

get a new slant on your material. If your keywords no longer seem relevant, review your notes to create new keywords and reshuffle again.

5.7 Manage Moments of Normal Panic

This might be a good time to address a problem that afflicts even experienced researchers and at some point will probably afflict you. As you shuffle through hundreds of notes and a dozen lines of thought, you start feeling that you're not just spinning your wheels but spiraling down into a black hole of confusion, paralyzed by what seems to be an increasingly complex and unmanageable task.

The bad news is that there's no sure way to avoid such moments. The good news is that most of us have them and they pass. Yours will pass too if you keep moving along, following your plan, taking on small and manageable tasks instead of trying to get your head around the whole project. It's another reason to start early, to break a big project into its smallest steps, and to set achievable deadlines, such as a daily page quota when you draft.

6: Planning Your Argument

- 6.1 What a Research Argument Is and Is Not
- 6.2 Build Your Argument Around Answers to Readers' Questions
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 - 6.4.2 Acknowledging and Responding
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- 6.6 An Argument Assembled

Most of us would rather read sources than start to write a draft. But well before you've done all the research you'd like to do, you have to start thinking about the first draft of your paper. You might be ready when your storyboard is full and you're satisfied with how it looks. But you can't be certain until you start planning that first draft. Do that in two steps:

- Sort your notes into the elements of a research argument.
- Organize those elements into a coherent form.

In this chapter, we explain how to assemble the elements of your argument; in the next, how to organize them. As you gain experience, you'll learn to combine those two steps into one process.

6.1 What a Research Argument Is and Is Not

The word *argument* has bad associations these days, partly because radio and TV stage so many nasty ones. But the argument in a research paper is not the verbal combat we so often get from politicians and pundits. It doesn't try to intimidate an opponent into silence or submission. In fact, there's rarely an "opponent" at all. A research argument is like an amiable conversation in which you and your readers reason together to solve a problem. But those readers won't accept that solution until they hear a case for it: good reasons, reliable evidence that grounds those reasons, and your responses to their reasonable questions and reservations.

It is challenging enough to maintain a sense of amiable cooperation with others who do not share your views when you can talk face-to-face. But it is doubly difficult when you write, because you usually write alone. You have

to imagine your readers' role in that conversation: not only do you have to hold up your end, but your imagination has to hold up theirs. Your argument can answer your readers' questions only if you can first imagine those readers asking those questions for you to answer.

When readers hear traces of their questions in your written report, they recognize that you've thought not just about your views but about theirs as well. Remember this core principle of argument: Each of us can believe what we want, for whatever reason we want, but we have no right to ask others to believe it unless we can give them good reasons to do so, reasons that make sense *from their point of view*.

When you make a research argument, you must lay out your reasons and evidence so that your readers can see how you reasoned your way to a conclusion; then you must imagine their questions and answer them. That sounds challenging—and for a complex argument it can be. But it's more familiar than you may think, because in fact you have that kind of conversation every day.

6.2 Build Your Argument Around Answers to Readers' Questions

6.2.1 Identify (or Invent) Target Readers Interested in Your Question

You cannot anticipate your readers' questions unless you have a good idea of who they are and what they know. That's a problem for many class papers, since you have no obvious readers but your teacher—who isn't reading as herself (see the Caution below). That's why teachers often set up research papers so that your target readers are your classmates. If not, you have to select at least one target reader for yourself. Your best choice is someone you know who would be interested in your question and who knows as much about it as you did before you started your research. (Even better if you know two or more such people.) Have them in mind when you imagine your readers' questions. If you don't know such a person, invent one. The more you can imagine specific, familiar people asking you questions, the better your argument will be.

CAUTION

Write for Target Readers, Not Your Teacher

Your teacher may be your only reader, but don't write with only your teacher in mind. First of all, teachers generally judge papers not as themselves but from the point of view of your target readers, who know less than they do. Second, you risk making unconscious assumptions that distort your argument: you will fail to explain matters your teacher already understands but readers don't, fail to anticipate questions that readers might have but your teacher won't, and generally produce a paper that is fully suited neither to your teacher nor to your target readers. Once you identify your target readers, write only for them.

6.2.2

How Arguments Grow from Questions

You already know about asking the kinds of questions whose answers will compose your argument because you ask and answer them every day. Consider this exchange:

A: I hear you had a hard time last semester. How do you think this one will go?
[A poses a problem in the form of a question.]

B: Better, I hope. [B answers the question.]

A: Why so? [A asks for a reason to believe B's answer.]

B: I'm taking courses in my major. [B offers a reason.]

A: Like what? [A asks for evidence to back up B's reason.]

B: History of Art, Intro to Design. [B offers evidence to back up his reason.]

A: Why will taking courses in your major make a difference? [A doesn't see the relevance of B's reason to his claim that he will do better.]

B: When I take courses I'm interested in, I work harder. [B offers a general principle that relates his reason to his claim that he will do better.]

A: What about that math course you have to take? [A objects to B's reason.]

B: I know I had to drop it last time I took it, but I found a good tutor. [B acknowledges A's objection and responds to it.]

If you can see yourself as A or B, you'll find nothing new in the argument of a research report, because you build its argument out of the answers to those same five questions.

- What is your claim?
- What reasons support it?
- What evidence supports those reasons?
- How do you respond to objections and alternative views?
- How are your reasons relevant to your claim?

If you ask and answer those five questions, you can't guarantee that your readers will accept your claim, but you make it more likely that they'll treat it—and you—with respect.

6.3

Assemble the Core of Your Argument

At the core of your argument is your claim, supported by your reasons for believing it and the evidence that grounds those reasons. To that core you will add at least one more element: you must acknowledge and respond to your readers' questions, objections, and alternative points of view. Most students

find these elements easy to understand when they think of them in light of the predictable questions they answer:

What do you want me to believe?

Why should I believe that?

How do you know that's true?

What about my ideas on this matter?

The fifth element, a warrant, is less common and more difficult to understand and use; you can build perfectly adequate arguments without them. So if you struggle with them, focus on the four elements that your readers will always expect to see.

Before you address the views and concerns of your readers, you have to be clear about your own. So your first step is to assemble the claim, reasons, and evidence that make up the core of your argument.

6.3.1 Turn Your Working Hypothesis into a Claim

In the early stages of your research, your job was to find a question and imagine a tentative answer. We called that answer your *working hypothesis*—the most promising answer to your research question that you would keep around, but only on probation. Now that you think you can build a case to support that hypothesis, it's time to take it off probation and think of it as your *main claim*. That main claim is the center of your argument, the answer to your question, the point of your report (some teachers call it a *thesis*).

SOME TERMINOLOGY

Your Claim's Many Names

Every good research paper is built around a main idea, a most important result, a conceptual head honcho that dominates all the rest. It has many names because you have to think about it from many points of view. From the point of view of your problem statement, it is your *main result*, the *answer* to your question. Doing your research, call it your *working hypothesis*. Making your argument, call it your *main claim*. Organizing your paper, call it your *main point*. You need so many names for this one idea because it plays so many roles in your paper.

6.3.2 Evaluate Your Claim

Start a new first page of your storyboard (if you already have one, replace it). At the bottom, state your claim in a sentence or two. Be specific, because the words in this claim will help you plan and execute your draft. Avoid vague value words like *important*, *interesting*, *significant*, and the like. Compare the following two claims:

Masks play a big role in many religious ceremonies.

In cultures from pre-Columbian America to Africa and Asia, masks allow religious celebrants to bring deities to life so that worshippers experience them directly.

Now judge the *significance* of your claim (*So what?* again). A significant claim doesn't make a reader think, *I know that*, but rather, *Really? What makes you think so?* (Review 1.2.) These next claims are too trivial to justify writing a report on them:

This report discusses teaching popular legends such as the Battle of the Alamo to elementary school students. (*So what if it does?*)

Teaching our national history through popular legends such as the Battle of the Alamo is common in elementary education. (*So what if it is?*)

Of course, what your readers will count as interesting depends on what they know. But that's hard to predict when you're early in your research career. So don't think you've failed if you can't find a convincing answer to *So what?* If you're writing one of your first reports, assume that the most important judge of the significance of your argument is you. It is enough if *you alone* think your answer is significant, if it makes you think, *Well, I didn't understand that when I started*.

But if *you* think your claim is vague or trivial, don't try to build an argument to support it. If you can find no reason to make a case for your claim, neither will your readers. Find a new claim.

6.3.3 Support Your Claim with Reasons and Evidence

It may seem obvious that you must back up a claim with reasons and evidence. But it's easy to confuse those two words because we often use them as if they mean the same thing:

What reasons do you base your claim on?

What evidence do you base your claim on?

But they mean different things:

- We *think up logical* reasons, but we *collect factual* evidence; we don't *collect factual* reasons and *think up logical* evidence.
- We base reasons on evidence; we don't base evidence on reasons.
- A reason is an idea, and you don't have to cite its source (if you thought of it yourself). In contrast, evidence usually comes from outside your mind, so you must always cite a reliable source for it. Even if you found your evidence through your own observation or experiment, you must show what you did to find it.

In short: *Reasons are your ideas that need the support of evidence; evidence is composed of facts that need no support beyond a reference to a reliable source.*

The problem is that what you think is a true fact and therefore hard evidence, your readers might not. For example, suppose a researcher offers the following claim and reason, backed up by this “hard” evidence:

Early Alamo stories reflected values already in the American character.^{claim} The story almost instantly became a legend of American heroic sacrifice.^{reason} Jones reports that soon after the battle, many newspapers used the story to celebrate our heroic national character.^{evidence}

If readers accept that statement as an unquestioned fact, they may accept it as evidence. But a skeptical reader, the kind you should expect (even hope for), is likely to ask: *How many is “many”? Which newspapers? In news stories or editorials? What exactly did they say? How many papers didn't mention it? Even if they think Jones is a reliable source, they expect the researcher to offer more specific facts: the numbers behind “many,” the specific forms of “celebration,” perhaps even quotes from news stories.*

To be sure, we sometimes accept a claim based only on a reason, if that reason seems self-evidently true or is from a trusted authority:

We are all created equal,^{reason} so no one has a natural right to oppress us.^{claim}

Instructors in introductory courses often let students support reasons with no more than the reports of an authoritative source: *Wilson says X about religious masks, Yang says Y, Schmidt says Z.* Find out from your teacher if you can use the claims of authorities as evidence. But when you do more advanced work, you have to look for harder evidence than the word of an authority. Readers want evidence drawn not from a secondary source but from primary sources or your own observation (see 4.1).

Review your storyboard: Can you back up each reason with what your readers will think is evidence of the right kind, quantity, and quality? Might your readers think that what you offer as evidence needs more support? Or a better source? If so, you must find more data or acknowledge the limits of what you have.

Your claim, reasons, and evidence make up the core of your argument, but it needs at least one more element, maybe two.

6.4 Acknowledge and Respond to Readers' Points of View

Recall that we said a written argument is not a one-sided lecture to passive listeners but a two-sided conversation in which you speak with and for your readers. No argument is complete that fails to bring in your readers' points of view. You must acknowledge your readers by *imagining* questions and objections on their behalf, then by answering them.

6.4.1 Imagining Readers' Views

Readers raise two kinds of questions; try to imagine and respond to both.

1. The first kind of question points to problems *inside* your argument, usually its evidence.

Imagine a reader making any of these criticisms of your evidence. If one of them might be reasonable, construct a mini-argument in response:

- Your evidence is from an unreliable or out-of-date source.
- Your evidence is inaccurate.
- You don't have enough evidence.
- What you report doesn't fairly represent all the evidence available.
- You have the wrong kind of evidence for our field.

Then imagine these kinds of objections to your reasons. If one of them might be reasonable, construct a mini-argument in response:

- Your reasons are inconsistent or contradictory.
- You don't have enough reasons.
- They are too weak to support your claim.
- They are irrelevant to your claim and so do not *count* as reasons (see 6.5).

2. The second kind of question points to problems *outside* your argument. Those who see the world differently are likely to define words differently, reason differently, even offer evidence that you think is irrelevant.

Don't treat these differing points of view simply as objections. You'll lose readers if you insist that your view is right and theirs is wrong. Instead, acknowledge the differences, then compare them so that readers can understand your argument on its own terms. They might not agree, but you'll show them that you understand and respect their views. They are then more likely to respect and try to understand yours.

If you're a new researcher, you'll find these questions hard to imagine because you might not know how in fact your readers' views differ from your own. Even so, try to think of some plausible questions and objections and then respond to them. It's important to get into the habit of asking yourself, *What could cast doubt on my claim?*

But when you do more advanced work, you will be expected to know the issues that others in your field are likely to raise. So practice imagining and responding to disagreements. Even if you just go through the motions, you'll cultivate a habit of mind that your readers will respect and that may keep you from jumping to questionable conclusions.

Add those acknowledgments and responses to your storyboard where you think readers will raise them.

WORKING IN GROUPS

Ask Friends to Object

If you cannot imagine objections or alternatives to your argument, enlist help from your writing group. Ask them to read your draft and make the longest list they can of objections, alternative conclusions, different interpretations of evidence, and so on. Ask them not to censor themselves—you want even their nuttiest ideas. You may find in their views a question to acknowledge and respond to; and if not, their list might give you an idea of your own.

6.4.2

Acknowledging and Responding

When you acknowledge an anticipated question or objection, you can give it more or less weight. You can mention and dismiss it, summarize it quickly, or address it at length. Do not dismiss a position that your readers take seriously; do not address at length one for which you have no good response.

Standard Forms for Acknowledging

We order these expressions from most dismissive to most respectful. (Brackets and slashes indicate choices.)

1. You can downplay an alternative by summarizing it in a short phrase introduced with *despite*, *regardless of*, or *notwithstanding*.

[**Despite / Regardless of / Notwithstanding**] Congress's claims that it wants to cut taxes_{acknowledgment} the public believes that..._{response}

You can use *although*, *while*, and *even though* in the same way:

[**Although / While / Even though**] Congress claims it wants to cut taxes_{acknowledgment} the public believes that..._{response}

2. You can signal an alternative with *seem* or *appear*, or with a qualifying adverb, such as *plausibly*, *reasonably*, *understandably*, *surprisingly*, *foolishly*, or even *certainly*.

In his letters, Lincoln expresses what [**seems / appears**] to be depression_{acknowledgment}. But those who observed him..._{response}

Liberals [**plausibly / reasonably / foolishly / etc.**] argue that the arts ought to be supported by taxes_{acknowledgment}. But we all know..._{response}

3. You can acknowledge an alternative without naming its source. This gives it just a little weight.

It is easy to [**think / imagine / say / claim / argue**] that taxes should...

There is [**another / alternative / possible / standard**] [**explanation / argument / possibility**]...

Some evidence [**might / can / could / would / does**] [**suggest / indicate / lead some to think**] that we should...

4. You can acknowledge an alternative by attributing it to a more or less specific source. This construction gives it more weight.

There are [**some / many / few**] who [**might / could / would**] [**say / think / claim / charge / object**] that Cuba is not...

[**Most / Many / Some / A few**] administrators [**say / think / claim / charge / object**] that researchers...

Jones [**says / thinks / claims / charges / objects**] that students...

5. You can acknowledge an alternative in your own voice or with concessive adverbs such as *admittedly*, *granted*, *to be sure*, and so on. This construction concedes that the alternative has some validity, but by changing the words, you can qualify how much validity you acknowledge.

I [**understand / know / realize / appreciate**] that liberals believe in...

It is [**true / possible / likely / certain / must be admitted**] that no good evidence proves that coffee causes cancer...

[**Granted / Admittedly / True / To be sure / Certainly / Of course**], Adams stated...

We [**could / can / might / would**] [**say / argue / claim / think**] that spending on the arts supports pornographic...

We have to [**consider / raise**] the [**question / possibility / probability**] that further study [**could / might / will**] show crime has not...

We cannot [**overlook / ignore / dismiss / reject**] the fact that Cuba was...

Readers use the words of your acknowledgment to judge how seriously you take an objection or alternative. But they will base that judgment even more on the nature of your response. If your readers think an alternative is a serious one, they expect you to respond to it in some detail, including reasons and evidence to support that response. Do not dismiss or attack a position that your readers believe strongly: if you cannot make a convincing argument against it, simply show how it differs from yours and explain why you believe as you do.

Standard Forms for Introducing Responses

You can respond in ways that range from tactfully indirect to blunt.

1. You can state that you don't entirely understand:

But I do not quite understand... / I find it difficult to see how... / It is not clear to me that...

2. Or you can state that there are unsettled issues:

But there are other issues . . . / There remains the problem of . . .

3. You can respond more bluntly by claiming the acknowledged position is irrelevant or unreliable:

But as insightful as that point may be, it [ignores / is irrelevant to] the issue at hand.

But the evidence is [unreliable / shaky / thin / not the best available].

But the argument is [untenable / wrong / weak / confused / simplistic].

But that view [overlooks / ignores / misses] key factors.

But that position is based on [unreliable / faulty / weak / confused] [reasoning / evidence].

6.5 Use Warrants if Readers Question the Relevance of Your Reasons

Sometimes readers question an argument not because they object to its evidence or see an alternative interpretation of events, but because they cannot see its logic. Consider this argument, made by the ex-basketball star and TV commentator Charles Barkley:

I should not be held to a higher standard in my behavior_{claim} because I never put myself forward as a role model for kids_{reason}.

He was immediately criticized. His critics agreed that his reason was true: In fact, Barkley never claimed to be a role model. But, they said, that reason was irrelevant: He was a role model to be held to a higher standard, whether he asked for it or not.

Barkley and his critics did not disagree about evidence or reasons: all agreed that Barkley had never asked to be a role model. What they disagreed about was the underlying principle of reasoning that should apply to that fact. For Barkley, the principle was something like this:

Whenever someone does not ask to be a role model, he is not responsible to meet the standard of behavior applied to role models.

But the critics applied a different principle:

Whenever someone willingly engages in an activity that makes him famous and admired, he is a role model whether he asked for it or not.

If we think Barkley's principle is the right one, then we must accept his claim; if we think the critics have the right principle, then we must reject his and accept theirs.

A warrant is a general principle that if one thing is true, then something else must also be true. It answers those who believe that your reasons are true but still don't see why they should accept your claim: they think your reasons are *irrelevant* to believing your claim because they do not know (or accept) the principle of reasoning that connects them.

As we said, warrants are less common than the other parts of argument. They are used most often when an argument is about politics and morality (where people hold many contradictory principles) or when an expert makes an argument for lay readers (because experts know lots of principles that lay readers may not).

CAUTION

Don't Let Warrants Intimidate You

If warrants still seem confusing, don't be dismayed. Warrants are most important when you write for readers who think in ways very different from you. They are least important when your readers are a lot like you. Since you're likely to have target readers who do think more or less as you do, you may not need warrants at all. So if one comes to mind as you draft, include it. But don't try to force yourself to include warrants. As you become more experienced and tackle more advanced research projects, you can revisit the issue of warrants and their uses.

6.6 An Argument Assembled

Here is a small argument that pulls together all five parts:

TV aimed at children can aid their intellectual development, but that contribution has been offset by a factor that could damage their emotional development—too much violence_{claim}. Parents agree that example is an important influence on a child's development. That's why parents tell their children stories about heroes. It seems plausible, then, that when children see degrading behavior, they will be affected by it as well_{warrant}. In a single day, children see countless examples of violence_{reason}. Every day the average child watches almost four hours of TV and sees about twelve acts of violence (Smith 1992)_{evidence}. Tarnov has shown that children don't confuse cartoon violence with real life (2003)_{acknowledgment of alternative point of view}. But that may make children more vulnerable to violence in other shows. If they only distinguish between cartoons and people, they may think real actors engaged in graphic violence represent real life_{response}. We cannot ignore the possibility that TV violence encourages the development of violent adults_{claim restated}.

Most of those elements could be expanded to many paragraphs.

Arguments in different fields look different, but they all consist of answers to just these five questions:

- What are you claiming?
- What are your reasons?
- What evidence supports your reasons?
- But what about other points of view?
- How are your reasons relevant to your claim?

Your storyboard should answer those questions many times. If it doesn't, your paper will seem thin and unconvincing.

7: Planning a First Draft

7.1 Unhelpful Plans to Avoid

7.2 Create a Plan That Meets Your Readers' Needs

7.2.1 Converting a Storyboard into an Outline

7.2.2 Sketch a Working Introduction

7.2.3 Identify Key Terms That Unite Your Paper

7.2.4 Find the Key Terms Distinctive to Each Section

7.2.5 Order Your Sections by Ordering Your Reasons

7.2.6 Sketch a Brief Introduction to Each Section and Subsection

7.2.7 Sketch in Evidence and Acknowledgments

Once you assemble your argument, you might be ready to write your draft. But experienced writers know that the time they invest in planning a draft more than pays off when they write it. Some plans, however, are better than others.

WORKING IN GROUPS

Organize a Writing Group

If you haven't done it yet, now is the time to organize a writing group of three to five classmates (no more). If you already have a group, now is the time to get to work seriously. Plan to meet once or, if your deadline is near, twice a week. Have an agenda that reflects your stage in the process of research and writing. Start every meeting with elevator stories (see 3.2.3). If your storyboard is starting to fill up, bring it to the meeting. Although your colleagues' suggestions are always welcome, your goal early on is to have someone willing to listen and respond to your ideas. The sooner you get those ideas out of your mind and into the light of day, the better you will know how well you really understand them.

7.1 Unhelpful Plans to Avoid

Do not organize your report in any of these three ways:

1. Do not organize it as a story of your research, especially not as a mystery, with your claim revealed at the end. Readers care about what you found, not every step it took you to get there. You see signs of that in language like *The first issue was . . . Then I compared . . . Finally I conclude . . .*
2. Do not patch together quotations, summaries of sources, or downloads from the web. Teachers want to see *your* thinking, not that of others. They *really* dislike reports that read like a collage of web screens. Do that, and you'll seem not only an amateur but, worse, a plagiarist (see 10.3).

3. Do not mechanically organize your paper around the terms of your assignment or the most obvious elements of your topic.
 - If your assignment lists issues to cover, don't think you must address them in the order given.
 - If you decide to compare and contrast Freud's and Jung's analyses of the imagination, avoid organizing your report in the two most obvious parts, the first on Freud, the second on Jung. Break those two big topics into their parts, then organize your report around them.

7.2 Create a Plan That Meets Your Readers' Needs

Some fields require a preset plan for a report. Readers in the experimental sciences, for example, expect reports to follow some version of this:

Introduction—Methods and Materials—Results—Discussion—Conclusion

If you must follow a preset plan, ask your instructor for a model. But if you are left to create one on your own, it must not only make sense to readers; it must be *visible* to them. To create a visible form, go back to your storyboard or outline.

7.2.1 Converting a Storyboard into an Outline

Your best tool for planning a draft is your storyboard. But if you prefer to work from an outline, you can turn your storyboard into one:

- Start with a sentence numbered *I* that states your claim.
- Add full sentences under it numbered *II*, *III* . . . , each of which states a reason from the top of a reason page in your storyboard.
- Under each reason, use capital letters to list sentences summarizing your evidence; then list by numbers the evidence itself. For example (the data are invented for the illustration):

I. Introduction: Value of classroom computers for writing is uncertain.

II. Different uses have different effects.

A. All uses increase number of words produced.

1. Study 1: 950 vs. 780
2. Study 2: 1,103 vs. 922

B. Labs allow students to interact.

III. Studies show limited benefit on revision.

A. Study A: writers on computers are more wordy.

1. Average of 2.3 more words per sentence
2. Average of 20% more words per essay

B. Study B: writers need hard copy to revise effectively.

1. 22% fewer typos when done on hard copy vs. computer screen
2. 2.26% fewer spelling errors

IV. Conclusion: Too soon to tell how much computers improve learning.

- A. Few reliable empirical studies
- B. Little history because many programs are in transition

7.2.2 Sketch a Working Introduction

Write your introduction twice: write a sketchy one now for yourself and a final one for your readers after you've revised your draft and know what you have written. That final introduction usually has four parts, so you might as well build your working introduction to anticipate them.

Create a Four-Part Scheme for Your Introduction

For now, think of your introduction as having these parts:

1. Current Situation (what your readers now think or do)
2. Research Question (what your readers need to know but don't)
3. Significance of the Question (your answer to *So what?*)
4. Answer (what your readers should know)

(We explain these parts more fully in 13.1.) In this section we explain how to sketch them in your storyboard.

If you followed our earlier suggestion, you have written your main claim at the bottom of the first page of your storyboard. Now fill in the page above it with what leads up to that claim.

1. At the top of the page state the **Current Situation** that your question will disrupt.

Since the centerpiece of your introduction is your disruptive research question, you first have to offer readers something for your question to disrupt. Briefly state what your readers (or others) believe that you will challenge with your question (you might review the examples in 2.4). Think of this as the first half of a contradiction:

I used to think . . . , but . . .

Most people think . . . , but . . .

What events seem to show is . . . , but . . .

Researchers have shown . . . , but . . .

For example, you might set up a question about the Alamo by asking readers to think about its status as a national legend. You can state that in terms of

- what you believed before you began your research (*I used to think . . .*)

I always thought of the Battle of the Alamo as a major event in our nation's history.

- what others believe (*Most people think . . .*)

The Battle of the Alamo has always been treated as a major historical event, not only in history textbooks but in popular culture as well.

- an event or situation (*What events seem to show is . . .*)

In 2004 the blockbuster film *The Alamo* was nominated for the Harry Award for promoting the public understanding of a historical event. That film was a remake of a 1960 film by the same name, which was nominated for seven Oscars and won one.

- what other researchers have found (*Researchers have shown . . .*)

What really happened at the Alamo is well known. Historians have uncovered almost every detail relevant to understanding the true Alamo story.

If you are ambitious, you can make this part of your introduction a *literature review* in which you summarize the major research leading up to your paper. If so, do *not* cover all the sources you find. Instead, summarize only those whose findings you intend to extend, modify, or correct.

2. Under that, rephrase your **Research Question** as a statement about what we don't know or understand in light of the Current Situation. Since this is the second half of the contradiction, it should start with *but* or *however*.

Research Question:

Why has the story of the minor regional battle at the Alamo become a national legend?

Problem Statements:

I always thought of the Battle of the Alamo as a major event in our nation's history. **But** the Alamo was a minor regional battle that somehow became a national legend.

What really happened at the Alamo is well known. Historians have uncovered almost every detail relevant to understanding the true Alamo story. **But** few historians have tried to explain why this minor regional battle has become so important in our national mythology.

Writers do this in many ways, so as you read, note how your sources do it, then use them as models.

3. Next, if you can, explain the **Significance** of your question by answering *So what if we don't find out?*

If we can explain how the Alamo became a national legend, we can better understand how American culture has fostered a feeling of national unity in a diverse population that shares relatively little history.

At this point in your career, you may find any larger significance to your answer hard to imagine. If so, you can state the significance in terms of the themes of your class:

If we can explain how the Alamo became a national legend, we can better understand the issues of American identity and diversity.

If that doesn't work for you yet, don't dwell on it. We'll return to it in 13.1.3.

4. Revise your claim as the **Answer** to the question, in terms that match those of the first three parts:

The Alamo became a national legend not because it was important to the history of the United States or even to the history of Texas, but because it reflected both the traditional virtue of heroic self-sacrifice and the frontier virtue of self-reliance.

For now, you should leave that answer at the bottom of the introduction page of your storyboard. Later you might decide to move it from the end of the introduction to the conclusion so that your paper can build up to it as a climax. That's generally a bad idea, but you can confront that issue later.

CAUTION

Don't Fear Giving Away Your Answer

Some new researchers fear that if they reveal their claim early, in their introduction, readers will be bored and stop reading. Others worry about repeating themselves. Both fears are baseless. If you ask an interesting question, readers will want to see how well you can support its answer.

7.2.3

Identify Key Terms That Unite Your Paper

Readers will feel that your paper is coherent only if you repeat a few key concepts that run through all of its parts. But readers may not recognize that you have repeated those concepts if you use lots of different words to name them.

Suppose, for example, you were writing a paper about white artists "covering" African American music in the '50s and '60s. Your paper would have as one organizing theme the concept of fairness. But readers might miss the connection if you use too many different words and phrases to name it: *fair use, reasonable economic benefits of their work, social equity, similar access to radio play, exclusive concert venues, recording contracts that are unfavorable to artists, unequal economic power*. Although these all relate to your theme of fairness, readers might not make that connection in each case. You would help them if more of those references included your key term *fair*: *not economic benefits of their*

work, but *fair economic return for their work*; not *similar access to radio play*, but *fair and equal access to radio play*.

Your readers need to see one specific term that repeatedly refers to each concept that serves as an organizing theme for your paper, not every time you mention the concept, but often enough that readers can't miss the connection.

Before you start drafting, identify the key concepts that you intend to run through your whole report. For each concept, select one term that you will use most often. As you draft, you may find new themes and drop some old ones, but you'll write more coherently if you keep your most important terms and concepts in the front of your mind.

How to Identify Global Concepts to Unite the Whole Paper

1. On the introduction and conclusion pages of your storyboard, circle four or five words that name your key concepts. You should find those words in your claim.

- Ignore words obviously connected to your topic: *Alamo, battle, defeat*.
- Focus on concepts that you bring to the argument and intend to develop: *frontier self-reliance, triumph in loss, heroic sacrifice, national spirit*, and so on.

2. For each concept, select one key term that you can run through the body of your paper. It can be one of your circled words or a new one. If you find few words that can serve as key terms, your claim may be too general (review 6.3.2).

As you draft, keep a list of those terms in front of you. They will help you keep yourself—and therefore your readers—on track. If you find yourself drafting two or more pages without those terms, don't just wrench yourself back to using them. You might be discovering a new trail that's worth following.

7.2.4 Find the Key Terms Distinctive to Each Section

Now do the same thing for each section: Find the key terms that unify the section and distinguish it from the others. Circle the important words in the reason at the top of each reason page. Some of them should be related to the words circled in the introduction and conclusion. The rest should identify concepts that distinguish that section from all the others. If you cannot find key terms to distinguish a section, think hard about what that section contributes to the whole. Readers may think it repetitive or irrelevant.

Even if papers in your field don't use subheads, we recommend that you

use them in your drafts. Create a subhead for each section out of the key terms you identified in that section. If your field dislikes subheads, use them to keep yourself on track, then delete them from your last draft.

7.2.5

Order Your Sections by Ordering Your Reasons

When you first assemble your argument, you don't have to put your reasons in any special order (one benefit of a storyboard). But when you plan a draft, you must choose an order that meets your readers' needs.

Some Standard Principles of Order

When you're not sure how best to order your reasons, consider these options. You can choose orders that reflect what's "out there":

- **Chronological.** This is the easiest, from earlier to later, or vice versa.
- **Part by part.** If you analyze your topic by its parts, order them by their relationship to one another.

Other orders reflect the needs of your readers:

- **Short to long, simple to complex.** Most readers prefer to deal with simpler issues before they work through more complex ones.
- **More familiar to less familiar.** Most readers prefer to read what they know about before they read what's new.
- **Most acceptable to most contestable.** Most readers move more easily from what they agree with to what they don't.
- **Less important to more important (or vice versa).** Most readers prefer to cover more important reasons first (but those reasons may have more impact when they come last).
- **Step-by-step understanding.** Readers may need you to explain some events, principles, definitions, and so on before they are ready to understand what's most important.

To test an order, create one paragraph that includes just your reasons in the order you want to test. If that paragraph reads like a convincing elevator story (test it on your writing group or a friend), then you have found a usable order.

Often the principles cooperate: what readers agree with and most easily understand might also be shortest and most familiar. But they may also conflict: reasons that readers understand most easily might be the ones they reject most quickly; what you think is your most decisive reason might to readers seem least familiar. No rules here, only principles of choice. Whatever order you choose, it should be one that meets your readers' needs, not the order in which ideas occurred to you.

7.2.6 Sketch a Brief Introduction to Each Section and Subsection

Just as your paper needs an introduction that frames what follows, so does each section. This introductory segment should end with a sentence expressing the point of that section (usually a reason). That sentence should also mention the key concepts for that section.

7.2.7 Sketch in Evidence and Acknowledgments

Flesh out the parts of each section by filling in the storybook page for each major reason. Remember that a section may include sub-points that must be supported by mini sub-arguments.

EVIDENCE. Most sections consist primarily of evidence supporting reasons, so sketch the supporting evidence at the bottom of each reason page. If you have different kinds of evidence supporting the same reason, group and order them in a way that makes sense to your readers.

EXPLANATIONS OF EVIDENCE. You may have to explain your evidence—where it came from, why it's reliable, how it supports a reason. Usually, these explanations follow the evidence, but you can sketch them before, if that seems more logical.

ACKNOWLEDGMENTS AND RESPONSES. Imagine what readers might object to and where, then sketch a response. Responses are typically sub-arguments with at least a claim and reasons (*Some researchers have said . . . , but I believe _____ because . . .*); they often include evidence and maybe even a second response to an imagined objection to your first response.

Writers in different fields arrange these elements in slightly different ways, but the elements themselves and their principles of organization are the same in just about every field or profession. And in every research report, regardless of field, you must order the parts of your argument not just to reflect your own thinking, but to help your readers understand it.

QUICK TIP**Save the Leftovers**

Once you have a plan, you should discover that you have material that doesn't fit into it. That's a good thing: research is like diamond mining—you have to dig up a lot of dirt to find a few gems. So be glad about your leftovers. If you don't have any, you haven't done enough research.

Resist the temptation to shoehorn the leftovers into your report, thinking that if you found it, your readers should read it. File them away for future use. They may contain the seeds of another project.

8: Drafting Your Paper

8.1 Draft in a Way That Feels Comfortable**8.2 Picture Your Readers Asking Friendly Questions****8.3 Be Open to Surprises and Changes****8.4 Develop Productive Drafting Habits****8.5 Work through Writer's Block****8.6 Preparing an Oral Report****8.6.1 Prepare Notes, Not a Script****8.6.2 Write Out a Complete Introduction and Conclusion****8.6.3 Make the Body of Your Notes an Outline**

Many inexperienced writers think that once they have an outline or storyboard, they can just write it up, grinding out sentences for a draft. And if you've followed our advice to write as you gather evidence, you may think that you can plug that exploratory writing into your draft. Experienced writers know better. They know that thoughtful drafting is an act of discovery that an outline or storyboard may prepare them for, but can never replace. So they don't expect to reuse their early writing without change or to follow their storyboard mindlessly.

In fact, most writers don't know what they *can* think until they see it appear on the page before them. You'll experience one of the most exciting moments in research when you discover yourself writing out ideas that you did not know you had. So don't look at drafting as just translating your storyboard into words. Think of it as an opportunity to discover what your storyboard has missed.

8.1 Draft in a Way That Feels Comfortable

Experienced writers draft in different ways. Some are slow and careful: they have to get every paragraph right before they start the next one. But to do that, they need a specific, complete plan. So if you draft slowly, plan carefully. Other writers let the words flow, skipping ahead when they get stuck, omitting quotations, statistics, and so on that they know they can plug in later. If they are stopped by a trivial stylistic issue like whether to write out a number in words or numerals, they insert a [?] and keep going until they run out of gas, then go back and fix it. But quick drafters need time to revise. So if you draft quickly, start early.

Most experienced writers draft quickly, then revise extensively. If you don't yet know which is your best method, start with that. But you should draft in whatever way works for you, so go slow if you feel you must. What you can't do is wait until the day before your paper is due: If you draft slowly, you won't finish; if you draft quickly, you'll turn in a half-baked mess.

8.2 Picture Your Readers Asking Friendly Questions

We said this before, but it's important enough to say again: You will write better and more easily if you picture yourself talking with a group of friendly readers who have lots of questions. Before you start drafting, imagine the specific readers you hope to address (*not* your teacher!). Imagine their questions, and build your draft around your answers. For now, think of those readers as friendly and supportive: *Why do you say that? I think I see where you are going, but I'm not sure: can you explain it a little more? That's interesting: what's your evidence for it?* While you are drafting, imagine readers whose questions help you move along, who *want* to agree with you if only you will give them the information they need.

Especially if you draft quickly, you need to quiet your own internal censor while you draft. Your goal is to get your ideas down as fully and freely as you can. You'll have time and (in chapters 12–14) lots of help to get them right in revision. But if you worry over every little detail, you'll spend more time in responding to that voice in your head than in discovering what you think about what you have learned. So let your imagined friendly readers dominate as you draft.

Later on you'll imagine skeptical, even nasty questions so that you can know where you have to improve your completed draft. But for now, banish the skeptics.

WORKING IN GROUPS

Avoid Negative Responses

There will come a time when you will want your writing group to be as hard on your paper as you can: better to find out what the problems are before you turn it in. But when you are drafting is not that time. When you meet during the drafting stage, make it a rule that everyone will avoid all but the most obvious criticisms and concentrate on positive suggestions. Too many negative thoughts will only stop up the flow of your writing.

8.3 Be Open to Surprises and Changes

If you write as you go and plan your argument before you draft, you're unlikely to be utterly surprised by what you write. Even so, be open to new directions from beginning to end:

- When your drafting heads off on a tangent, go with it for a bit to see whether you're on to something better than you planned.
- When your evidence leads you to think that a reason may not hold up, don't ignore that feeling. Follow it up.
- When you get a feeling that your reasons may be in the wrong order, experiment with new ones, even if you thought you were almost done.

Even when you reach your final conclusion, you may see how to restate your claim more clearly and pointedly.

If you get better ideas early enough, invest the time to change your plan. It is a cheap price for a big improvement.

8.4 Develop Productive Drafting Habits

Most of us learn to write in the least efficient way—under pressure, rushing to meet a deadline, doing a quick draft the night before, and proofreading maybe a few minutes in the morning. That sometimes works for a short paper. It never works for a long one. You need time and a plan that lets you draft a little at a time, not in marathon sessions that dull your thinking and kill your interest. Give yourself a few days to write, set an achievable page goal for each day, and stick to it.

Always draft in a suitable environment. You may not need a particularly quiet place—in fact, the two of us prefer a little background noise when we write. But you *must* avoid interruptions. Turn off your cell; take your chat program offline; don't let your friends talk to you while you draft. One of the greatest obstacles to successful drafting is *anything* that forces you to pay attention to something other than what you are writing.

When you start a drafting session, review your storyboard to decide what you're ready to draft that day. How will it fit into its section and the whole? What reason does this section support? Where does it fit in the overall logic? Which key terms state the concepts that distinguish this section? If you're blocked, skip to another section.

Before you draft, picture your friendly readers and summarize for them (out loud if possible) what has come before the place you plan to start. Then imagine that what you write next simply continues that conversation.

As you draft, keep in front of you a list of the key terms for the concepts that you'll run through your whole report and another list of the key terms for the section you are working on. From time to time, check how often you've used them.

CAUTION

Avoid Procrastinators' Tricks

Don't play procrastinators' tricks on yourself—something everyone is prone to do, including the two of us. (We have missed more than one deadline in preparing this book.) You cannot do your best work if you waste the time you have available. Here are the top four mistakes to avoid:

- Don't substitute more reading for writing. Start writing as soon as you have enough evidence to go on. You may have to go back for more, but

don't fool yourself that the writing will be easier if only you do more reading.

- Don't keep revising the same pages over and over. Focus on getting a complete draft that you can then revise.
- Don't focus on how much more you have to do. You will freeze up if you become intimidated by how much you have left. Set small achievable goals for each day and focus on them.
- Don't allow yourself to do anything else during your writing time. Never spend a few minutes on texting or chatting, and never, never tell yourself that a quick computer game will refresh your mind so you can get back to work.

Writing is hard. But you won't make it any easier by wasting away the time you set aside to write. Put your head down and tell yourself, *Just get it done.*

8.5 Work through Writer's Block

If you can't get started on a first draft or struggle to draft more than a few words, you may have writer's block. Some cases arise from anxieties about school and its pressures; if that sounds like you, see a counselor. But most cases have causes you can address.

- You may be stuck because you have no goals or, conversely, goals that are too high. If so, set goals that are small and achievable. Then create a routine that helps you achieve them. Don't hesitate to use devices to keep yourself moving, such as a progress chart or regular meetings with a writing partner.
- You may feel so overwhelmed by the project that you don't know where to begin. If so, break the process into small achievable tasks; then focus on doing one at a time. Don't dwell on the whole until you've completed several small parts of it.
- You may think that you have to make every sentence or paragraph perfect before you move on to the next one. You don't. Tell yourself you're not writing a final draft but only sketching out some ideas, grit your teeth, then do some quick and dirty writing to get yourself started. If you write along the way, you'll be less obsessed with making your draft perfect. And in any event, we all compromise on perfection to get the job done.

QUICK TIP

Getting Unstuck

If you have problems like these with most of your writing, go to the student learning center. You will find people there who have worked with every kind of procrastinator and blocked writer and can tailor their advice to your problem.

On the other hand, some cases of writer's block are opportunities to let your ideas simmer in your subconscious while they combine and recombine into something new and surprising. If you're stuck and have time (another reason to start early), do something else for a day or two. Then return to the task to see if you can get back on track.

8.6 Preparing an Oral Report

It will not be until you are ready to draft that you can even think of giving an oral report to your class. Before then, you will have too little to say and you will be too unsure of what you do have. But you can learn a great deal from giving an oral report as you draft. It cannot be the same kind of report you give after you have completed your paper (see 13.4), but it can be a useful exercise.

At this point, your oral report should have two goals: (1) to force you to formulate a coherent forecast of what your final paper will say, so that you can discover whether it makes as much sense when you say it as when you just think it; and (2) to test your ideas through the responses of your classmates. In particular, a report at this state should do three things:

- Present your research question and answer/claim.
- Outline your reasons and sub-reasons supporting that claim.
- Forecast the kind of evidence you will use to support those reasons.

8.6.1 Prepare Notes, Not a Script

Most of us are at least a little anxious at the idea of speaking before a group, and you're likely to be a tad more anxious at the idea of presenting a paper you have not yet written. Many students think that the cure for that anxiety is to write out a script for their presentation, so that they can just read rather than remember and think. That's generally a bad idea. You don't have the time to do all that extra writing, and no one wants to sit while you read it.

Instead of a script, prepare good notes that include the following:

- a complete introduction and conclusion
- your reasons, in order, in large bold type
- for each reason, a bulleted list of your two or three best bits of evidence, named but not explained

8.6.2 Write Out a Complete Introduction and Conclusion

There are two parts of your presentation that you must get right: your introduction, which prepares listeners for what's coming, and your conclusion, which tells them what to remember. Because they are so important, these are the only two parts for which you should write a script that you rehearse. You

don't need to memorize them, but you should rehearse enough that you can deliver them with only a few glances at your notes. That way, you will get off to a confident start, which will improve the rest of your performance, and you will end with a confident close, which will improve how your audience remembers your report (and your performance of it).

If you have been filling your storyboard as you go, you have there a sketch of a working introduction and some notes on a conclusion. Write them out in language *to be spoken*. Except for necessary technical terms, do not use any words that you will feel uncomfortable saying or that make you sound like a textbook. State your research question as clearly as you can. Be sure to end with your answer. In between, do what you can to explain the significance of your research question.

8.6.3 Make the Body of Your Notes an Outline

Concentrate on reasons in the body of your presentation. Use them to organize your notes and put them in big bold type. These are the sentences you must be sure to say. For everything else, adapt to your audience: spend time on what seems to engage them; skip what doesn't. But do cover each reason. And just before you conclude, run through your main reasons in order: this is the best summary of your argument.

If you have time, present some of your best evidence, especially for reasons that your audience is unlikely to accept right off. But at this stage, your report should be focused on your problem, its answer, and your reasons supporting that claim. Communicate them clearly, and you will have done a fine job.

9: Quoting, Paraphrasing, and Summarizing Sources

- 9.1 When to Quote, Paraphrase, or Summarize
- 9.2 Creating a Fair Summary
- 9.3 Creating a Fair Paraphrase
- 9.4 Adding Quotations to Your Text
- 9.5 Introducing Quotations and Paraphrases
- 9.6 Mixing Quotation with Summary and Paraphrase
- 9.7 Interpret Complex Quotations Before You Offer Them

You should build most of your paper out of your own words that represent your own thinking, but that thinking should be supported by quotations, paraphrases, and summaries of information you found in sources. In fact, new researchers typically find almost all of their evidence in sources. So it is crucial not only that you fully integrate the information from sources into your argument but that you present it in ways that lead your readers to trust it. For that you must know what readers expect, what choices you have, and how those choices lead readers to draw conclusions about your sources and about you.

9.1 When to Quote, Paraphrase, or Summarize

You can present information from a source in the source's words or in your own. Which you choose depends on how you plan to use the information in your argument, but also on the kind of paper you are writing, since different fields use quotation, paraphrase, and summary in different proportions. In general, researchers in the humanities quote most often. Social and natural scientists typically paraphrase and summarize. But you must decide each case for itself.

Principles for Choosing Summary, Paraphrase, or Quotation

Summarize when details are irrelevant or a source isn't important enough to warrant the space.

Paraphrase when you can state what a source says more clearly or concisely than the source does, or when your argument depends on the details in a source but not on its specific words. (Before you paraphrase, however, read 9.3.)

Quote for these purposes:

- The quoted words themselves are your evidence, and you need to deal with them exactly as they appeared in the original.

11: Presenting Evidence in Tables and Figures

- 11.1 Choosing Verbal or Visual Representations
- 11.2 Choosing the Graphical Form That Best Achieves Your Intention
- 11.3 Designing Tables and Figures
 - 11.3.1 Tell Readers What Your Graphic Shows
 - 11.3.2 Keep the Image as Simple and Informative as Its Content Allows

At an early stage in your development as a researcher, you are unlikely to have assignments that require you to collect and report large sets of numerical data. But if you do, your readers will grasp those complex numbers most easily if you present them graphically rather than in words. You can present the same numerical data in different graphic forms, but some forms will suit your data and message better than others. In this chapter, we show you how to choose the right graphic form and to design it so that readers can see both what your data are and how they support your argument.

A NOTE ON TERMINOLOGY

We use the term *graphics* to name all visual images offered as evidence. Traditionally, graphics are divided into *tables* and *figures*.

- A table is a grid with columns and rows that present data in numbers or words organized by categories.
- Figures are all other graphic forms, including graphs, charts, photographs, drawings, and diagrams.

Figures that present quantitative data are divided into two kinds:

- Charts typically consist of bars, circles, points, or other shapes.
- Graphs typically consist of continuous lines.

11.1 Choosing Verbal or Visual Representations

Few new researchers work with the kinds of data that are best presented graphically. So chances are that you can present your data in sentences rather than in tables or charts. Readers can understand numbers like these without the help of graphics:

In 1996, on average, men earned \$32,144 a year, women, \$23,710—a difference of \$8,434.

You need graphics only when readers have to deal with more than five or six numbers, particularly if they have to compare them. For example, most readers would struggle to see the important relationships among the numbers in a passage like this:

Between 1970 and 2000, the structure of families changed in two ways. In 1970, 85 percent of families had two parents, but in 1980 that number declined to 77 percent, then to 73 percent in 1990, and to 68 percent in 2000. The number of one-parent families rose, particularly families headed by a mother. In 1970, 11 percent of families were headed by a single mother. In 1980, that number rose to 18 percent, in 1990 to 22 percent, and to 23 percent in 2000. Single fathers headed 1 percent of the families in 1970, 2 percent in 1980, 3 percent in 1990, and 4 percent in 2000. Families with no adult in the home have remained stable at 3–4 percent.

Such data are best presented graphically.

For most of you, our advice is to avoid graphics and stick to words, at least at first. You have enough to keep in mind in learning how to get the words right. But if you do have to present data too complex for words, this chapter will show you how.

11.2 Choosing the Graphical Form That Best Achieves Your Intention

When you graphically present data as complex as that paragraph above, you can choose a table, a bar chart, or a line graph. Each communicates something different to readers.

A **table** seems precise and objective. It emphasizes individual numbers and forces readers to figure out relationships or trends (unless you state them in an introductory sentence):

Table 11.1: Changes in family structure, 1970–2000

Family type	Percentage of total families			
	1970	1980	1990	2000
2 parents	85	77	73	68
mother	11	18	22	23
father	1	2	3	4
no adult	3	4	3	4

Charts and **line graphs** communicate specific values less precisely than a table, but their images communicate their message quickly and with greater impact. They also have different effects:

- A bar chart emphasizes comparisons among discrete items that can be seen at a glance.

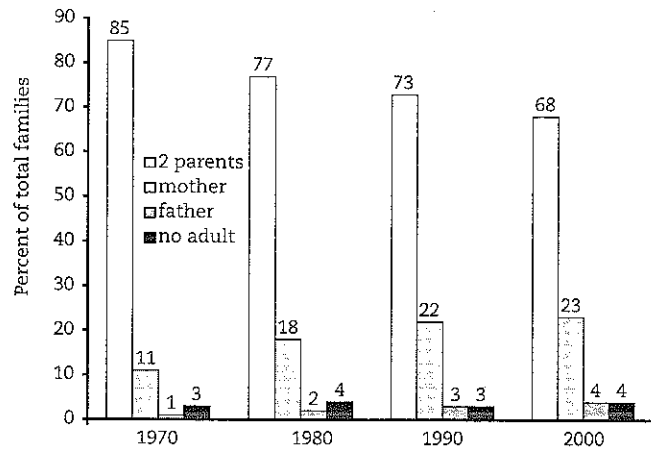


Figure 11.1: Changes in family structure, 1970-2000

A line graph emphasizes the story of trends over time:

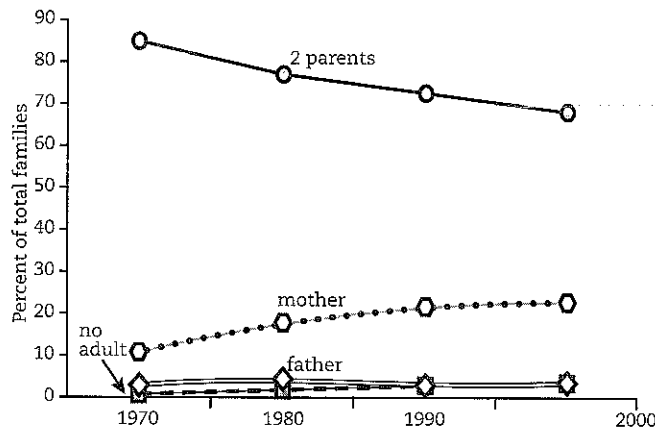


Figure 11.2: Changes in family structure, 1970-2000

Decide on the effect you want, then choose the graphic that fits. Do not choose the first form that comes to mind or the one you found in your source.

CAUTION
Your Software Likes Your Graphics Fancy, Your Readers Like Them Simple
 Your computer software will encourage you to use many more graphics than we cover here, but stick to the basics. Unless you have lots of experience creating graphics, limit your choices to tables, bar charts, and line graphs. Even if you have experience, avoid most of the choices your software allows: no

merely decorative colors, no 3-D graphics, no fancy graphics when a simple one will do. You don't improve your report with graphics that look dazzling but confuse or distract readers.

11.3 Designing Tables and Figures

You use graphics to present quantitative data that serve as evidence in support of your reasons. So you must design them to communicate two things: what the data are and how they support your reason.

11.3.1 Tell Readers What Your Graphic Shows

A graphic representing complex numbers rarely speaks for itself. You must introduce and label it so that readers know both what to see in it and how it is relevant to your argument.

For example, readers have to study table 11.2 closely to see how it supports its claim:

Most predictions about gasoline consumption have proved wrong._{claim}

Table 11.2: Gasoline consumption

	1970	1980	1990	2000
Annual miles (000)	9.5	10.3	10.5	11.7
Annual consumption (gal.)	760.0	760.0	520.0	533.0

To see the connection, we need a more specific claim, a table title that better identifies what the numbers represent, highlighting that draws our eye to the most important data, and another sentence that explains how the numbers relate to the claim:

Gasoline consumption did not grow as many had predicted._{claim} Even though Americans drove 23 percent more miles in 2000 than in 1970, they used 32 percent less fuel.

Table 11.3: Per capita mileage and gasoline consumption, 1970-2000

	1970	1980	1990	2000
Annual miles (000)	9.5	10.3	10.5	11.7
(% change vs. 1970)		8.4%	10.5%	23.1%
Annual consumption (gal.)	760.0	760.0	520.0	533.0
(% change vs. 1970)			(31.5%)	(31.6%)

That added information tells readers how to interpret the key data in table 11.3.

How to Set Up a Graphic

1. Introduce each table or figure with a sentence that states how the data support your point. Include in that sentence any specific number that you want readers to focus on. (That number must also appear in the table or figure, visually highlighted if possible.)
2. Label every table and figure in a way that describes its data.
 - For a table, the label is called a title and is set flush left above.
 - For a figure, the label is called a *caption* (or *legend*) and is set flush left below.

Keep titles and captions short but descriptive enough to indicate exactly what the data represent and to differentiate each graphic from every other one. Do not use the label or caption to imply a claim about the figure.

Not: Weaker effects of counseling on depressed children before professionalization of staff, 1995–2004

But: Effect of counseling on depressed children, 1995–2004

3. Put into a table or figure information that helps readers see how the data support your point. For example, if numbers in a table show a trend and the size of the change matters, add the change to the final column. Or if a line on a graph changes in response to an influence not mentioned on the graph, add text to the image to explain it.

All of the framing elements work to make figure 11.3 easy to understand: (1) The introductory sentence explains what the graph shows and points out not only the trend but what readers should see in it; (2) the label tells readers what the data represent; and (3) the inserted callouts explain the important changes in the data.

Although reading and math scores initially declined by almost 100 points following redistricting, that trend was substantially reversed by the introduction of supplemental math and reading programs.

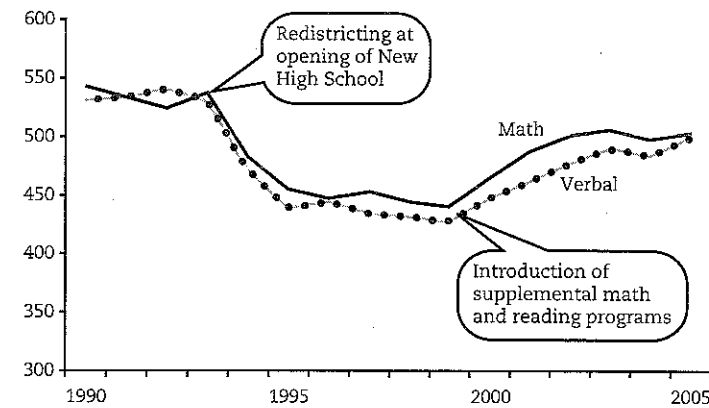


Figure 11.3: SAT scores for Mid-City High, 1990–2005

11.3.2 Keep the Image as Simple and Informative as Its Content Allows

Some guides encourage you to put as much data as you can in every graphic, and most software encourages you to make them visually complex. But readers want to see only the data relevant to your claim, presented in an image free of distractions. As a new researcher, you can let your software take care of most of the effort in designing your graphics, but you'll have to change several default settings. Follow these guidelines.

For all graphics:

- Don't put a box around a graphic unless you group two or more figures.
- Never color or shade the background.
- Plot data on three dimensions only when you cannot display the data in any other way and your readers are familiar with such graphs.

For tables:

- Never divide columns and rows with both horizontal and vertical lines. Use light gray lines in one direction only if a table is complex.
- For tables with many rows, lightly shade every fifth row.
- Clearly label rows and columns.
- Order rows and columns by a principle that lets readers quickly find what you want them to see. Do not automatically choose alphabetic order.
- Sum totals at the bottom of a column or at the end of a row, not at the top or left.

Compare tables 11.4 and 11.5. Table 11.4 looks cluttered and its items aren't helpfully organized:

Table 11.4: Unemployment in major industrial nations, 1990–2000

	1990	2001	Change
Australia	6.7	6.5	(.2)
Canada	7.7	5.9	(1.8)
France	9.1	8.8	(.3)
Germany	5.0	8.1	3.1
Italy	7.0	9.9	2.9
Japan	2.1	4.8	2.7
Sweden	1.8	5.1	3.3
UK	6.9	5.1	(1.8)
USA	5.6	4.2	(1.6)

In contrast, table 11.5 is clearer because its title is more informative, the table has less distracting visual clutter, and its items are organized to let us see patterns more easily.

Table 11.5: Changes in unemployment rates of industrial nations, 1990–2000

English-speaking vs. non-English speaking nations

	1990	2001	Change
Australia	6.7	6.5	(0.2)
USA	5.6	4.2	(1.6)
Canada	7.7	5.9	(1.8)
UK	6.9	5.1	(1.8)
France	9.1	8.8	(.3)
Japan	2.1	4.8	2.7
Italy	7.0	9.9	2.9
Germany	5.0	8.1	3.1
Sweden	1.8	5.1	3.3

For bar charts:

- Do not use gridlines unless the graphic is complex. Make all grid lines light gray.
- When specific numbers matter, add them to bars or segments.
- Clearly label both axes.
- Color or shade bars only to show a contrast.
- Never use three-dimensional or iconic bars (for example, images of cars to represent automobile production). They add nothing, distort how readers judge values, and look amateurish.
- Group and arrange bars to give readers an image of an order that matches your point.

For example, look at figure 11.4 in the context of the explanatory sentence before it. The items are listed alphabetically, an order that doesn't help readers see the point.

Most of the desert area in the world is concentrated in North Africa and the Middle East:

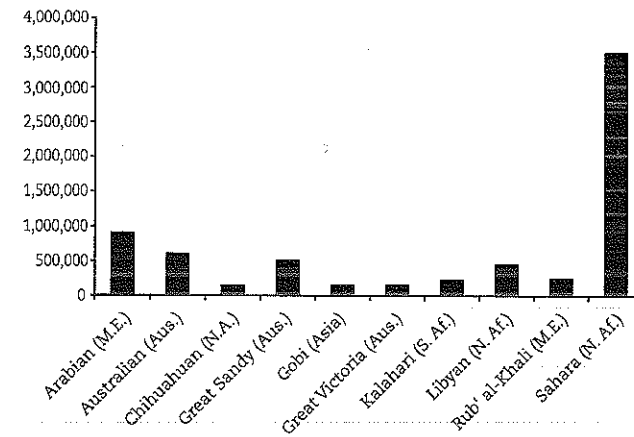


Figure 11.4: World's ten largest deserts

In contrast, figure 11.5 supports the claim with a coherent image.

Most of the desert area in the world is concentrated in North Africa and the Middle East:

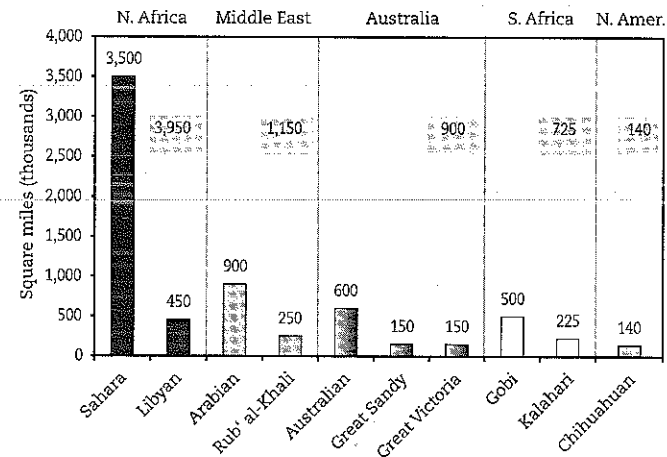


Figure 11.5: World distribution of large deserts

Table 11.6: Common graphic forms and their uses

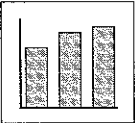
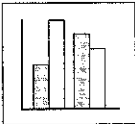
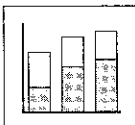
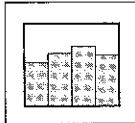


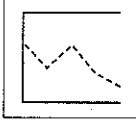
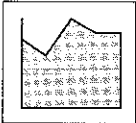
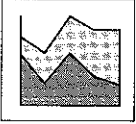
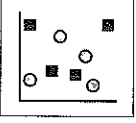
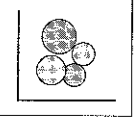
Data	Rhetorical Uses
<p>Bar Chart</p>  <p>Compares the value of one variable across a series of items called <i>cases</i> (e.g., average salaries for service workers_{variable} in six companies_{cases}).</p>	<p>Creates strong visual contrasts among individual cases, emphasizing individual comparisons. For specific values, add numbers to bars. Can show ranks or trends. Vertical bars (called <i>columns</i>) are most common, but can be horizontal if cases are numerous or have complex labels.</p>
<p>Bar Chart, Grouped or Split</p>  <p>Compares the value of one variable, divided into subsets, across a series of cases (e.g., average salaries_{variable} for men and women service workers_{subsets} in six companies_{cases}).</p>	<p>Contrasts subsets within and across individual cases; not useful for comparing total values for cases. For specific values, add numbers to bars. Grouped bars show ranking or trends poorly; useful for time series only if trends are unimportant.</p>
<p>Bar Chart, Stacked</p>  <p>Compares the value of one variable, divided into two or more subsets, across a series of cases (e.g., harassment complaints_{variable} segmented by region_{subsets} in six industries_{cases}).</p>	<p>Best for comparing totals across cases and subsets within cases; difficult to compare subsets across cases (use grouped bars). For specific values, add numbers to bars and segments. Useful for time series. Can show ranks or trends for total values only.</p>
<p>Histogram</p>  <p>Compares two variables, with one segmented into ranges that function like the cases in a bar graph (e.g., service workers_{continuous variable} whose salary is \$0–5,000, \$5–10,000, \$10–15,000, etc._{segmented variable}).</p>	<p>Best for comparing segments within continuous data sets. Shows trends, but emphasizes segments (e.g., a sudden spike at \$5–10,000 representing part-time workers). For specific values, add numbers to bars.</p>
<p>Image Chart</p>  <p>Shows value of one or more variable for cases displayed on a map, diagram, or other image (e.g., states_{cases} colored red or blue to show voting patterns_{variable}).</p>	<p>Shows the distribution of the data in relation to preexisting categories; deemphasizes specific values. Best when the image is familiar, as in a map or diagram of a process.</p>
<p>Pie Chart</p>  <p>Shows the proportion of a single variable for a series of cases (e.g., the budget share_{variable} of U.S. cabinet departments_{cases}).</p>	<p>Best for comparing one segment to the whole. Useful only with few segments or segments that are very different in size; otherwise comparisons among segments are difficult. For specific values, add numbers to segments. Common in popular venues, frowned on by professionals.</p>

Table 11.6 (continued)

Data	Rhetorical Uses
<p>Line Graph</p>  <p>Compares continuous variables for one or more cases (e.g., temperature_{variable} and viscosity_{variable} in two fluids_{cases}).</p>	<p>Best for showing trends; deemphasizes specific values. Useful for time series. To show specific values, add numbers to data points. To show the significance of a trend, segment the grid (e.g., below- or above-average performance).</p>
<p>Area Chart</p>  <p>Compares two continuous variables for one or more cases (e.g., reading test scores_{variable} over time_{variable} in a school district_{case}).</p>	<p>Shows trends; deemphasizes specific values. Can be used for time series. To show specific values, add numbers to data points. Areas below the lines add no information, but will lead some readers to misjudge values. Confusing with multiple lines/areas.</p>
<p>Area Chart, Stacked</p>  <p>Compares two continuous variables for two or more cases (e.g., profit_{variable} over time_{variable} for several products_{cases}).</p>	<p>Shows the trend for the total of all cases, plus how much each case contributes to that total. Likely to mislead readers on the value or the trend for any individual case.</p>
<p>Scatter Plot</p>  <p>Compares two variables at multiple data points for a single case (e.g., housing sales_{variable} and distance from downtown_{variable} in one city_{case}) or at one data point for multiple cases (e.g., brand loyalty_{variable} and repair frequency_{variable} for ten manufacturers_{cases}).</p>	<p>Best for showing the distribution of data, especially when there is no clear trend or when the focus is on outlying data points. If only a few data points are plotted, it allows a focus on individual values.</p>
<p>Bubble Chart</p>  <p>Compares three variables at multiple data points for a single case (e.g., housing sales_{variable}, distance from downtown_{variable}, and prices_{variable} in one city_{case}) or at one data point for multiple cases (e.g., image advertising_{variable}, repair frequency_{variable}, and brand loyalty_{variable} for ten manufacturers_{cases}).</p>	<p>Emphasizes the relationship between the third variable (bubbles) and the first two; most useful when the question is whether the third variable is a product of the others. Readers easily misjudge relative values shown by bubbles; adding numbers mitigates that problem.</p>

CAUTION**Avoid Pie Charts**

Most data that fit a bar chart can also be represented in a pie chart. It is a popular choice in magazines, tabloids, and annual reports, but it's harder to read than a bar chart, and it invites misinterpretation because readers must mentally compare proportions of segments whose size is hard to judge accurately. Most researchers consider them amateurish. Use bar charts instead.

For line graphs:

- Use grid lines only if the graphic is complex. Make all grid lines light gray.
- If you have fewer than ten data points, indicate them with dots. If only a few are relevant, add numbers to show their value.
- Choose the variable that makes the line go in the direction, up or down, that supports your point. If the good news is a reduction (down) in high school dropouts, you can more effectively represent the same data as an increase (up) in retention.
- Do not plot more than six lines on one graph unless you cannot make your point in any other way.

QUICK TIP**Try Out Different Graphics**

If you are new to using graphics, all of these rules and principles can make your choice of graphics confusing. You can cut through that confusion if you try out several ways to represent the same data (your computer program will usually let you do that quickly). Then ask someone unfamiliar with the data to tell you what they see in each graphic. You might also ask them to judge the alternatives for impact and clarity.

12: Revising Your Draft

12.1 Check Your Introduction, Conclusion, and Claim

12.2 Make Sure the Body of Your Report Is Coherent

12.3 Check Your Paragraphs

12.4 Let Your Draft Cool, Then Paraphrase It

Some students think that once they have a draft, they're done. Thoughtful writers know better. They write a first draft to see whether they can make a case to support their answer. Then they revise their draft until they think they've presented that case in a way that meets the needs and expectations of their readers.

That's hard, because we all know our own work too well to read it as others will. To revise effectively, you cannot simply read a draft to see whether it satisfies you. You must know what readers look for and whether your draft helps them find it. To that end, we will give you advice that may seem mechanical. But only when you can analyze your draft objectively can you avoid reading into it what you want your readers to get out of it.

We suggest revising top down: first check the shape of the outer frame (you'll write the last draft of your introduction and conclusion later). Then look at the overall organization, then sections, paragraphs, sentences, finally grammar, spelling, and punctuation (for guidance on these issues, see part 3). Of course, no one revises so neatly. We all fiddle with words as we revise paragraphs and revise sentences as we reorganize sections. But you're likely to make the best revisions if you revise from whole to part, even if at the moment you're revising, a part is the only whole you have.

QUICK TIP**Revise on Hard Copy**

One secret to successful revising is to get a fresh look at your work. You can do that if you revise on hard copy, especially when you want to catch the small details. So edit early drafts on-screen, if you prefer. But you will catch more errors and get a better sense of the structure of your report if you read at least one version of it on paper, as your readers will.

12.1 Check Your Introduction, Conclusion, and Claim

Your readers must see three things quickly and unambiguously:

- where your introduction ends
- where your conclusion begins
- what sentences in one or both state your main claim

To make the first two clearly visible, insert a subhead or extra space between your introduction and body and another between the body and conclusion. To make your main claim clear, underline it. We'll come back to it in chapter 13.

WORKING IN GROUPS

Trading Papers

One of your greatest obstacles to revising well is your memory. By the time you are ready to revise, you know your paper so well that you can't really read it; you can only remember what you meant when you wrote it. That's why our suggestions for revision are so mechanical: they help you by-step your too-good memory of your paper.

But your group provides an even better way to by-step your memory. For the revision steps here and in chapter 14, trade papers with a colleague. Each of you should mark up and diagnose the other's paper. We guarantee that you'll be far better at finding what needs improvement in your colleague's paper than in your own.

But don't just read and make suggestions. Suggestions are welcome, but what is far more valuable is for each of you to go through each diagnostic step with the other's paper. You can't fix a problem you can't find.

12.2 Make Sure the Body of Your Report Is Coherent

Once you frame your report clearly, check its body. Readers will think your report is coherent when they see the following:

- the key terms that run through your whole report
- where each section ends and the next begins
- how each section relates to the one before it
- what role each section plays in the whole
- what sentence in each section and subsection states its point
- what distinctive key terms run through each section

To be sure that your readers see those features, check for the following:

1. Did you repeat key terms through your whole report?

If readers don't see key terms on each page, they may think your report wanders. If you can't find them, neither will your readers.

- Circle the key terms in the claim in your introduction and in your conclusion (review 7.2.3).
- Circle those same terms in the body of your report.
- Underline other words related to the ideas named by those circled terms.

Revise by working those terms into parts that lack them. If you underlined many more words than you circled, change some of them to the circled key terms. If you don't find on every page three or four terms either underlined or circled, you may have strayed too far from your line of reasoning. If so, you have more extensive revising to do.

2. Did you clearly signal the beginning of each section and subsection?

If your paper is longer than three or four pages, it will have distinct sections. Even if each section is only two or three paragraphs long, readers must clearly see where one ends and the next begins. For a longer paper, you can use subheads or an extra space to signal new sections.

3. Did you begin each major section with words that signal how that section relates to the one before it?

Readers must not only recognize where a section begins and ends, but understand why it is where it is (see 7.2.5–7.2.6). Be sure that you signaled the logic of your order with words such as *First*, *Second*, *More important*, *The next issue*, *Some have objected that*, and so on.

4. Did you make clear how each section is relevant to the whole?

For each section, ask: *What question does this section answer?* If a section doesn't help answer one of the questions of argument (review 6.2), ask whether it is relevant. Does it create a context, explain a background concept or issue, or help readers in some other way? If you can't explain how a section relates to your claim, cut it.

5. Did you state the point of each section at the end of a brief opening (or at the end of the section)?

If you have a choice, state the point of a section at the end of its opening. Under no circumstances bury the point of a section in its middle. If a section is longer than three or four pages, you might restate the point at its end.

6. Did you distinguish each section by running key terms through it?

Just as some key terms unify your whole report, other key terms unify its sections. To find those terms, repeat step 1 for each section. Find the sentence that expresses its point and identify the key terms that distinguish that section from the others. Then check whether those terms run through that section. If you find none, then your readers might not see what distinct ideas that section contributes to the whole. (You can use those key terms in headings.)

12.3 Check Your Paragraphs

Each paragraph should be relevant to the point of its section. And like sections, each paragraph should have a sentence or two introducing it, usually stating its point and including the key concepts that the rest of the paragraph develops. If the opening sentence or sentences of a paragraph do not state its point, then its last one must. Order your sentences by some principle and make them relevant to the point of the paragraph.

QUICK TIP

Avoid strings of short paragraphs (fewer than five lines) or very long ones (for most fields, more than half a page). Reserve the use of two- or three-sentence paragraphs for lists, transitions, introductions and conclusions to sections, and statements that you want to emphasize. (We use short paragraphs here because our readers sometime need to skim sections, not a consideration in research writing.)

12.4 Let Your Draft Cool, Then Paraphrase It

If you start your project early, you'll have time to let your revised draft cool. What seems good one day often looks different the next. When you return to your draft, don't read it straight through; skim its top-level parts: its introduction, the first paragraph of each major section, and conclusion. Then based on what you have read, paraphrase it for someone who hasn't read it. Does the paraphrase hang together? Does it fairly sum up your argument? Even better, ask someone else to read and summarize it: how well that person summarizes your report will predict how well your readers will understand it.

QUICK TIP**Don't Ignore Your Teacher's Comments**

If your teacher comments on your draft, always revise in light of that advice. Otherwise, you will miss an opportunity to improve your paper. And you will annoy someone who took time to read your work to help you, only to see you ignore their efforts. You don't have to follow all or even most of the suggestions, but your revision should show that you considered each one seriously.

Almost as irritating as students who ignore a teacher's suggestions are those who follow the minor editorial suggestions (grammar, spelling, etc.) but ignore all comments that ask them to rethink larger issues. No teacher wants to be treated as a proofreader.

13: Writing Your Final Introduction and Conclusion

13.1 Draft Your Final Introduction

13.1.1 Describe the Current Situation

13.1.2 Restate Your Question as Something Not Known or Fully Understood

13.1.3 State the Significance of Your Question

13.1.4 State Your Claim

13.1.5 Write a New First Sentence

13.2 Draft Your Final Conclusion

13.2.1 Restate Your Claim

13.2.2 Point Out a New Significance, a Practical Application, or New Research

13.3 Write Your Title Last**13.4 Preparing an Oral Report**

Once you have a complete draft and can see what you have in fact written, you can write your final introduction and conclusion. These two parts of your paper strongly influence how readers read and remember the rest, so it's worth your time to make them as clear as you can.

Your introduction has three goals. It should

- put your research in context;
- make your readers think they should read your paper;
- give them a framework for understanding it.

Your conclusion has two goals. It should

- leave readers with a clear idea of your claim;
- reinforce its importance.

13.1 Draft Your Final Introduction

In chapter 7, we suggested that you sketch a working introduction with four steps:

1. **Current situation or background.** When this summarizes research, it's called a *literature review*. It puts your project in the context of what is known and thought about your topic and sets up the next step.
2. **A statement of your research question.** This states what isn't known or understood that your paper will answer. It typically begins with a *but, however,* or other word signaling a qualification.

3. **The significance of your question.** This answers *So what?* It is key to motivating your readers.
4. **Your claim as an answer.** This answers your research question.

As a way to prepare readers for the rest of your paper, these steps follow a seemingly natural progression:

Here's what we think we know.

Here's what we don't know.

Here's why we need an answer.

Here's the answer.

But those steps follow another pattern, one that is common not just in research papers but in all types of writing—term papers, essays, business documents, and many others. In most academic and professional writing, the pattern that introductions follow is a familiar dramatic one: stability—disruption and danger—resolution. It's a pattern we learned as toddlers, in the form of fairy tales:

Once upon a time . . . Fairy tales begin by “defining a world” so that we know what to expect. When we see Little Red Riding Hood walking through the forest, we know not to expect dragons and we are not surprised when a woodsman shows up. When we learn in another tale that a wise old king has a beautiful daughter but no sons, we don't look for a fairy godmother, but do expect to see knights (and maybe a dragon).

But then . . . Once we learn about that stable world, the next step is always trouble—a wolf, a talking fish, an evil stepmother, or one of those dragons.

And now the dragon's fire . . . The main body of a fairy tale is, of course, a story of peril for the main character. Here is where the wolf bares his teeth or the dragon shows his fire. It's the dragon's fire that makes him a problem that must be solved.

And they lived happily ever after. In the end, all is well. But that happy ending is brought about not through the efforts of the main character but through the work of a helper with special powers: the burly woodsman, a fairy godmother, the valiant knight.

Each move in the fairy tale has a corresponding part in the basic pattern of introductions, and so does each character: The main character is your reader. The dragon is your research question: it disrupts the stable world you describe in the opening. The dragon's fire is the significance of your question: it shows why that question is a problem by showing readers what they lose by not knowing its answer. The helper with special powers? That's you. Once you show readers that they need an answer to your question, you save the day by offering one.

The Dramatic Pattern of Introductions and Fairy Tales

The typical introduction to a research paper draws some of its ability to motivate readers from the dramatic pattern it shares with fairy tales:

Current Situation / *Once upon a time . . .*

The fairy tale defines a stable world that it will disrupt; the research paper defines a current way of thinking that it will show to be wrong, or at least inadequate.

Research Question / *But then, the dragon . . .*

The fairy tale disrupts its world with a problem creature; the research paper disrupts the current way of thinking with a problem question.

Significance of the Question / *And now the dragon's fire . . .*

The fairy tale puts its main character in danger; the research paper shows its readers what they will lose without an answer to its question.

Answer / *And they lived happily ever after.*

In the fairy tale, a helper with special powers steps in to remove the danger, thereby saving the day; in the research paper, the writer with special knowledge (learned from research) steps in to answer the question, thereby saving the day.

You can see how the pattern works in this abbreviated introduction (each sentence could be expanded to a paragraph or more):

Colleges report that binge drinking is increasing. We have long known its practical risks—death, injury, property damage. We also know that bingers ignore those risks, even after they have been told about them.^{situation} But no one has yet determined what causes bingers to ignore those known risks: social influences, a personality attracted to risk, or a failure to understand the nature of the risks.^{question} If we can determine why bingers ignore the risks of their actions, we can better understand not only the causes of this dangerous behavior but also the nature of risk-taking behavior in general.^{significance} This study reports on our analysis of the beliefs of 300 first-year college students. We found that students more likely to binge knew more stories of other student's bingeing, so that they believed that bingeing is far more common than it actually is.^{answer}

Whether they are conscious of it or not, readers look for those four elements, so you should understand them in some detail.

13.1.1 Describe the Current Situation

As a rule, writers begin with the ideas that their own work will extend, modify, or correct. For the kind of projects most beginners undertake, the current situation can be described in a few sentences:

Drinking has been a part of college life for centuries. From football weekends to fraternity parties, college students drink and often drink hard. For the most part, we have always thought of this drinking as harmless, part of college high jinks. But colleges are increasingly concerned about the kind of hard drinking called binge drinking. Colleges report that bingeing is on the rise, despite their efforts to teach students about the known risks— death, injury, property damage. Recently Smith (2008) has shown that bingers ignore those risks, even after they have been told about them.

When advanced students write a report for other researchers, this opening describes more fully a line of research studies that the report will extend or modify.

Ever since the first studies by Weber (1982) and Claus and Stiglitz (1982, 1985), colleges have known about the dangers and prevalence of binge drinking. The earliest research determined the prevalence of bingeing (Wang and Olefson 1988; James 1988; Geoffrey 1989), the gender mix of bingers (Wang 1990; Osborne 1992), and the risks (for a summary, see Mateland 2005). The latest research has focused on the causes and ways to prevent bingeing. Recently Smith (2008) has shown that bingers ignore those risks, even after they have been told about them.

Some advanced researchers go on like that for pages, citing scores of books and articles.

QUICK TIP

Two Alternatives to the Literature Review

Early in your career, you may not feel confident writing a review of the prior research on your topic. But you have two easy alternatives.

1. Use one source as your prior research.

If you have found one source that can set up your research question, use it as your current situation. You might copy one of the patterns in section 2.4.

2. Use your prior understanding

Imagine your reader as someone like yourself *before* you started your research. Make your current situation what you thought then. This is where you can use a working hypothesis that you rejected: *It might seem that X is so, but . . .*

No one expects a beginner to provide an extensive review of the prior research. But you do have to define *some* stable context, a way of thinking about your issue that your research question will disrupt, improve, or amplify. The four most common sources of this context are these:

- What you believed before you began your research (*I used to think . . .*).
- What others believe (*Most people think . . .*).
- An event or situation (*What events seem to show is . . .*).
- What other researchers have found (*Researchers have shown . . .*).

You have other options. If you find a good one in your reading, use it. But these four are reliable ways to get your paper started.

WRITING IN GROUPS

Use Your Colleagues' Misunderstandings

If you cannot think of any reasonable stable context to state as your Current Situation, turn to your writing group. Ask them what they think of your topic: *Why do you think students get involved in binge drinking?* If their answer is wrong or misleading, that is the current thinking your paper will correct: "Many students think that . . . , but . . ."

13.1.2 Restate Your Question as Something Not Known or Fully Understood

After the opening context, state what is wrong or missing in that current way of thinking. Introduce this step with *but*, *however*, or some other term indicating that you're about to modify the received knowledge and understanding that you just described:

Drinking has been a part of college. . . [B]ingers ignore those risks, even after they have been told about them.^{situation} But no one has yet determined what causes bingers to ignore the known risks: social influences, a personality attracted to risk, or a failure to understand the nature of the risks.^{question restated as what we don't know}

Note: Although you must build your paper around a research *question*, you should state it in your introduction not as a direct question—*What causes bingeing?*—but as an assertion that we don't know something: *We don't know what causes bingeing.*

13.1.3 State the Significance of Your Question

Now you must show your readers the *significance* of answering your research question. Imagine a reader asking that vexing question, *So what?*, then answer it. Frame your response as a larger cost of not knowing the answer to your research question:

Drinking has been a part of college. . . [B]ingers ignore those risks, even after they have been told about them.^{situation} But no one has . . . or a failure to understand the nature of the risks.^{question} [*So what?*] Until we can determine why bingers ignore

known risks of their actions, we will not be able to identify the causes of this dangerous behavior, which is essential if we are to find a way to control it.^{significance}

Alternatively, you can phrase the cost as a benefit:

Drinking has been a part of college. . . . [B]ingers ignore those risks, even after they have been told about them.^{situation} But no one has . . . or a failure to understand the nature of the risks.^{question} [So what?] If we can determine why bingers ignore known risks of their actions, we can better understand not only the causes of this dangerous behavior but also the nature of risk-taking behavior in general.^{significance}

You may struggle to answer that *So what?* because you don't know enough about the larger context of your research question. If nothing better comes to mind, state its significance in terms of what your class has studied:

Drinking has been a part of college. . . . [B]ingers ignore those risks, even after they have been told about them.^{situation} But no one has . . . or a failure to understand the nature of the risks.^{question} [So what?] If we can determine why bingers ignore known risks of their actions, we can better understand the psychology of pleasure and happiness that has been a major topic in our class.^{significance}

13.1.4 State Your Claim

Once you state what isn't known or understood and why readers need to know it, readers want an answer:

Drinking has been a part of college. . . . [B]ingers ignore those risks, even after they have been told about them.^{situation} But no one has . . . or a failure to understand the nature of the risks.^{question} [So what?] If we can determine . . . the nature of risk-taking behavior in general.^{significance} This study reports on our analysis of the beliefs of 300 first-year college students. We found that students more likely to binge knew more stories of other student's bingeing, so that they believed that bingeing is far more common than it actually is.^{claim/answer}

If you have reason to hold your claim until the end of your paper, write a sentence to end your introduction that uses the key terms from that claim and that frames what follows but without completely revealing your claim.

Recent research suggests the key to this behavior lies not in bingers' knowledge of risk but in their beliefs about the prevalence of bingeing.^{promise of claim}

Those four steps may seem mechanical, but they constitute the introductions to most research reports in every field, both inside the academic world and out.

QUICK TIP

Model Your Work on What You Read

As you read your sources, especially journal articles, watch for that four-part framework. You will not only learn a range of strategies for writing your own introductions but better understand the ones you read.

13.1.5 Write a New First Sentence

Some writers find it so hard to write the first sentence of a paper that they fall into clichés. Avoid these:

- Do not repeat the language of your assignment.
- Do not quote a dictionary definition: Webster's *defines risk as* . . .
- Do not try to be grand: *For centuries philosophers have debated the burning question of* . . . (Good questions speak their own importance.)

If you want to begin with something livelier than prior research, try one or more of these openers (but note the warning that follows):

1. A striking quotation:

"If you're old enough to fight for your country, you're old enough to drink to it."

2. A striking fact:

A recent study reports that at most colleges three out of four students "binged" at least once in the previous thirty days, consuming more than seven drinks at a sitting. Almost half binge once a week, and those who binge most are not just members of fraternities, but their officers.

3. A relevant anecdote:

When Jim S., president of Omega Alpha, joined his fourth-year fraternity brothers in the State U tradition of "a fifth in your fourth," by downing most of a fifth of whiskey in less than an hour, he didn't plan to become this year's eighth college fatality from alcohol poisoning.

