence.

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 sense, they will look at the evidence you present, the bedrock of every argument. If they don't believe the evidence, they'll reject the reasons and, with them, your claim.

So as you assemble 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 build a logical structure for your argument. To test that structure, you can make a traditional outline or visualize your plan in other ways. You might find it useful to create a chart-like outline known as a "storyboard." To start a storyboard, write your main claim and each reason (and sub-reasons) at the top of separate index cards or pages. Then below each reason (or subreason), list the evidence that supports it. If you don't have the evidence yet, note the *kind* of evidence you'll need. Finally, arrange the pages or index cards on a table or wall to make their logical relationships visible at a glance.



Read just the reasons, not the details, to see if that order makes sense. If it doesn't, try out different orders until it does. At this point, you are outlining only your argument, not your paper. When you turn to a first draft, you will reconsider your reasons in light of your readers' understanding (and yours) and perhaps arrange a new order (for more on ordering parts, see 12.1.3).

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; your readers *do*. To count as evidence, a statement must report something that 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 argument:

American higher education must curb escalating tuition costs,*claim*
because the price of college is becoming an impediment to realizing the
American dream.*reason* **Today a majority of students leave college with**
a crushing debt burden.*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 “a majority of students” or “crushing debt burden”?* 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 2013, nearly 70 percent of students borrowed money for college with loans averaging \$30,000, a debt that prevents many from buying a home, beginning a family, or pursuing a higher degree.^{evidence}

Of course a *really* skeptical reader could again ask, *What backs up those numbers? What justifies the claim that this situation is a crisis?* If so, the writer would have to provide still harder data, breaking down those numbers to document the consequences of debt for recent graduates. If she did her own research, she could show her raw data. If she found her data in a secondary source, she could cite it, 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

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.

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.

9.3 DISTINGUISHING EVIDENCE FROM REPORTS OF IT

Now a complication: researchers 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 paper 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.” For example:

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 like 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 at 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 those 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 primary sources 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.

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.

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.

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, "Parent" faults "Child" on all those criteria:

CHILD: I need new sneakers.*claim* Look. These are too small.*evidence*

PARENT: 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*].

CHILD: But they're too grungy for school.*reason* Look at this dirt and these raggedy laces.*evidence*

PARENT: 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].

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

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

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

PARENT: 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 a parent uses with a child. 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 unreliability in everything else. Whether your research argument 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 hedge your claim in such a way 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 8.3), 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). For example:

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.

A charge related to the claim that your evidence is unrepresentative is that it is *anecdotal*. It *might* be representative but, then again, it might not. If your claim depends on one or two examples, however well-chosen to be representative, there is a risk that your evidence will be dismissed as a form of cherry-picking. Of course, anecdotal evidence can be persuasive in ways that statistical representations of data are not. The very persuasiveness of the telling example, the case study, or the exception that proves the rule makes argument by anecdote attractive but also risky because an argument is only as strong as its evidence.

9.4.4 Consider the Weight of Authority

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 that the evidence is weak. Failed arguments help you understand what counts as reliable better than do successful ones.

A particular kind of weak evidence comes from sources that readers do not consider authoritative. Early in the twentieth century, New Yorkers accepted the word of a local newspaper: "If you see it in the *Sun*, it's so." In general, readers assign degrees of authority to sources based on their reputation for rigor and objectivity. For example, most people will accept data on the transmission of viruses that a researcher obtains from the U.S. Centers for Disease Control as credible evidence, even allowing for the possibility of error. However, evidence from *Wikipedia* will not be accepted in many circles because *Wikipedia* is not regarded as authoritative. "Consider the source" is the skeptic's rebuttal to evidence dismissed for lack of authority.

10 Acknowledgments and Responses

An argument is not complete if it fails to recognize other points of view. This chapter shows how you can make your argument more convincing by acknowledging and responding to questions, objections, and alternatives your readers might raise.

The core of your argument is a claim backed by reasons based on evidence. You thicken it with more reasons, perhaps supporting each with additional subreasons and evidence. But if you give your readers only claims, reasons, and evidence—no matter how compelling these are to you—they may still find your argument thin or, worse, ignorant or dismissive of their views. To craft a successful argument, you must do more than assemble a sound edifice of claims, reasons, and evidence; you must also position those claims as contributions to an ongoing conversation in which your readers are invested (see chapter 7).

You can do this in your introduction by presenting your main claim as a solution to a problem your readers care about (we'll talk more about introductions in chapter 16). But you can do it throughout your argument as well by anticipating, acknowledging, and responding to questions, objections, and alternatives that your readers are likely to raise along the way. As you plan and draft your paper, your readers won't be there to question you or to offer their own views. So you have to *imagine* their questions and views and take them into account. That's how you establish a cooperative relationship with readers, by imagining yourself conversing with them.

In this chapter, we show you how to imagine and address two kinds of questions that readers may ask about your argument: