What Research Is and How Researchers Think about It

1.1 What Research Is

1.2 How Researchers Think about Their Aims

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Whenever we read about a scientific breakthrough or a crisis in world affairs, we benefit from the research of others, who likewise benefited from the research of countless others before them. When we walk into a library, we are surrounded by more than twenty-five centuries of research. When we go on the internet, we can read the work of millions of researchers who have posed questions beyond number, gathered untold amounts of information from the research of others to answer them, and then shared their answers with the rest of us. We can carry on their work by asking and, we hope, answering new questions in turn. Governments spend billions on research, businesses even more. Research goes on in laboratories and libraries, in jungles and ocean depths, in caves and in outer space, in offices and, in the information age, even in our own homes. Research is in fact the world’s biggest industry.

So what, exactly, is it?

1.1 What Research Is

You already have a basic understanding of research: answering a question by obtaining information. In this sense, research can be as simple as choosing a new phone or as complex as discovering the origin of life. In this book we use research in a specific way to mean a process of systematic inquiry to answer a question that not only the researcher but also others want to solve. Research thus includes the steps involved in presenting or reporting it. To be a true researcher, as we are using the term, you must share your findings and conclusions with others.

If you are new to research, you may think that your paper will add
little to the world's knowledge. But done well, it will add a lot to your knowledge and to your ability to communicate that knowledge. As you learn to do your own research, you also learn to use and judge that of others. In every profession, researchers must read and evaluate the work of others before they make a decision. This is a job you will do better after you have learned how others judge yours.

This book focuses on research in the academic world, but every day we read or hear about research that affects our lives. Often we get news of research secondhand, and it can be difficult to know what reasoning and evidence support a claim. But research doesn't ask for our blind trust or that we accept something on the basis of authority. It invites readers to think critically about evidence and reasoning.

That is how research-based writing differs from other kinds of persuasive writing: it must rest on shared facts that readers accept as truths independent of your feelings and beliefs. Your readers must be able to follow your reasoning from evidence they accept to the claim you draw from it. Your success as a researcher thus depends not just on how well you gather and analyze data but also on how clearly you report your reasoning so that your readers can test and judge it before making your claims part of their understanding.

### 1.2 How Researchers Think about Their Aims

All researchers collect information, what we're calling data. But researchers do not merely gather facts on a topic—stories about the Battle of the Alamo, for example. They look for specific data to test and support an answer to a question that their topic inspired them to ask, such as Why has the Alamo story become a national legend? In doing so, they also imagine a community of readers who they believe will share their interest and help them test and support an answer to that question.

Experienced researchers, however, know that they must do more than convince us that their answer is sound. They must also show us why their question was worth asking, how its answer helps us understand some bigger issue in a new way. If we can figure out why the Alamo story has become a national legend, we might then answer a larger question: how have regional myths shaped the American character?

You can judge how closely your thinking tracks that of an experienced researcher by describing your project in a sentence like this:

1. Topic: I am working on X (stories about the Battle of the Alamo)
2. Question: because I want to find out Y (why its story became a national legend)
3. Significance: so that I can help others understand Z (how such regional myths have shaped the American character).

That sentence is worth a close look, because it describes not just the progress of your research but your personal growth as a researcher.

1. Topic: "I am working on X . . ."; Those new to research often begin with a simple topic like the Battle of the Alamo. But too often they stop there, with nothing but a broad topic to guide their work. Beginning this way, they may pile up dozens or hundreds of notes but then can't decide what data to keep or discard. When it comes time to write, their papers become "data dumps" that leave readers wondering what all those data add up to.

2. Question: " . . . because I want to find out Y . . ."; More experienced researchers begin not just with a topic but with a research question, such as Why has the story of the Alamo become a national legend? They know that readers will think their data add up to something only when they serve as evidence to support an answer. Indeed, only with a question can a researcher know what information to look for and, once obtained, what to keep—and not just data that support a particular answer but also data that test or discredit it. With sufficient evidence to support an answer, a researcher can respond to data that seem to contradict it. In writing a paper, the researcher tests that answer and invites others to test it too.

3. Significance: " . . . so that I can help others understand Z . . ."; The best researchers understand that readers want to know not only that an answer is sound but also why the question is worth asking: So what? Why should I care why the Alamo story has become a national legend? Think of it this way: what will be lost if you don't answer your question? Your answer might be Nothing. I just want to know. Good enough to start but not to finish, because eventually your readers will want an answer beyond Just curious.

Answering So what? is tough for all researchers, beginning and experienced alike, because when you only have a question stemming from a topic of personal interest, it's hard to predict whether others will find its answer significant. Some researchers therefore work backwards: they begin not by following their own curiosity but by crafting questions with implications for bigger ones that others in their field already care about. But many researchers, including us, find that they cannot address that third step until they finish a first draft. So it's fine to begin your research without being able to answer So what?, and if you are a student, your teacher may even let you skip that last step. But if you are doing advanced research, you must take it, because your answer to So what? is what makes your research matter to others.

In short, not all questions are equally good. We might ask how many
cats slept in the Alamo the night before the battle, but so what if we find out? It is hard to see how an answer would help us think about any larger issue worth understanding, so it's a question that's probably not worth asking (though as we'll see, we could be wrong about that).

How good a question is depends on its significance to some community of readers. Exactly what community depends on your field but also on how you frame your research. You can try to expand your potential readership by connecting Z to even broader questions: And if we can understand what has shaped the American character, we might understand better how Americans think they are. And when we know that, we might better understand why others in the world judge them as they do. Now perhaps political scientists will be as interested in this research as historians. On the other hand, if you try to widen your audience too much, you risk losing it altogether. Sometimes it's better to address a smaller community of specialists.

We can't tell you the right choice, but we can tell you two wrong ones: trying to interest everyone (some people just won't care no matter how you frame your research) or not trying to interest anyone at all.

1.3 Conversing with Your Readers

When you can explain the significance of your research, you enter into a kind of conversation with your research community. Some people, when they think of research, imagine a lone scholar or scientist in a hushed library or lab. But no places are more crowded with the presence of others than these. When you read a book or an article or a report, you silently converse with its authors—and through them with everyone else they have read. In fact, every time you go to a written source for information, you join a conversation between writers and readers that began millennia ago. And when you report your own research, you add your voice and hope that other voices will respond to you, so that you can in turn respond to them. And so it goes.

Experienced researchers understand that they are participating in such conversations and that genuine research must matter not only to the researcher but also to others. That is why our formula—I am working on X to find out Y so that others can better understand Z—is so powerful: because it makes informing others the end of research.

But these silent conversations differ from the face-to-face conversations we have every day. We can judge how well everyday conversations are going as we have them, and we can adjust our statements and behavior to repair mistakes and misunderstandings as they occur. But in writing we don't have that opportunity: readers have to imagine writers in conversation with one another, as well as with themselves, and writers have to imagine their readers and their relationship to them. In other words, writers have to offer readers a social contract: I'll play my part if you play yours.

Doing this is one of the toughest tasks for beginning researchers: get that relationship wrong and your readers will think you are naive or worse, won't read your work at all. Too many beginning researchers offer their readers a relationship that caricatures a bad classroom: Teacher, I know less than you. So my role is to show you how many facts I can dig up. Yours is to say whether I've found enough to give me a good grade. Do that and you turn your project into a pointless drill, casting yourself in a role exactly opposite to that of a true researcher. In true research, you must switch the roles of student and teacher. You must imagine a relationship that goes beyond Here are some facts I've dug up about fourteenth-century Tibetan weaving. Are they enough of the right ones?

There are three better reasons to share what you've found. You could say to your reader, Here is some information that you may find interesting. This offer assumes, of course, that your reader wants to know. You could also say not just Here is something that should interest you but Here is something that will help you remedy a situation that troubles you. People do this kind of research every day in business, government, and the professions when they try to figure out how to address problems ranging from insomnia to falling profits to climate change. In chapter 2 we call such situations and their consequences practical problems. When academic researchers address such practical problems, we say they are doing applied research.

Most commonly, though, academic researchers do pure research that addresses what we call conceptual problems—that is, not troubling situations in the world but the limitations of our understanding of it (again see chapter 2). In this case, you say to your readers, Here is something that will help you better understand something you care about. When you make this last sort of appeal, you imagine your readers as a community of receptive but also skeptical colleagues who are open to learning from you and even changing their minds—if you can make the case.

We now understand the goal of research, at least in its pure form: it is not to have the last word but to keep the conversation going. The best questions are those whose answers raise several more. When that happens, everyone in the research community benefits.
2

Defining a Project: Topic, Question, Problem, Working Hypothesis

2.1 Find a Question in Your Topic
2.1.1 Search Your Interests
2.1.2 Make Your Topic Manageable
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2.2 Understanding Research Problems
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2.3 Propose a Working Hypothesis
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2.4 Build a Storyboard to Plan and Guide Your Work
2.4.1 State Your Question and Working Hypotheses
2.4.2 State Your Reasons
2.4.3 Sketch in the Kind of Evidence You Should Look For
2.4.4 Look at the Whole

2.5 Join or Organize a Writing Group

A research project begins well before you search the internet or head for the library and continues long after you have collected all the data you think you need. Every project involves countless specific tasks, so it is easy to get overwhelmed. But in all research projects, you have just five general aims:

- Ask a question worth answering.
- Find an answer that you can support with good reasons.
- Find good data that you can use as reliable evidence to support your reasons.
- Draft an argument that makes a good case for your answer.
- Revise that draft until readers will think you met the first four goals.

You might even post those five goals in your workspace.

Research projects would be much easier if we could march straight through these steps. But you will discover (if you have not already) that the research process is not so straightforward. Each task overlaps with others, and frequently you must go back to an earlier one. The truth is, research is messy and unpredictable. But that’s also what makes it exciting and ultimately rewarding.

2.1 Find a Question in Your Topic

Researchers begin projects in different ways. Many experienced researchers begin with a question that others in their field want to answer: What caused the extinction of most large North American mammals? Others begin with just basic curiosity, a vague intellectual itch that they have to scratch. They might not know what puzzles them about a topic, but they’re willing to spend time to find out whether that topic can yield a question worth answering.

They realize, moreover, that the best research question is not one whose answer they want to know for its own sake; it is one that helps them and others understand some larger issue. For example, if we knew why North American sloths disappeared, we might be able to answer a larger question that puzzles many historical anthropologists: Did early Native Americans live in harmony with nature, as some believe, or did they hunt its largest creatures to extinction? And if we knew that, then we might also understand . . . (So what? again. See 1.2.)

Then there are those questions that just pop into a researcher’s mind with no hint of where they’ll lead, sometimes about matters so seemingly trivial that only the researcher thinks they’re worth answering: Why does a coffee spill dry up in the form of a ring? Such a question might lead nowhere, but you can’t know that until you see its answer. In fact, the scientist puzzled by coffee rings made discoveries about the behavior of fluids that others in his field thought important—and that paint manufacturers found valuable. If you cultivate the ability to see what’s odd in the commonplace, you’ll never lack for research projects as either a student or a professional.

If you already have a focused topic, you might skip to 2.1.3 and begin asking questions about it. If you already have some questions, skip to 2.1.4 to test them using the criteria listed there. Otherwise, here’s a plan to help you search for a topic.
2.1 Search Your Interests

Beginning researchers often find it hard to pick a topic or believe they lack the expertise to research a topic they have. But a research topic is an interest stated specifically enough for you to imagine becoming a local expert on it. That doesn’t mean you already know a lot about it or that you’ll know more about it than others, including a teacher or advisor. You just want to know more about it than you do now.

If you can work on any topic, we offer only a cliché: start with what interests you. Ask these questions:

- What special interests do you have—chess, old comic books, scouting? The less common, the better. Choose one and investigate something about it that you don’t know.
- Where would you like to travel? Find out all you can about your destination. What particular aspect surprises you or makes you want to learn more?
- Can you find an online discussion list or social media page focused on issues that interest you?
- Visit a museum or a “virtual museum” on the internet with exhibitions that appeal to you. What catches your interest that you would like to know more about?
- Have you taken positions on issues in your field or in debates with others but found that you couldn’t back up your views with good reasons and evidence?
- What issues in your field do people outside your field misunderstand?
- What topic is your instructor or advisor working on? Would she like you to explore a part of it? Don’t be shy to ask.
- Does your library have rich resources in some field? Ask your instructor or a librarian.
- What intrigues you in your reading? What connections do you see among different things you are reading?
- What other courses will you take in your field or out of it? Find a textbook and skim it for study questions.
- If you have a job in mind, what kind of writing might help you get it? Employers often ask for samples of an applicant’s work.

Once you have a list of possible topics, choose one or two that interest you most and explore their research potential. Sometimes beginning researchers choose a topic because they already know what they want to say about it, even before they’ve done any research. That’s a mistake: the best topics provoke good questions; the worst come with ready-made answers. To gauge a topic’s potential, do these things:

- In the library, look up your topic in a general guide such as CQ Researcher and skim the subheadings. In an online database such as Academic Search Premier, you can explore your topic through subject terms. If you have a narrower focus, you can do the same with specialized guides such as Women’s Studies International. At most libraries today, such guides are found online.
- On the internet, google your topic, but don’t surf indiscriminately. Look first for websites that are roughly like the sources you would find in a library, such as online encyclopedias. Read the entries on your general topic, and then copy their lists of references for a closer look. Few experienced researchers trust Wikipedia as a reliable source to cite as evidence, but most would use the site to find ideas and more specific sources.
- Finally, think ahead: you may be in for a long relationship with your topic, so be sure it interests you enough to get you through the inevitable rocky stretches.

2.1.2 Make Your Topic Manageable

If you pick a topic that sounds like an encyclopedia entry—bridges, birds, masks—you’ll find so many sources that you could spend a lifetime reading them. You must carve out of your topic a manageable piece. Before you start searching, limit your topic to reflect a special interest in it: What is it about, say, masks that made you choose them? What particular aspect of them interests or puzzles you? Think about your topic in a context that you know something about, and then add words and phrases to reflect that knowledge:

- masks in religious ceremonies
- masks as symbols in Hopi religious ceremonies
- mudhead masks as symbols of sky spirits in Hopi fertility ceremonies

You might not be able to focus your topic until after you start reading about it. That takes time, so start early (you can do much of this preliminary work online):

- Begin with an overview of your topic in a general encyclopedia (in the bibliography, see items in category 2 in the general sources); then read about it in a specialized one (see items in category 2 in your field).
- Skim a survey of your topic (encyclopedia entries usually cite a few).
- Skim subheadings under your topic in an annual bibliography in your field (in the bibliography, see items in category 4 in your field). That will also give you a start on a reading list.
- Search the internet for the topic (but evaluate the reliability of what you find; see 3.3.2).
Especially useful are topics that spark debate: Fisher claims that Halloween masks reveal children’s archetypal fears, but do they? Even if you can’t resolve the debate, you can learn how such debates are conducted (for more on this, see 3.1.2).

2.1.3 Question Your Topic

Once they have a focused topic, many new researchers start plowing through all the sources they can find, taking notes on everything they read. They then dump it all into a report with little sense of purpose or direction. Experienced researchers, however, document information not for its own sake but to support an answer to a question they (and they hope their readers) think worth asking. So the best way to begin working on a focused topic is to pose questions that direct you to just the information you need to answer them.

Do this not just once, early on, but throughout your project. Ask questions as you read, especially how and why (see also 4.1.1–4.1.2). Try the following kinds of questions (the categories are loose and overlap, so don’t worry about keeping them distinct).

1. Ask how the topic fits into a larger context (historical, social, cultural, geographic, functional, economic, and so on):
   - How does your topic fit into a larger story? What came before masks? How did masks come into being? Why? What changes have they caused in other parts of their social or geographic setting? How and why did that happen? Why have masks become a part of Halloween? How and why have masks helped make Halloween the biggest American holiday after Christmas?
   - How is your topic a functioning part of a larger system? How do masks reflect the values of specific societies and cultures? What roles do masks play in Hopi dances? In scary movies? In masquerade parties? For what purposes are masks used other than disguise? How has the booming market for kachina masks influenced traditional designs?
   - How does your topic compare to and contrast with other topics like it? How do masks in Native American ceremonies differ from those in Africa? What do Halloween masks have to do with Mardi Gras masks? How are masks and cosmetic surgery alike?

2. Ask questions about the nature of the thing itself, as an independent entity:
   - How has your topic changed through time? Why? What is its future? How have Halloween masks changed? Why? How have Native American masks changed? Why?

   - How do the parts of your topic fit together as a system? What parts of a mask are most significant in Hopi ceremonies? Why? Why do some masks cover only the eyes? Why do so few masks cover just the bottom half of the face?
   - How many different categories of your topic are there? What are the different kinds of Halloween masks? What are the different qualities of masks? What are the different functions of Halloween masks?

3. Turn positive questions into a negative ones: Why have masks not become a part of Christmas? How do Native American masks not differ from those in Africa? What parts of masks are typically not significant in religious ceremonies?

4. Ask speculative questions: Why are masks common in African religions but not in Western ones? Why are children more comfortable wearing Halloween masks than are most adults? Why don’t hunters in camouflage wear masks?

5. Ask What if? questions: how would things be different if your topic never existed, disappeared, or were put into a new context? What if no one ever wore masks except for safety reasons? What if everyone wore masks in public? What if movies and TV were like Greek plays and all the actors wore masks? What if it were customary to wear masks on blind dates? In marriage ceremonies? At funerals?

6. Ask questions that reflect disagreements with a source: if a source makes a claim you think is only weakly supported or even wrong, make that disagreement a question (see also 4.1.2). Martinez claims that carnival masks uniquely allow wearers to escape social norms. But I think religious masks also allow wearers to escape from the material realm to the spiritual. Is there a larger pattern of all masks creating a sense of alternative forms of social or spiritual life?

7. Ask questions that build on agreement: if a source offers a claim you think is persuasive, ask questions that extend its reach (see also 4.1.1). Elias shows that masked balls became popular in eighteenth-century London in response to anxiety about social mobility. Is the same anxiety responsible for similar developments in other European capitals? You can also ask a question that supports the same claim with additional evidence. Elias supports his claim about masked balls entirely with published sources. Is it also supported by evidence from unpublished sources such as letters and diaries?

8. Ask questions analogous to those that others have asked about similar topics. Smith analyzed the Battle of Gettysburg from an economic point of view. What would an economic analysis of the Battle of the Alamo turn up?
9. Look for questions that other researchers pose but don’t answer. Many journal articles end with a paragraph or two about open questions, ideas for more research, and so on. You might not be able to do all the research they suggest, but you might carve out a piece of it.

10. Find a professional discussion forum on your topic, then “lurk,” just reading the exchanges to understand the kinds of questions being asked. If you can’t find one using a search engine, ask a teacher or visit websites of professional organizations in your field. Look for questions that spark your interest. If questions from students are welcomed, you can even post one yourself, so long as it is very specific and narrowly focused.

2.1.4 Evaluate Your Questions

After asking all the questions you can think of, evaluate them. Not all questions are equally good. Look for questions whose answers might make you (and your readers) think about your topic in a new way. Avoid questions like these:

- Their answers are settled fact that you could just look up. What was Audre Lorde’s first published poem? Questions that ask how and why call for interpretations, not just the discovery of facts. That’s why they invite deeper thinking than questions beginning who, what, when, where, and deeper thinking leads to more interesting answers.
- Their answers can’t be plausibly disproved. How important are masks in Inuit culture? The answer is obvious: Very. If you can’t imagine disproving a claim, then proving it is pointless. (On the other hand, world-class reputations have been won by those who questioned a claim that seemed self-evidently true—for instance, that the sun circled the earth—and dared to disprove it.)
- Their answers would be merely speculative. Would church services be as well attended if the congregation all wore masks? If you can’t imagine finding data that would settle the question, it’s not a question you can answer.
- Their answers are dead ends. How many black cats slept in the Alamo the night before the battle? It’s hard to see how an answer would help us think about any larger issue worth understanding better, so the question is probably not worth asking.
- Their answers require different capacities from the ones you have. How do Japanese translations of The Great Gatsby treat early twentieth-century America? If you can’t read Japanese, this question is not for you to answer.
- Their questions require more or different resources—materials, technology, money, especially time—than you have. How is childhood repre-

sented in the Victorian novel? Can you read enough of them in the time you have to arrive at a reasonable answer?

Don’t reject a question because you think someone must already have asked it. Until you know, pursue its answer as if you asked first. Even if someone has answered it, you might come up with a better answer or at least one with a new slant. In fact, in the humanities and social sciences the best questions usually have more than one good answer. You can also organize your project around comparing and contrasting competing answers and supporting the best one (see 6.3.5).

The point is to find a question that you want to answer. Too many students, both graduate and undergraduate, think that the aim of education is to learn settled answers to someone else’s questions. It’s not. It is to find your own answers to your own questions. To do that, you must learn to wonder about things, to let them puzzle you—particularly things that seem commonplace.

2.2 Understanding Research Problems

In chapter 1 we gave you a formula that expresses how experienced researchers think about their work:

1. Topic: I am working on X (stories about the Battle of the Alamo)
2. Question: because I want to find out Y (why its story became a national legend)
3. Significance: so that I can help others understand Z (how such regional myths have shaped the American character).

When you can state that significance from the point of view of your readers, you have more than a question: you have posed a research problem that they recognize needs a solution.

Among researchers, the term problem has a special meaning that sometimes confuses beginners. In our everyday world, a problem is something we try to avoid. But in academic research, a problem is something we seek out, even invent. Indeed, without a problem to work on, a researcher is out of work.

Experienced researchers often talk about their problems in shorthand. When asked what they are working on, they often answer with what sounds like a general topic: adult measles, mating calls of Wyoming elk. As a result, beginners may think that having a topic to read about is the same thing as having a problem to solve. But without a specific question to answer and a reason to find that answer significant, researchers have no way of knowing when they have enough. So they can be tempted to throw in everything just to be safe.
To avoid the judgment that your paper is just a data dump, you need a problem, one that focuses on finding just those data that will help you solve it. To find one, you need to know how problems work.

2.2.1 Understanding Practical and Conceptual Problems
There are two kinds of research problems: practical and conceptual. Each of them has a two-part structure:
- a situation or condition, and
- undesirable costs or consequences caused by that condition.

Your research question is about your problem's condition; its significance follows from your problem's cost or consequence.

What differentiates practical and conceptual problems is the nature of those conditions and costs/consequences. The condition of a practical problem can be any state of affairs in the world that troubles you or, better, your readers: a traffic jam, foreign competition, a disease we can't effectively treat. The cost of a practical problem is always some tangible effect we don't like: inconvenience, expense, pain, even death. Practical problems are often a matter of perspective: if my company's products are outselling yours, that's a problem for you but not for me.

The condition of a conceptual problem is always some version of not knowing or understanding something. A conceptual problem does not have a tangible cost but a consequence. This consequence is a particular kind of ignorance: a lack of understanding that keeps us from understanding something else that is even more significant. Put another way, because we haven't answered one question, we can't answer another that is more important.

In short, practical problems concern what we should do; conceptual problems concern what we should think. Practical problems are most common in the professional world; conceptual problems are most common in academe.

2.2.2 Distinguishing Pure and Applied Research
We call research pure when it addresses a conceptual problem that does not have any direct practical consequences, when it only improves the understanding of a community of researchers. We call research applied when it addresses a conceptual problem that does have practical consequences. You can tell whether research is pure or applied by considering the significance of your project: is it about understanding or doing?

1. Topic: I am studying how readings from the Hubble telescope differ from readings for the same stars measured by earthbound telescopes

2. Question: because I want to find out how much the atmosphere distorts measurements of electromagnetic radiation
3. Practical Significance: so that astronomers can use data from earthbound telescopes to measure more accurately the density of electromagnetic radiation.

Applied research is common in academic fields such as business, engineering, and medicine and in companies and government agencies that do research to understand what must be known before they can solve a problem.

Some new researchers may be uneasy with pure research because the consequence of a conceptual problem—not knowing something—seems so abstract. Since they are not yet part of a community that cares deeply about understanding its part of the world, they feel that their findings aren't good for much. So they try to show the importance of their conceptual answer by cobbling onto it an implausible practical use:

1. Topic: I am studying differences among nineteenth-century versions of the Alamo story
2. Question: because I want to find out how politicians used stories of such events to shape public opinion
3. Potential Practical Significance: in order to protect ourselves from unscrupulous politicians.

Most readers will find the link between this research question and its asserted significance a stretch. But for researchers in American history, the question does not need to have practical significance. As the term pure suggests, many researchers value the pursuit of knowledge "for its own sake" as a reflection of humanity's highest calling to know more.

So if you are doing academic research, resist the urge to turn a conceptual problem into a practical one—unless you've specifically been asked to do so. You are unlikely to solve any genuine practical problem in a course project. And in any case, most academic researchers see their mission not as fixing the problems of the world but as understanding them better (which may or may not lead to fixing them).