You can combine all three:

It is often said that "if you're old enough to fight for your country, you're old enough to drink to it."^{quotation} Tragically, Jim S., president of Omega Alpha, no longer has a chance to do either. When he joined his fourth-year fraternity brothers in the State U tradition of "a fifth in your fourth," by downing most of a fifth of whiskey in less than an hour, he didn't expect to become this year's eighth college fatality from alcohol poisoning.^{anecdote} According to a re-

cent study, at most colleges three out of four students have, like Jim S., drunk seven drinks at a sitting in the last thirty days. And those who drink the most are not just members of fraternities, but, like Jim S., officers. *striking fact*

Be sure to include in these openers terms that anticipate the key concepts you'll use when you write the rest of the introduction (and the rest of the paper). In this case, they include *old enough, tradition, didn't expect, fatality, alcohol poisoning, three out of four*.

13.2 Draft Your Final Conclusion

If you have no better plan, build your conclusion around the elements of your introduction, in reverse order.

13.2.1 Restate Your Claim

Restate your claim early in your conclusion, more fully than in your introduction:

Bingeing college students may be irrational when they ignore risks that they know well, but they are not acting without *some* reason. Our survey shows that students more likely to binge hear and remember more stories of bingeing among their peers than do students less likely to binge. As a consequence, bingers believe that bingeing is far more prevalent than it is. And since they are unlikely to know anyone who has suffered direct harm from bingeing, they believe that their chances of being harmed are quite low.

Take this last chance to make your claim as specific and complete as you can.

13.2.2 Point Out a New Significance, a Practical Application, or New Research

After stating your claim, remind readers of its significance or, better, state a new significance or a practical application:

These findings suggest bingeing may be less irrational, less a matter of uncontrollable impulses than at first it might seem. If one cause of bingeing is the common practice of bragging about one's exploits at parties and bars, it may be possible to counter the effects of those stories with simple facts. If students know that bingeing is not the norm among students, they may think more carefully when they assess its risks.

Finally, suggest other questions that your results might raise. This gesture suggests how other researchers can continue the conversation. It mirrors the opening context:

Although these results improve our understanding of the causes of bingeing, they do not tell us how to counter the effects of overestimating the prevalence

of bingeing. There is no evidence to show that we can counter the effects of vivid and exciting stories told by peers with dry facts recited by college administrators. There is more research to do before we can know how to use these results effectively.

13.3

Write Your Title Last

Your title is the first thing your readers read; it should be the last thing you write. It should both announce the topic of your paper and signal its important concepts, so build it out of the key terms that you earlier circled and underlined. Compare these three titles:

Bingeing

Ignoring the Risks of Bingeing

A Story is Worth a Thousand Facts:

Why Binge Drinkers Overestimate Its Prevalence and Underestimate Its Risks

The first title is accurate but too general to help us through what is to come. The second is more specific, but the third uses both a title and subtitle to give us advance notice about the keywords that will appear in what follows. When we see the keywords in a title turn up again in an introduction and then again throughout the paper, we're more likely to feel that its parts hang together. Two-part titles are most useful: they give you an opportunity to use your keywords to announce your key concepts.

13.4

Preparing an Oral Report

You may be asked to present the final results of your research. If so, review our advice for a preliminary presentation in section 8.6. Most of that advice still applies:

- Prepare notes, not a script.
- Prepare and rehearse an introduction and conclusion. Don't just read them from your final paper: rewrite them to sound like something you would say, not something you would only write.
- Organize your notes around your main reasons, which you should put in big, bold type.

There are two relevant differences between a preliminary and a final oral report: Before you were guessing what your argument might be; now you know. That should make your report more confident, but not different in structure. Also, you now know how your evidence supports each reason. Accordingly, you should give more attention to evidence in a final report than in a preliminary one. *Do not try to walk readers through every scrap of evidence.* Do that and you'll be sure to run out of time (which might not matter since

everyone will be asleep). Instead, present one best bit of evidence for each reason. This will assure your audience that you have good backup without forcing them to listen to all of it.

If your evidence is suitable for it, prepare a handout: create a list of quotations, reproduce graphics or tables, create illustrations, and so on. (You can do this in PowerPoint rather than a handout, if you have the skills.)

14: Revising Sentences

14.1 Focus on the First Seven or Eight Words of a Sentence

14.1.1 Make Subjects Short and Concrete

14.1.2 Avoid Interrupting Subjects and Verbs with More than a Word or Two

14.1.3 Put Key Actions in Verbs, Not in Nouns

14.1.4 Put Familiar Information at the Beginning of a Sentence, New at the End

14.1.5 Avoid Long Introductory Phrases

14.1.6 Choose Active or Passive Verbs to Reflect the Previous Principles

14.1.7 Use First-Person Pronouns Appropriately

14.2 Diagnose What You Read

14.3 Choose the Right Word

14.4 Polish It Off

Your last big task is to make your sentences as clear as your ideas allow. On some occasions, you may know your writing is awkward, especially if you're writing about an unfamiliar and complex topic. But too often you won't recognize when your sentences need help. You need a plan to revise sentences that you know are a problem, but even more, you need a way to identify those that you think are fine, but that readers will think are not.

We can't tell you how to fix every problem in every sentence, but we can tell you how to deal with those that most often afflict a writer struggling to sound like a "serious scholar," a style that most experienced readers think is just pretentious. Here is a short example:

1a. An understanding of terrorist thinking could achieve improvements in the protection of the public.

However impressive that sounds, the student who wrote it meant only this:

1b. If we understood how terrorists think, we could protect the public better.

To diagnose (1a) and revise it into (1b), however, you must know a few grammatical terms: *noun*, *verb*, *active verb*, *passive verb*, *whole subject*, *simple subject*, *main clause*, *subordinate clause*. If they're a dim memory, skim a grammar guide before you go on.

14.1 Focus on the First Seven or Eight Words of a Sentence

Just as the key to a clearly written report is in its first few paragraphs, so the key to a clearly written sentence is in its first few words. When readers grasp those first seven or eight words easily, they read what follows faster, under-

stand it better, and remember it longer. It is the difference between these two sentences:

- 2a. The Federalists' argument in regard to the destabilization of government by popular democracy arose from their belief in the tendency of factions to further their self-interest at the expense of the common good.
- 2b. The Federalists argued that popular democracy destabilized government, because they believed that factions tended to further their self-interest at the expense of the common good.

In this section we will show you how to write a sentence like (2b)—or to revise one like (2a) into (2b).

Five Principles for Clear Sentences

To draft clear sentences or revise unclear ones, follow these five principles:

1. Make subjects short and concrete, ideally naming the character that performs the action expressed by the verb that follows.
2. Avoid interrupting the subject and verb with more than a word or two.
3. Put key actions in verbs, not in nouns.
4. Put information familiar to readers at the beginning of a sentence, new information at the end.
5. Avoid long introductory phrases: get to a short, familiar subject quickly.

Those principles add up to this: Readers want to get past a short, concrete, familiar subject quickly and easily to a verb expressing a specific action. When you do that, the rest of your sentence will usually take care of itself. To diagnose your own writing, look for those characteristics in it. Skim the first seven or eight words of every sentence. Look closely at sentences that don't meet those criteria, then revise them as follows.

14.1.1 Make Subjects Short and Concrete

Readers must grasp the subject of a sentence easily, but can't when the subject is long, complex, and abstract. Compare these two sentences (the whole subjects in each are underlined; the one-word simple subject is boldfaced):

- 3a. A school system's successful adoption of a new reading curriculum for its elementary schools depends on the demonstration in each school of the commitment of its principal and the cooperation of teachers in setting reasonable goals.
- 3b. A school system will successfully adopt a new reading curriculum for elementary schools only when each principal demonstrates that **she** is committed to it and **teachers** cooperate to set reasonable goals.

In (3a) the whole subject is fourteen words long, and its simple subject is an abstraction—*adoption*. In (3b), the clearer version, the whole subject of every verb is short, and each simple subject is relatively concrete: *school system*, *each principal*, *she*, *teachers*. Moreover, each of those subjects performs the action in its verb: **system** will *adopt*, **principal** *demonstrates*, **she** *is committed*, **teachers** *cooperate*.

The principle is this: Readers tend to judge a sentence to be readable when the subject of its verb names the main character in a few concrete words, ideally a character that is also the “doer” of the action expressed by the verb that follows.

But there's a complication: You can often tell clear stories with characters that are not people. Those characters can be entities such as “school system” in (3b) or “athletics” in (4):

4. Athletics debases a college's educational mission only when it overstimulates the passions of alumni and others who no longer need an education but do need a source of meaning in their lives.

Or they can be purely abstract characters:

5. No skill is more valued in the professional world than problem solving. The ability to solve problems quickly requires us to frame situations in different ways and to find more than one solution. In fact, effective problem solving may define general intelligence.

Few readers have trouble with those abstract subjects, because they're short and familiar: *no skill*, *the ability to solve problems quickly*, and *effective problem solving*. What gives readers trouble is an abstract subject that is long and unfamiliar.

To fix sentences with long, abstract subjects, revise in three steps:

- Identify the main character in the sentence.
- Find its key action, and if it is buried in an abstract noun, make it a verb.
- Make the main character the subject of that new verb.

For example, compare (6a) and (6b) (actions are boldfaced; verbs are capitalized):

- 6a. Without a means for **analyzing interactions** between social class and education in regard to the **creation** of more job opportunities, success in **understanding** economic mobility will **REMAIN** limited.
- 6b. Economists do not entirely **UNDERSTAND** economic mobility, because they cannot **ANALYZE** how social class and education **INTERACT** to **CREATE** more job opportunities.

In both sentences, the main character is *economists*, but in (6a) that character isn't the subject of any verb; in fact, it's not in the sentence at all: we must infer it from actions buried in nouns: *analyzing* and *understanding* (what economists do). We revise (6a) into (6b) by making the main characters (*economists*, *social class*, and *education*) subjects of action verbs (*understand*, *analyze*, *interact*, and *create*).

Readers want subjects to name the main characters in your story, ideally flesh-and-blood characters, and verbs to name their key actions.

14.1.2 Avoid Interrupting Subjects and Verbs with More than a Word or Two

Once past a short subject, readers want to get to a verb quickly, so avoid splitting a verb from its subject with long phrases and clauses:

7a. Some economists, because they write in a style that is impersonal and objective, do not communicate with laypeople easily.

In (7a), the *because* clause separates the subject *some economists* from the verb *do not communicate*, forcing us to suspend our mental breath. To revise, move the interrupting clause to the beginning or end of its sentence, depending on whether it connects more closely to the sentence before or after. When in doubt, put it at the end (for more on this see 14.1.4).

7b. Because some economists write in a style that is impersonal and objective, they do not communicate with laypeople easily. This inability to communicate . . .

7c. Some economists do not communicate with laypeople easily because they write in a style that is impersonal and objective. They use passive verbs and . . .

Readers manage short interruptions more easily:

8. Few economists deliberately write in a style that is impersonal and objective.

14.1.4

In (9a) three important actions aren't verbs, but nouns: *attempt*, *enlisting*, *failure*. Sentence (9b) seems more direct because it expresses those actions in verbs: *attempted*, *enlist*, *failed*.

Put Familiar Information at the Beginning of a Sentence, New at the End

Readers understand a sentence most readily when they grasp its subject easily, and the easiest subject to grasp is not just short and concrete, but *familiar*. Compare how the second sentence in each of the following passages does or doesn't "flow":

10a. New questions about the nature of the universe have been raised by scientists studying black holes in space. The collapse of a dead star into a point perhaps no larger than a marble creates a black hole. So much matter squeezed into so little volume changes the fabric of space around it in odd ways.

10b. New questions about the nature of the universe have been raised by scientists studying black holes in space. A black hole is created by the collapse of a dead star into a point no larger than a marble. So much matter squeezed into so little volume changes the fabric of space around it in odd ways.

Most readers think (10b) flows better than (10a), partly because the subject of the second sentence, *A black hole*, is shorter and more concrete than in (10a): *The collapse of a dead star into a point perhaps no larger than a marble*. But (10b) also flows better because the order of its ideas is different.

In (10a) the first words of the second sentence express information that is new to this passage:

10a. . . . black holes in space. The collapse of a dead star into a point perhaps no larger than a marble creates . . .

Those words about collapsing stars seem to come out of nowhere. But in (10b), the first words echo the end of the previous sentence:

10b. . . . black holes in space. A black hole is created by . . .

Moreover, once we make that change, the end of that second sentence introduces the third more cohesively:

10b. . . . the collapse of a dead star into a point no larger than a marble. So much matter compressed into so little volume changes . . .

That is why readers think passage (10a) feels choppy than (10b): the end of one sentence does not flow smoothly into the beginning of the next.

No principle of writing is more important than this: old before new, familiar information introduces unfamiliar information.

14.1.3 Put Key Actions in Verbs, Not in Nouns

Readers want to get to a verb quickly, but they also want that verb to express a key action. So avoid using an empty verb such as *have*, *do*, *make*, or *be* to introduce an action buried in an abstract noun. Make the noun a verb.

Compare these sentences (action nouns are boldfaced; action verbs are capitalized; verbs with little action are underlined):

9a. During the early years of the Civil War, the South's **attempt** at **enlisting** Great Britain on its side was met with **failure**.

9b. During the early years of the Civil War, the South **ATTEMPTED** to **ENLIST** Great Britain on its side, but it FAILED.

14.1.5 Avoid Long Introductory Phrases

Compare these two sentences (introductory phrases are boldfaced; whole subjects underlined):

11a. **In view of claims by researchers on higher education indicating at least one change by most undergraduate students of their major field of study,** first-year students seem not well informed about choosing a major field of study.

11b. Researchers on higher education claim that most students change their major field of study at least once during their undergraduate careers. **If that is so,** then first-year students seem not well informed when they choose a major.

Most readers find (11a) harder to read than (11b), because it makes them work through a twenty-four-word phrase before they reach its subject (*first-year students*). In the two sentences in (11b), readers start with a subject either immediately, *Researchers . . .*, or after a very short delay, *If that is so, . . .*

The principle is this: Start most of your sentences directly with their subjects. Begin only a few sentences with introductory phrases longer than ten or so words. You can usually revise long introductory phrases and subordinate clauses into their own independent sentences as in (11b).

