16 Introductions and Conclusions

A good introduction encourages readers to read your work with interest and prepares them to understand it better. A good conclusion leaves them with a clear statement of your point and renewed appreciation of its significance. In this chapter, we show you how to write both. The time you spend revising your introduction and conclusion may be the most important revision you do.

Once you think you have a draft that works, you're ready to write your final introduction and conclusion. Some writers think that means following the standard advice: *Grab their attention with something snappy or cute.* That's not useless advice, but readers want more than cute and snappy. In part II, we showed you how to develop a project around a research problem. Here, we show you how to use that problem to engage your readers. What seizes their attention is a problem they think needs a solution, and what holds it is a promise that you've found it. As we've said, you can always work with readers who say, *I don't agree.* What you can't survive are those who shrug and say, *I don't care.*

16.1 THE COMMON STRUCTURE OF INTRODUCTIONS

As we've emphasized, different research communities do things in different ways, but nowhere do those differences seem greater than in their introductions. These three condensed examples are from the fields of cultural criticism, computer design, and legal history. But while they look different on the surface, their underlying structures are identical.

(1) Why can't a machine be more like a man? In almost every episode of *Star Trek: The Next Generation*, the android Data wonders what makes a person a person. In the original *Star Trek*, similar questions were raised by the half-Vulcan Mr. Spock, whose status as a person was undermined by his machinelike logic and lack of emotion. In fact, Data and

Spock are only the most recent "quasi-persons" who have explored the nature of humanity. The same question has been raised by and about creatures ranging from Frankenstein's monster to the Terminator. But the real question is why these characters who struggle to be persons are always white and male. As cultural interpreters, do they tacitly reinforce destructive stereotypes of what it means to be "normal"? The model person seems in fact to be defined by Western criteria that exclude most of the people in the world.

(2) As part of its program of Continuous Quality Improvement (CQI), Motodyne Computers plans to redesign the user interface for its Unidyne™ online help system. The specifications for its interface call for self-explanatory icons that let users identify their function without verbal labels. Motodyne has three years' experience with its current icon set, but it has no data showing which icons are self-explanatory. Lacking such data, we cannot determine which icons to redesign. This report provides data for eleven icons, showing that five of them are not self-explanatory.

(3) In today's society, would Major John André, a British spy in civilian clothes captured behind American lines in 1780, be hanged? Though considered a noble patriot, he suffered the punishment mandated by military law. Over time our traditions have changed, but the punishment for spying has not. It is the only offense that mandates death. Recently, however, the Supreme Court has rejected mandatory death sentences in civilian cases, creating an ambiguity in their application to military cases. If Supreme Court decisions apply to the military, will Congress have to revise the Uniform Code of Military Justice? This article concludes that it will.

The topics and problems posed in those three introductions differ as much as their intended readers, but behind them is a shared pattern that readers look for in all introductions, regardless of field. That common structure consists of three elements:

- contextualizing background
- statement of the problem
- response to the problem

Not every introduction has all three elements, but most do.

Here is that pattern of *Context + Problem + Response* in each of those introductions:

(1) **CONTEXT:** Why can't a machine be more like a man? . . . The same question has been raised by and about creatures ranging from Frankenstein's monster to the Terminator.
PROBLEM: But the real question is . . . do they tacitly reinforce destructive stereotypes of what it means to be "normal"?
RESPONSE: The model person seems in fact to be defined by Western criteria that exclude most of the people in the world.

(2) **CONTEXT:** As part of its program of Continuous Quality Improvement (CQI), Motodyne Computers plans to redesign the user interface. . . . Motodyne has three years' experience with its current icon set . . .
PROBLEM: but it has no data showing which icons are self-explanatory. Lacking such data, we cannot determine which icons to redesign.
RESPONSE: This report provides data for eleven icons, showing that five of them are not self-explanatory.

(3) **CONTEXT:** In today's society, would Major John André . . . be hanged [for spying]? . . . It is the only offense that mandates death.
PROBLEM: Recently, however, the Supreme Court has rejected mandatory death sentences in civilian cases, creating an ambiguity in their application to military cases. . . . Will Congress have to revise the Uniform Code of Military Justice?
RESPONSE: This article concludes that it will.

Each of those elements plays it own role not only in motivating readers to read your paper, but in helping them understand it.