2.3 Propose a Working Hypothesis
Before you get deep into your project, try one more step. It is one that some beginners resist but that experienced researchers usually attempt. Once you have a question, imagine some plausible answers, no matter how sketchy or speculative. At this stage, don't worry whether they're right. That comes later.
For example, suppose you ask, Why do some religions use masks in ceremonies while others don’t? You might speculate:

Maybe cultures with many spirits need masks to distinguish them.
Maybe masks are common in cultures that mix religion and medicine.
Maybe religions originating in the Middle East were influenced by the Jewish prohibition against idolatry.

Even a general answer can suggest something worth studying:

Maybe it has to do with the role of masks in nonreligious areas of a culture.

Try to imagine at least one plausible answer, no matter how tentative or speculative. If one answer seems promising, call it your working hypothesis and use it to guide your research. You can, of course, start gathering data with no more than a question to guide you, but even a tentative working hypothesis will help you think about the kind of data you’ll need as evidence to support it: numbers? quotations? observations? images? historical facts? In fact, until you have a hypothesis, you can’t know whether any data you collect are relevant to your project.

If you can’t imagine any working hypotheses, reconsider your question. You may even decide to start over with a new topic. That costs time in the short run, but it may save you from a failed project. Under no circumstances should you put off thinking about a hypothesis until you begin drafting your paper or, worse, until you’ve almost finished it. You might not settle on the best answer to your question until you’re well into writing your paper, for writing is an act of discovery. But you can’t wait until that last draft to start thinking about some answer.

### 2.3.1 Beware the Risks in a Working Hypothesis

Don’t settle on a final answer too soon: working hypotheses are meant to change. But many new researchers and some experienced ones are afraid to consider any working hypothesis early in their project, even one they hold lightly, because they fear it might bias their thinking. There is some risk of that, but a working hypothesis need not close your mind to a better one. Even the most objective scientist devises an experiment to test for just a few predicted outcomes, often just one. A working hypothesis is a risk only if it blinds you to a better one or if you can’t give it up when the evidence says you should. So as in all relationships, don’t fall too hard for your first hypothesis: the more you like it, the less easily you’ll see its flaws. Despite that risk, it’s better to start with a flawed hypothesis than with none at all.

### 2.3.2 If You Can’t Find an Answer, Argue For Your Question

We have focused so much on questions that you might think your project fails if you can’t answer yours. Not so. Much important research explains why a question no one has yet asked should be asked: Do turtles dream? Why is yawning contagious? Papers addressing such questions don’t argue for answers; they explain why the question is important and what a good answer might look like.

Or perhaps you find that someone has answered your question, but incompletely or even—if you’re lucky—incorrectly. If you can’t find the right answer, you still help your research community by showing that a widely accepted one is wrong. You can even organize your paper around a working hypothesis you abandon. If after lots of research, you can’t confirm it, you can explain why that answer seemed reasonable at the time but turned out to be wrong and so isn’t worth the time of other researchers. That in itself can be a valuable contribution to the conversation on your topic. (See 10.1.1–10.1.2 for how to use an apparently good idea that turns out to be wrong.)

Only by asking question after question will you develop the critical imagination you need to excel at research. Experienced researchers know there are few, if any, final answers, because there are no final questions. They know that it’s as important to ask a new question as it is to answer an old one, and that one day their new question will become old and yield to a newer researcher’s still newer one. That’s how the conversations of research communities progress.

### 2.4 Build a Storyboard to Plan and Guide Your Work

For a short paper, you might not need a detailed plan—a sketch of an outline might do. But for a long project, you’ll usually need more, especially for one as long as a thesis or dissertation. The first plan that comes to mind is usually an outline, with its Is and IIs and As and Bs and so on (see 23.4.2.4). If you prefer an outline, use one, especially if your project is relatively short. The problem is that an outline can force you to specify too much too soon and so lock up a final form before you’ve done your best thinking.

To avoid that risk, many researchers, including those outside the academic world, use a storyboard to plan and guide their work. A storyboard is like an outline spread over several pages, with lots of space for adding data and ideas as you go. But it is more flexible than an outline because storyboard pages can be moved around, allowing you to try out new ways of organizing your ideas. You can spread its pages across a wall, group
related pages, and put minor sections below major ones to create a “pic-
ture” of your project that shows you at a glance the design of the whole
and your progress through it. For this reason, a storyboard is useful at
every stage of your project. It can help you plan your research, develop
your argument, organize your paper, write a first draft, and test a final one.