14.1.6 Choose Active or Passive Verbs to Reflect the Previous Principles

You may recall advice to avoid passive verbs—good advice, when a passive verb forces you to write a sentence that contradicts the principles we have discussed, as here:

12a. Global warming may have many catastrophic effects. Tropical diseases and destructive insect life even north of the Canadian border could be increased_{passive verb} by this climatic change.

That second sentence opens with a twelve-word subject conveying new information: *Tropical diseases . . . Canadian border*. It is the subject of a passive verb, *be increased*, and that verb is followed by a short, familiar bit of information from the sentence before: *by this climatic change*. That sentence would be clearer if its verb were active:

12b. Global warming may have many catastrophic effects. This climatic change could increase_{active verb} tropical diseases and destructive insect life even north of the Canadian border.

Now the subject is familiar, and the new information in the longer phrase is at the end. In this case, the active verb is the right choice.

But if you never make a verb passive, you'll write sentences that contradict the old-new principle. We saw an example in (10a):

10a. New questions about the nature of the universe have been raised by scientists studying black holes in space. The collapse of a dead star into a point perhaps no larger than a marble creates_{active verb} a black hole. So much matter squeezed into so little volume changes the fabric of space around it in odd ways.

The verb in the second sentence of (10a) is active, but the passage flows better when it's passive:

10b. New questions about the nature of the universe have been raised by scientists studying black holes in space. A black hole is created_{passive verb} by the collapse of a dead star into a point no larger than a marble. . . .

Readers prefer a subject that is short, concrete, and familiar, even if you must use a passive verb. So *choose* active or passive, depending on which gives you the right kind of subject: short, concrete, and familiar.

14.1.7 Use First-Person Pronouns Appropriately

Almost everyone has heard the advice to avoid using *I* or *we* in academic writing. In fact, opinions differ on this. Some teachers tell students never to use *I*, because it makes their writing "subjective." Others encourage using *I* as a way to make writing more lively and personal.

Most instructors and editors do agree that two uses of *I* should be avoided in two specific situations:

- Insecure writers begin too many sentences with *I think* or *I believe* (or their equivalent, *In my opinion*). Readers assume that you think and believe what you write, so you don't have to say so.
- Inexperienced writers too often narrate their research: *First, I consulted . . .*, *Then I examined . . .*, and so on. Readers care less about the story of your research than about its results.

But we believe, and most professionals agree, that the first person is appropriate on two occasions. That last sentence illustrates one of them: *we believe . . . that the first person . . .*

- An occasional introductory *I* (or *we*) *believe* can soften the dogmatic edge of a statement. Compare this blunter, less qualified version:

13. ~~But we believe, and most professionals agree, that~~ the first person is appropriate on two occasions.

The trick is not to hedge so often that you sound uncertain or so rarely that you sound smug. The second occasion depends on the action in the verb:

- A first-person *I* or *we* is also appropriate as the subject of a verb naming an action unique to you as the writer of your argument:

14. In this report, I will show that social distinctions at this university are . . .

Verbs referring to such actions typically appear in introductions: *I will show/argue/prove/claim that X*, and in conclusions: *I have demonstrated/concluded/ . . .* Since only you can show, prove, or claim what's in your argument, only you can say so with *I*.

On the other hand, researchers rarely use the first person for an action that others must repeat to replicate the reported research. Those words include *divide, measure, weigh, examine*, and so on. Researchers rarely write sentences with active verbs like this:

15a. *I calculated* the coefficient of X.

Instead, they're likely to write in the passive, because anyone can repeat this calculation:

15b. The coefficient of X *was calculated*.

Those same principles apply to *we*, if you're one of two or more authors. But many instructors and editors do object to two other uses of *we*:

- the royal *we* used to refer reflexively to the writer
- the all-purpose *we* that refers to people in general

Not this:

16. We must be careful to cite sources when we use data from them. When we read writers who fail to do that, we tend to distrust them.

Finally, though, your instructor decides. If he flatly forbids *I* or *we*, then so be it.

QUICK TIP

Read Drafts Aloud

You can best judge how your readers will respond to your writing if you read it aloud—or better, have someone read it back to you. If that person stumbles or seems to drone, you can bet your readers will like your prose less than you do.

14.2 Diagnose What You Read

Once you understand how readers judge what they read, you also know why so much of what you must read seems so dense. Sometimes you struggle to understand academic writing because its content is difficult. But sometimes you struggle because the writer didn't write clearly. This next passage, for example, is the sort that might be found in any textbook:

17a. Recognition of the fact that systems differ from one language to another can serve as the basis for serious consideration of the problems confronting translators of the great works of world literature originally written in a language other than English.

But in half as many words, it means only this:

17b. Once we know that languages have different grammars, we can consider the problems of those who translate great works of literature into English.

So when you struggle to understand some academic writing (and you will), don't blame yourself, at least not at first. Diagnose its sentences. If they have long subjects stuffed with abstract nouns, expressing new information, the problem is probably not your inability to read easily, but the writer's inability to write clearly. If that is the case, then the tools we've given you for writing clearly will also help you unpack such dense prose.

Choose the Right Word

Another bit of standard advice is *Choose the right word*. It has two aspects:

1. Choose the word with the right meaning.

Affect doesn't mean *effect*, *elicit* doesn't mean *illicit*. Many handbooks list commonly confused words. If you're an inexperienced writer, invest in one.

2. Choose the word with the right level of diction.

If you draft quickly, you risk choosing words that might mean roughly what you think they do, but are too casual for a research report. Someone can *criticize* another writer or *knock* him; a risk can seem *frightening* or *scary*. Those pairs have similar meanings, but most readers judge the second to be too casual for academic writing.

On the other hand, if you try too hard to sound like a real "academic," you risk using words that are too formal. You can *think* or *cogitate*, *drink* or *imbibe*. Those pairs are close in meaning, but the second in each is too fancy for a report written in ordinary English. Whenever you're tempted to use a word that you think is especially fine, look for a more familiar one.

The obvious advice is to look up words you're not sure of. But they're not the problem; it's the ones you're sure of but don't get right that are the problem. Worse, no dictionary tells you that a word like *visage* or *perambulate* is too fancy for just about anyone to write. The short-term solution is to ask someone to read your report before you turn it in. The long-term solution is to read a lot, write a lot, endure a lot of criticism, and learn from it.

14.4 Polish It Off

Before you print out your report, proofread it one last time to fix errors in grammar, spelling, and punctuation. Many experienced writers proofread from the last sentence back to the first to keep from missing the words because you got caught up in the flow. Do *not* rely solely on your spell-checker. It won't catch words that are correctly spelled but incorrectly used, such as *their-there-they're*, *it's-its*, *too-to*, *accept-except*, *affect-effect*, *already-all ready*, *complement-compliment*, *principal-principle*, *discrete-discreet*, and so on. If you've had that kind of problem before, do a global search to check on both words.

Some students think they should worry about the quality of their writing only in an English course. It is true that instructors in courses other than English are likely to focus more on the content of your report than on its style. But don't think they'll ignore its clarity and coherence. If a history or art instructor criticizes your report because it's badly written, don't plead: *But this isn't an English course*. Every course in which you write is an opportunity to practice writing clearly, coherently, and persuasively, a skill that will serve you well for the rest of your life.

You might now think your job is done. In fact, you have one last task: to profit from the comments on your returned paper.

15: Learning from Your Returned Paper

15.1 Find General Principles in Specific Comments

15.2 Visit Your Instructor

Teachers are baffled and annoyed when a student looks only at the grade on a paper and ignores substantive comments or, worse, can't be bothered to pick up the paper at all. Since you'll write many research papers in your academic and professional life, it's smart to understand how your teachers make their judgments and how you can use them to do better next time. For that, you need one more plan.

Find General Principles in Specific Comments

When you read your teacher's comments, focus on those that you can apply to your next project:

- Look for a pattern of errors in spelling, punctuation, and grammar. If you see one, make a list so that you know what to work on next time.
- If your teacher says you made factual errors, check your notes to see why: Did you misreport them? Were you misled by an unreliable source? Whatever you find, you know what to do in your next project.
- If your teacher says your writing is choppy, dense, or awkward (indicated by AWK or K), check your sentences using the steps in chapter 14.
- If he says your report is disorganized, check it against chapter 12. You won't always find what caused the complaints, but when you do you'll know what to work on next time.

Visit Your Instructor

If your teacher's comments are mostly impressionistic words like *disorganized*, *illogical*, or *unsupported* and you can't see anything in your paper that earned that criticism, make an appointment to ask. As with every other step in your project, that visit will go better if you plan and even rehearse it. Do this *before* you talk to your teacher:

- If your teacher marked up spelling, punctuation, and grammar, correct those errors. The corrections will show that you took his comments seriously.
- Jot down your own responses after any comments about your argument to show that you've read them closely.

In the office:

- Don't whine about your grade. Be clear that you want only to understand the comments so that you can do better next time.
- Focus on the most important comments. Rehearse your questions so that they'll seem amiable: not "You say this is disorganized but you don't say why," but rather "Can you help me see where I went wrong with my organization so I can do better next time?"
- Do not ask "What didn't you like?" but rather "Where did I go wrong and how would I fix it?"
- If your teacher can't clearly explain his judgment, he may have graded your paper impressionistically. If so, bad news: you may learn little from your visit.

16: On the Spirit of Research

As we've said, we can reach good conclusions in many ways other than research: we can rely on intuition, emotion, even spiritual insight. But the truths we reach in those ways are personal. When we ask others to accept and act on them, we can't present our feelings as evidence for them to agree; we can ask only that they take our report of our inner experience—and our claims—on faith.

The truths of research, however, and how we reached them must be available for public study. We base research claims on evidence available to everyone and on principles of reasoning that, we hope, our readers accept as sound and relevant. And then we test all of that in every way that we and others can imagine. That may be a high standard, but it must be if we expect others to base their understanding and actions, even their lives, on what we ask them to believe.

When you accept the principles that shape public, evidence-based belief, you accept two more that can be hard to live by. One concerns our relationship to authority. No more than five centuries ago, the search for better understanding based on *evidence* was typically regarded as a threat. Among the powerful, many believed that the important truths were known and that the scholar's job was to preserve and transmit them, certainly not to challenge them. If new facts cast doubt on an old belief, the belief usually trumped the facts. Many who dared to follow evidence to conclusions that challenged authority were banished, imprisoned, and on occasion killed.

Even today, those who reason from evidence can anger those who hold a cherished belief. For example, some historians claim that, based on the sum of the evidence, Thomas Jefferson probably fathered at least one child by his slave Sally Hemings. Others disagree, not because they have better counter-evidence, but because of a fiercely held belief: *A person of Jefferson's stature couldn't do such a thing*. But in the world of research, both academic and professional, good evidence and sound reasoning trump belief every time, or at least they should.

In some parts of the world, it's still considered more important to guard settled beliefs than to test them. But in those places informed by the values of research, we think differently: we believe not only that we *may* question settled beliefs, but that we *must*, no matter how much authority cherishes them—so long as we base our answers on sound reasons based on reliable evidence.

But that principle requires another. When we make a claim, we must expect and even encourage others to question not just our claim but how we

reached it, to ask: *Why do you believe that?* It's often hard to welcome such questions, but we're obliged to listen with goodwill to objections, reservations, and qualifications that collectively imply *I don't agree, at least not yet*. And the more we challenge old ideas, the more we must be ready to acknowledge and answer those questions, because we may be asking others to give up something they cherish.

When some students encounter these values, they find it difficult, even painful, to live by them. Some feel that a challenge to what they believe isn't a lively search for truth, but a personal attack on their beliefs, sometimes on their deepest values. Others retreat to a cynical skepticism that doubts everything and believes nothing. Others fall into mindless relativism: *We're all entitled to our own beliefs, and so all beliefs are right for those who hold them!* Many turn away from an active life of the mind, rejecting not only answers that might disturb their settled belief but even the questions that inspired them.

But in our worlds of work, scholarship, civic action, and even politics, we can't replace tested knowledge and hard-won understanding with personal opinion, a relativistic view of truth, or the comfortable settled knowledge of "authority."

That does not mean we reject long-held and time-tested beliefs lightly. We replace them only after we're persuaded by sound arguments backed by good reasons based on the best evidence available, and after an amiable but searching give-and-take that tests those arguments as severely as we can. In short, we become *responsible* believers when we can make our own sound arguments that test and evaluate those of others.

You may find it hard to see all of this at work in a paper written for a class, but despite its cold type, a research report written for any audience is a conversation, imagined to be sure, but still a cooperative yet rigorous inquiry into what we should and should not believe.

PART II

Citing Sources

In part 2, we show you how to create citations that your readers will trust because they are complete, accurate, and in the correct format. Now we know that most of you take no pleasure in this part of your project. Even the most persnickety researchers do not *enjoy* keeping track of their citations: it demands more attention to detail than most of us want to give. And if citations are tedious for experienced researchers who know what to expect, for beginners they can seem like slow torture.

So we understand if you'd rather just skip the citations. But we also know how much citation mistakes can cost you. If you fail to cite what you should, you open yourself to a charge of plagiarism (see chapter 10). If you cite inaccurately, you may lose the trust of readers: *If I can't trust you with the small, easy things, then how can I trust you with the more challenging ones?* Even a tiny slip in the format of your citations can harm you with the pickiest readers. Of course, at this stage in your career as a researcher, you cannot harm anyone with a bad citation: you do not yet have readers who need to trust you because their well-being depends on the results of your research. But you will. And so your teacher will be as demanding now as she knows your most important readers will be then.

Read Me First: How to Use Part 2

Citations are boring but crucial, so you will have to motivate yourself to be extra careful creating them. Because the job can be tedious, we want to help you get through it with ease, if not with pleasure. Because mistakes can be costly, we want to help you make sure you don't slip up. If you follow these steps, you will give yourself the best chance to create accurate, proper citations as painlessly as possible.

Before you start to research:

Read chapter 17: it will help you guide your research and drafting. It will also help you understand the rationale for the standard forms of citations, which will help you make better decisions if your sources do not exactly match the models. If you are interested, you might also read the introductory sections of the chapter that explains the citation style you plan to use. Don't try to study and remember all the models: you will consult them as you create and check individual citations.