16.2 STEP 1: ESTABLISHING A CONTEXT

The opening context establishes *common ground*, a shared understanding between reader and writer about the larger issue the writer will address. But it does more, illustrated by the opening of a fairy tale:

One sunny morning Little Red Riding Hood was skipping through the forest on her way to Grandmother's house.*stable context [imagine butterflies dancing around her head to flutes and violins]*

Like the opening to most fairy tales, this one establishes an unproblematic, even happy context, just so that it can be disrupted with a problem:

. . . when suddenly Hungry Wolf jumped out from behind a tree*disrupting condition [imagine trombones and tubas]* frightening her [and, if they've lost themselves in the story, little children as well].*cost*

The rest of the story elaborates that problem and then resolves it.

Unlikely though it may seem, most introductions follow the same strategy. They open with the stable context of a common ground—some apparently unproblematic account of research already known. The writer then disrupts it with a problem, saying in effect: *Reader, you may think you know something,* ***but*** *your knowledge is flawed or incomplete.*

(3) **STABLE CONTEXT:** In today's society, would Major John André, a British spy . . . be hanged? . . . [Spying] is the only offense that mandates death.
DISRUPTING PROBLEM: Recently, **however**, the Supreme Court has rejected mandatory death sentences. . . .

Not every research paper opens with common ground. This one opens directly with a problem:

Recently the chemical processes that thin the ozone layer have been found to be less well understood than once thought. We may have labeled hydrofluorocarbons as the chief cause incorrectly.

Some readers might find that problem disturbing enough to motivate their reading, but we can heighten its punch by introducing it with the seemingly unproblematic context of prior research, *specifically so that we can disrupt it*:

As we have investigated environmental threats, our understanding of chemical processes in acid rain and the buildup of carbon dioxide has improved, allowing us to understand better their effects on the biosphere.*stable context* [*Sounds good.*] **But recently the processes that thin the ozone layer have been found to be less well understood than once**

thought._destabilizing condition_ We may have labeled hydrofluorocarbons as the chief cause incorrectly._consequence_

Readers now have not one reason to see their self-interest in the problem, but two: not just the problem itself, but also their incomplete understanding of the whole matter.

Your context can describe a misunderstanding:

The Crusades are widely believed to have been motivated by religious zeal to restore the Holy Land to Christendom._stable context_ **In fact,** the motives were at least partly, if not largely, political.

It can survey flawed research:

Few sociological concepts have fallen out of favor as fast as Catholicism's alleged protective influence against suicide. Once one of sociology's basic beliefs, it has been called into question by a series of studies in both Europe and North America. . . ._stable context_ **However,** certain studies still find an effect of religion . . .

Or it can point to a misunderstanding about the problem itself:

American education has focused on teaching children to think critically, to ask questions and test answers._stable context_ **But** the field of critical thinking has been taken over by fads and special interests.

Some inexperienced researchers skimp on common ground, opening their paper as if they were picking up a class conversation where it left off. Their introductions are so sketchy that only others in the course would understand them:

In view of Hofstadter's failure to respect the differences among math, music, and art, it is not surprising that the response to *The Embodied Mind* would be stormy. It is less clear what caused the controversy. I will argue that any account of the human mind must be interdisciplinary. . . .

When you draft your introduction, imagine you are writing to someone who has read some of the same sources as you and is generally interested in the same issues, but does not know what specifically happened in your class.

Others make the opposite mistake, thinking they should list every source they read that remotely touches their topic. Survey only those sources whose findings you will *directly* modify. Add more *only* if you need to locate the problem in a wider context.

16.3 STEP 2: STATING YOUR PROBLEM

Once you establish a stable context or common ground, disrupt it with a problem. As we've said, the statement of a research problem has two parts (see chapter 4):

- a *condition* of incomplete knowledge or understanding, and
- the *consequences* of that condition, a more significant gap in understanding

You can state the condition directly:

. . . but Motodyne has no data showing which icons are self-explanatory.

Or you can imply it in an indirect question:

The real question is why these characters are always white and male.

You make this condition of ignorance or flawed understanding part of a *full* research problem *only* when you imagine someone asking, *So what?*, and then spell out as an answer the *consequence* of that flawed understanding. You can state that consequence as a direct cost:

Lacking such data, we cannot determine which icons to redesign._cost_

Or you can transform the cost into a benefit:

With such data, we could determine which icons to redesign._benefit_

The choice between stating a cost and stating a benefit is not just a matter of style. Some research indicates that readers are more motivated by a real cost than by a potential benefit. Our suggestion: state costs or consequences when presenting your problem; state benefits to intensify your solution.

That's the straightforward version of stating a problem; there are variations.