Someday you may have the time to amble through sources, reading
just what interests you. Such random browsing has opened up many
important lines of research. But if your paper is due in a month or so, or
even sooner, you need a plan. A storyboard is a simple and reliable device
to help you create one.

2.4.1 State Your Question and Working Hypotheses
To start a storyboard, state at the top of its first page your question and
working hypothesis as precisely as you can. Then add plausible alterna-
tives and new hypotheses as you think of them, and cross off those you
prove wrong. But save them, because you might be able to use one of
them in your introduction (see 10.1.1).

2.4.2 State Your Reasons
We say more about the structure of arguments in chapter 5. For now, the
commonsense understanding of an argument as a claim supported by
reasons and evidence is enough. Put at the top of separate pages each
reason that might support your best hypothesis, even if you have only
one or two. Imagine explaining your project to a friend. You say, I want
to show that Alamo stories helped develop a unique Texan identity, and your
friend asks, Why do you think so? Your reasons are the general statements
that you offer to support your answer: Well, first, the stories distorted facts
to emphasize what became central to Texan identity; second, the stories were
first used to show that Texas (and the Wild West) was a new kind of frontier;
third, . . . and so on.

If you can’t think of more than one or two reasons, put placeholders
at the tops of pages: Reason 3: Something about Alamo stories making Texas
feel special. If you know only how you want a reason to support your an-
swer, state that: Reason 4: Something to show that Alamo stories were more
than just myth. Each reason, of course, needs support, so for each reason,
ask, Why do I think that? What evidence will I need to prove it? That will help
you focus your search for evidence (see 2.4.3 and 5.4.2).

If you’re new to your topic or early in your project, your reasons may
be only educated guesses that you’ll later change. But a list of reasons, no
matter how speculative, can not only guide your research but also focus
your thinking and help you anticipate the argument you will eventually make.

2.4.3 Sketch the Kind of Evidence You Should Look For
Every field prefers its own kinds of evidence—numbers, quotations, ob-
servations, historical facts, images, and so on. So for each reason, sketch
the kind of evidence that you think you’ll need to support it. Even imag-
ine what the most convincing evidence would look like. If you can’t imag-
ine the kind of evidence you’ll need, leave that part of the page blank,
them read secondary sources to find out the kind of evidence researchers
in your field typically use (see 3.1.2).

2.4.4 Look at the Whole
Lay the pages on a table or tape them on a wall. Then step back and look
at their order. When you plan a first draft, you must put its parts in some
order, so you might as well think about one now. Can you see a logic in
your storyboard? Cause and effect? Narrative time? Relative impor-
tance? Complexity? Length? (See 6.2.5 for more principles of order.) Try
out different orders. This storyboard isn’t your final plan; it’s only a tool
to guide your thinking and organize what you find. When you fill a page,
try drafting that section, because writing out your ideas can improve
your thinking at every stage of your project.

2.5 Join or Organize a Writing Group
One of the best ways to stay on track with your project is to join or orga-
nize a writing group. In many fields, especially in the humanities and so-
cial sciences, scholars read, think, and write mostly alone. But it doesn’t
have to be that way, at least not entirely. Find someone other than your
instructor or advisor to talk with about your progress, to review your
drafts, even to pester you about how much you have written. That person
might be a generous friend or, better, another writer with whom you can
trade feedback on ideas and drafts.

Better yet is a writing group: four or five people working on their own
projects who meet regularly to discuss each other’s work. Early on, start
each meeting with a summary of each person’s project in that three-part
sentence: I’m working on the topic X, because I want to find out Y, so that I
(and you) can better understand Z. As your projects develop, start with an
“elevator story,” a short summary of your research that you might give
someone in the elevator on the way to the meeting. It should include that
three-part sentence, a working hypothesis, and the major reasons sup-
porting it (see 13.4). In later stages, share outlines and drafts so that the
members of the group can serve as surrogate readers. If your group has
a problem with your draft, so will your final readers. Your group can even
help you brainstorm when you bog down. All of this support is valuable.
But for many writers, a writing group is valuable simply for the discipline it imposes. It is easier to meet a schedule when you know you must report your progress to others.

Writing groups are standard practice for those preparing theses or dissertations. But the rules may differ for class papers. Some teachers worry that writing groups or writing partners might provide more help than they should. So if you join a group, be clear with your teacher about what it will do. If you don’t, she may decide the assistance you have received is inappropriate (see 7.10).