16.3.1 When Should You State the Condition of a Problem Explicitly?

Occasionally, you tackle a problem so familiar that its name implies both its condition and consequence to those in the field: *the role of DNA in personality*; *Shakespeare's knowledge of foreign languages*. Likewise, in some fields like mathematics and the natural sciences, many research problems are widely known, so just stating the condition is enough to bring to mind its consequence. Here again is that (condensed) introduction to Crick and Watson's landmark account of the double-helix structure of DNA:

> We wish to suggest a structure for the salt of deoxyribose nucleic acid (D.N.A.). This structure has novel features which are of considerable biological interest. A structure for nucleic acid has already been proposed by Pauling and Corey. They kindly made their manuscript available to us in advance of publication. Their model consists of three intertwined chains, with the phosphates near the fibre axis, and the bases on the outside. In our opinion, this structure is unsatisfactory. . . .

It was enough for them merely to "suggest" a structure for DNA, because they knew everyone wanted to know what it was. (Note, though, that they do raise a problem by mentioning Pauling and Corey's *incorrect* model.)

In the natural sciences and most social sciences, researchers usually address questions familiar to their readers. In that case, you might think you do not need to spell out your problem. But readers won't know the *particular* flaw in their knowledge that your research will correct unless you tell them.

In the humanities and some social sciences, researchers more often pose questions that they alone have found or even invented, questions that readers find new and often surprising. In that case, you must explicitly describe the gap in knowledge or flawed understanding that you intend to resolve.

16.3.2 Should You Spell Out Consequences and Benefits?

To convince readers that they should take your problem seriously, you must state the cost *they* will pay if it is not resolved or the benefits *they* gain if it is. Sometimes you can describe tangible costs that your research helps your readers avoid (see 4.1):

> Last year the River City Supervisors agreed that River City should add the Bayside development to its tax base. Their plan, however, was based on little economic analysis. If the Board votes to annex Bayside without understanding what it will cost the city, **the Board risks worsening River City's already shaky fiscal situation.** When the burden of bringing sewer and water service up to city code are included in the analysis, the annexation will cost more than the Board assumes.

This is the kind of problem that motivates *applied* research. The area of ignorance (no economic analysis) has tangible consequences (higher costs).

In pure research, you formulate the same kind of problem when you explain the consequence not in money, but as misunderstanding or, alternatively, as the possible benefit of better understanding:

> Since 1972 American cities have annexed upscale neighborhoods to prop up tax bases, often bringing disappointing economic benefits. But those results could have been predicted had they done basic economic analysis. The annexation movement is a case study of how political decisions at the local level fail to use expert information. What is puzzling is why cities do not seek out that expertise. **If we can discover why cities fail to rely on basic economic analyses, we might better understand why their decision making fails so often in other areas as well.** This paper analyzes the decision-making process of three cities that annexed surrounding areas without consideration of economic consequences.

16.3.3 Testing Conditions and Consequences

In chapter 4 we suggested a way to test how clearly you articulate the consequences of not solving a problem: after the sentences that best state your readers' condition of ignorance or misunderstanding, ask, *So what?*

> Motodyne has no data showing which icons are self-explanatory. [*So what?*] Without such data, it cannot determine which icons to redesign.

> Stories about the Alamo in Mexican and U.S. versions differ in obvious ways, but U.S. versions from different eras also differ. [*So what?*] Well . . .

Answering *So what?* can be exasperating, even dismaying. If you fall in love with stories about the Battle of the Alamo, you can pursue them to your heart's content, without having to answer to anyone but yourself: *I just like reading about them.* But for others to appreciate your research, you have to "sell" them on its significance. Otherwise, why should they spend time on it?

To convince readers to care about your work, you have to show them that your problem is their problem—even if they don't know it yet. You have to convince them that if they go on not knowing, say, how Hollywood turned the Alamo story into myth, they will fail to understand something more important about national identity. To be sure, some readers will ask again, *So what? I don't care about national identity.* To which you can only shrug and think, *Wrong audience.* Successful researchers know how to find and solve interesting problems, but they also know how to find (or create) an audience interested in the problems they solve.

If you are sure your readers know the consequences of your problem, you might decide not to state them explicitly. Crick and Watson did not specify the cost of not knowing the structure of DNA, because they knew their readers already recognized that without understanding the structure of DNA, they could not understand genetics (something more important). Had Crick and Watson spelled out that consequence, it might have seemed redundant or condescending.

If you are tackling your first research project, no reasonable teacher will expect you to state the consequences of your problem in detail, because you probably don't yet know why other researchers think it is significant. But you take a big step in that direction when you can state your own incomplete knowledge or flawed understanding in a way that shows you are committed to improving it. You take an even bigger step when you can show that by better

understanding one thing, you better understand something much more important, even if only to you.

16.4 STEP 3: STATING YOUR RESPONSE

Once you disrupt your readers' stable context with a problem, they expect you to resolve it in one of two ways: by stating your solution or main point or by promising that you will do so later on. Readers look for this statement or promise in the last few sentences of your introduction.

16.4.1 State the Gist of Your Solution

You can state your main point/solution explicitly toward the end of your introduction:

> As we have investigated environmental threats, our understanding of chemical processes in acid rain and the buildup of carbon dioxide has improved, allowing us to understand better their effects on the biosphere.*stable context* [*Sounds good.*] But recently the chemical processes that thin the ozone layer have been found to be less well understood than once thought.*condition* [*So what?*] We may have labeled hydrofluorocarbons as the chief cause incorrectly.*consequence* **We have found that the bonding of carbon** . . .*gist of solution/main point*

16.4.2 Promise a Solution

Alternatively, you can delay your main point by stating toward the end of your introduction only where your paper is headed, implying that you will present that point in your conclusion. This approach provides a launching point and creates a point-last paper:

> As we have investigated environmental threats, our understanding . . . has improved. . . . But recently the chemical processes . . . have been found to be less well understood. . . . [*So what?*] We may have labeled hydrofluorocarbons as the chief cause incorrectly. [*Well, what have you found?*] **In this report we describe a hitherto unexpected chemical bonding between** . . .*promise of point to come*

This introduction launches us into the paper, not with its main point but with a promise of one to come.

The weakest promise is one that merely announces a vague topic:

> This study investigates processes leading to ozone depletion.

When you save your point for the end of your paper, you ask your readers to trust that getting to it is worth their effort. You build this trust in your introduction by giving them not just a general topic but an outline of your solution or a plan for your argument (or both).

> There are many designs for hydroelectric turbine intakes and diversion screens, but on-site evaluation is not cost-effective. A more viable alternative is computer modeling. **To evaluate hydroelectric diversion screens, this study will evaluate three computer models—Quattro, AVOC, and Turbo-plex—to determine which is most cost-effective in reliability, speed, and ease of use.**

This kind of plan is common in social sciences, but less frequent in the humanities, where many consider it a bit heavy-handed.

16.5 SETTING THE RIGHT PACE

When crafting your introduction, you must decide how quickly to raise your problem. That depends on how much your readers know. In this next example, the writer devotes one sentence to announcing a consensus among well-informed engineers and then briskly disrupts it:

> Fluid-film forces in squeeze-film dampers (SFDs) are usually obtained from the Reynolds equation of classical lubrication theory. **However, the increasing size of rotating machinery requires the inclusion of fluid inertia effects in the design of SFDs. Without them** . . .

(We have no idea what any of that means, but the structure of *Context + Problem* is clear.)

This next writer also addresses technical concepts but patiently lays them out for readers who have little technical knowledge:

> A method of protecting migrating fish at hydroelectric power developments is diversion by screening turbine intakes . . . [*another 110 words explaining screens*]. Since the efficiency of screens is determined by the interaction of fish behavior and hydraulic flow, screen design can be evaluated by determining its hydraulic performance . . . [*40 more words explaining hydraulics*]. **This study provides a better understanding of the hydraulic features of this technique, which may guide future designs.**

The pace of an introduction varies by field. Researchers whose problems are already familiar to their research communities can open quickly; those who work in fields where problems are not widely shared must start more slowly. But the pace of your introduction signals something else as well. When you open quickly, you imply an audience of peers; when you open slowly, you imply readers who know less than you. If your readers are knowledgeable and you open slowly, they may think *you* know too little. But if they know little and you open quickly, they may think you are inconsiderate of their needs.

16.6 ORGANIZING THE WHOLE INTRODUCTION

When organizing your introduction, you have many choices, but they are not as complicated as they might seem. They all follow what is in fact a simple "grammar." A full introduction consists of just three elements:

> Context + Problem + Response

You don't need all three in every introduction:

- If the problem is well known, omit the common ground.
- If the consequences of the problem are well known, omit them.
- If you want readers to follow your thinking before they know your answer, offer a launching point at the end of your introduction and state your main point in your conclusion.

All this may seem formulaic, but it's what readers expect. And when you master a rhetorical pattern like this, you have more than a formula for writing. You also have a tool for thinking. To write

a full statement of your shared context and problem, you have to think hard about what your readers know, what they don't, and, in particular, what they should know and why.

16.7 FINDING YOUR FIRST FEW WORDS

Many writers find the first sentence or two especially difficult to write, and so they fall into clichés.

- Don't repeat the language of your assignment. If you are struggling to start, prime your pump by paraphrasing it, but when you revise, rewrite it.
- Don't start with a dictionary entry: "*Webster's* defines *ethics* as . . ." If a word is important enough to define, a dictionary definition won't serve.
- Don't start grandly: "The most profound philosophers have for centuries wrestled with the important question of . . ." If your subject is grand, it will speak its own importance.

These miscues arise from a good impulse: they are attempts to establish a shared context or common ground with a community of readers. The problem in all cases is that it is the wrong community. In that first example, the community is too narrow: it is just the student's teacher. In the other examples, the community is too broad: those writers are groping for a context that all of humanity could agree to. To avoid these missteps, open in a way that is likely to appeal to the *specific community of readers* you hope to interest.

Here are three standard choices for your first sentence or two.

16.7.1 Open with a Striking Fact Relevant to Your Problem

> Those who think that tax cuts for the rich stimulate the economy should contemplate the fact that the top 1 percent of Americans control one-third of America's total wealth.

16.7.2 Open with a Striking Quotation

Do this only if its words anticipate key terms in the rest of your introduction:

> "From the sheer sensuous beauty of a genuine Jan van Eyck there emanates a **strange fascination** not unlike that which we experience when permitting ourselves to be **hypnotized** by **precious stones**." Edwin Panofsky suggests here something **strangely magical** in Jan van Eyck's works. His images hold a **jewel-like** fascination. . . .

16.7.3 Open with a Relevant Anecdote

Do this only if its language anticipates your topic and vividly illustrates your problem. Here are the opening sentences of an article recounting the rise and fall of a Chicago street gang:

> On a park bench in July 1996, Cynthia, Laurie, and other senior officers of the Black Sisters United (BSU)—Chicago's largest federation of "girl gangs"—reflected on their efforts to sustain an organization that could represent and act on behalf of young African-American women in the city. "We was so close!" Cynthia said with deep anguish, sitting upright and looking about to see if anyone had heard her.

16.8 WRITING YOUR CONCLUSION

Even if your argument doesn't have a section labeled *Conclusion*, it will have a paragraph or two that serve as one. Your conclusion is an occasion to sum up your argument, but just as important, it is an opportunity to extend your research community's conversation by suggesting new questions your research has allowed you to see. You may be happy to know that you can write your conclusion using the same elements in your introduction, in reverse order.

16.8.1 Start with Your Main Point

State your main point near the beginning of your conclusion. If you already stated it in your introduction, repeat it here but more fully; do not simply repeat it word-for-word.

16.8.2 Add a New Significance or Application

After your point, say why it's significant, preferably with a new answer to *So what?* For example, the writer of this conclusion intro-

duces an additional consequence of the Supreme Court's decision on military death sentences:

> In light of recent Supreme Court decisions rejecting mandatory capital punishment, the mandatory death penalty for treason is apparently unconstitutional and must therefore be revised by Congress. **More significantly, though, if the Uniform Code of Military Justice is changed, it will challenge the fundamental value of military culture that ultimate betrayal requires the ultimate penalty. Congress will then have to deal with the military's sense of what is just.**

This observation belongs in the conclusion rather than in the introduction because it suggests *further questions* the article doesn't take up: *How exactly will the military respond to that challenge to its values? How should Congress respond in turn?* Just as in your introduction you increase the punch of your problem by stating its consequences, so in your conclusion you can increase the significance of your solution by noting its additional implications.

16.8.3 Call for More Research

Just as your opening context surveys research already done, so your conclusion can call for research still to do:

> These differences between novice and expert diagnosticians define their maturation and development. But while we know how novices and experts think differently, **we do not understand which elements in the social experience of novices contribute to that development and how. We need longitudinal studies on how mentoring and coaching affect outcomes and whether active explanation and critique help novices become skilled diagnosticians more quickly.**

When you state what remains to do, you keep the conversation alive. So before you write your last words, imagine someone fascinated by your work who wants to follow up on it: What more would *you* like to know? What research would you suggest they do? After all, that may have been how you found your own problem.

QUICK TIP **Titles**

The first thing readers read—and the last thing you should write—is your title. Beginning writers just attach a few words to suggest the topics of their papers. That's a mistake: a title is useful when it helps readers understand *specifically* what is to come. Compare these three titles:

> Microfinance
>
> Microfinance and Economic Development
>
> Microfinance as a Strategy for Economic Development: Realizing Its Potential for Improving the Standing of Women

Put into your title the keywords in your main point, the ones you circled when you checked for the continuity of conceptual themes (6.6.1, 8.2.1, 12.1.1, 12.3.2, 13.4). When readers see those concepts turn up again in your main point and again through the body of your paper, they will feel that your text has met their expectations. (Two-line titles give you more room for key terms. End the first line with a colon that introduces a more specific second line.)