CHAPTER 14: PROCESS: IDENTIFYING THE "HOW"

This chapter emphasizes connections between critical thinking and process. It maps important techniques for creating process documents:

- Understanding the importance of an audience's experience, expertise, and needs
- Planning a step-by-step process that a reader can follow
- Applying unambiguous terminology to enable readers to perform the task
- Using process as a critical tactic for identifying and assessing information to distinguish processes from other types of writing

Process papers assume that the writer and the reader share a goal. The writer knows *how* to produce a specific product, behavior, or idea. The reader wants to produce it. A clearly defined *outcome* enables the writer to lead the reader to success. The key word is *process,* and it is important to know what creates a process document. A simple process document presents a sequence of tasks, and it makes a promise. The promise is specific: "do these things in this order, and you will get this result."

While the writer's promise is important, something bigger lurks in the background: a shared understanding between reader and writer about their relationship. On one side, the writer promises to be careful, accurate, and guided by the needs of the reader. On the other side, the reader agrees to read carefully and follow the instructions. This agreement requires conscious cooperation: a willingness to use the right tools and supplies, a strong sense of sequence, and an appreciation for technique. Although both reader and writer expect a particular outcome, each is wary of the glitches, malfunctions, confusions, and other threats to their success. Thus, two aspects of process documents are especially important:

The reader's role: Readers place an unusual degree of trust in the credibility of the writer. The reader often faces a jumbled pile of parts, a narrowly defined goal, a complicated assignment, or an urgent problem. These are solvable only if a specific solution is implemented. The reader's job is to follow a set of instructions and produce a predictable outcome. In many ways, readers consciously submit to the expertise of the writer. However, the reader makes a careful assessment of the writer's expertise.

The author's role: To enable the reader to accomplish the task, the process has to be written for a specific audience. Writers have a responsibility to understand the expertise, interest, and skill of the audience. If the writer assumes too much expertise on the reader's part, then the document will leave out crucial information. Most of us have started to assemble a toy or bicycle or piece of furniture only to find out that a key step has been omitted. The step was obvious to the writer, but not to the reader. The writer has failed to assess our familiarity with the product. By overestimating our knowledge, the instructions have failed. On the other hand, some instructions are far too detailed. They waste the reader's time, and they become annoying. The writer who understands the audience will avoid both mistakes.

KEY FEATURES OF PROCESS

The Things We Make, Make Us

Process documents are common. They serve practical goals like baking a cake or managing a construction project, but also they often help preserve important traditions and knowledge. We learn to swaddle a baby, cut dovetails for a cabinet drawer, or tell stories at the dining room table. Process documents serve as tools for keeping alive the knowledge of our culture. Often, knowing *how* we create things is to know *how* we think, *how* we are connected to the work of others and *how* we participate in the world. If we want to innovate and create new
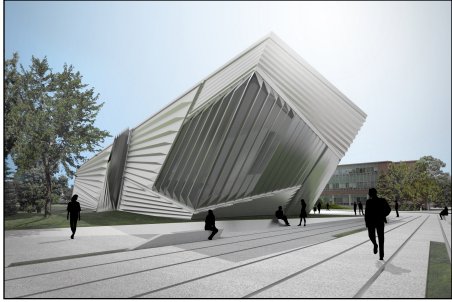
solutions, we have to build our innovations in response to existing expertise. For example, an architect cannot create a new kind of building without knowing the design process for traditional buildings. Often, a process describes a variation on established methods. The variation creates something new, but it also refers to established processes that have worked in the past.

Where in Your World Are Processes?

Process emphasizes "how," and thus often connects to ideas of replication and reliability that are central to the sciences. Thus, process has roots in the human hope to control the world.

Process in Daily Life
- Using a recipe
- Assembling a bicycle on Christmas morning
- Planning a wedding

Process in School
- Using a step-by-step model to write a paper
- Creating a spreadsheet for a project
- Conducting online searches

Process at Work
- Following instructions in an automotive manual
- Performing an appendectomy
- Predicting weather patterns

Two Purposes for Process

A process document always has gaps between each step, and if we look through those gaps, we see two things: opportunities to improve our knowledge of *how* we create, and the history on which our current practices rest. Thus, there are two basic motives for writing a process document:

Pragmatic Motives: pragmatic means "practical" or "sensible." It suggests that the point of the process document is to get something done rather than to approach it in a theoretical way. Such documents are valuable, but they do not leave room for invention and change. They tend to be rigid and to put the writer in a position of authority. The directions for putting together a bicycle are pragmatic.

Critical Motives: Often, a process document makes specific assumptions about what the reader wants to know. For example, knowing how a search engine works becomes a tool for asking if our search results are for a general audience or for experts. The document explains established steps in a process, but also it explains the new steps that have been added for the changed outcome. The document still describes a process, but it explains what steps have been added and the advantages of the modified product.

Process Emphasizes "How"

It is not enough to want to do something; without a plan, nothing will happen. Someone has to have a plan, and the plan must lead to whatever is desired. Someone has to create a list of materials, break the process down into steps, name tools, and estimate the skill of the person who will use the plan. We use specific sequences of commands for our computers, handhelds, and other digital tools. Jobs have a "work flow" that produces effective services and standardized products. Homes, factories, offices, schools, tools, and daily life rely on understanding the processes that enable them to function as expected. Often, a process paper teaches the reader what to do. Process documents give us control over our environments. They are among the most common and useful kinds of writing that you will do.

Process Documents Have a Specific Audience

Process documents are meant to help the reader *do* something: assemble a bicycle, build a bookcase, create a spreadsheet, implement an infection control program at a hospital. Each requires a sequence of actions and a set of specific tools. Sometimes the tool is a material

object such as a hammer, and other times the tool is a computer program such as Excel or Numbers. A writer must recognize the reader's expertise, skill, and motive. Ask yourself the following to understand the general purpose of a process paper:

1. What will the audience gain by using the process?

2. How much power do I have in relation to the audience?
    a. Does the audience come willingly to the task?
        i. How willing is the audience to listen?
        ii. Does the audience read by choice or because they have to do something that may or may not interest them?
    b. How will the audience know that the document is authoritative?

3. How much expertise do I have compared to my audience?
    a. How do I signal my authority?
    b. How do I signal my understanding of the audience's expertise to reassure them?
    c. How do I signal my respect for the audience's expertise?

Imagine working with a jeweler for the first time. She asks you to "pierce these three triangles out of that piece of 20 gauge sterling." Unless you are a jeweler, you will be lost. To "pierce" the sterling is to drill a small hole through which a 0/2 jeweler's saw blade will fit. The blade is the right size for sawing this piece of sterling silver sheet metal. Of course, you do not know that "sterling sheet" refers to a piece of flat sterling silver, and you are completely lost as you look at the array of silver sheet, wire, and fastenings on the workbench. If the jeweler recognizes your expertise (none), then she is likely to give you a set of specific tools, materials, and step-by-step instructions. A novice can use the process to do exactly what is needed. One set of instructions is good . . . if the audience is another jeweler. It is not a good set of instructions for the novice. On the other hand, an overly detailed process document would be almost insulting to someone with expertise. Highly detailed descriptions are said to have a fine *granularity* that brings out the details of the task. The term comes from photography where the silver grains on photographic

paper are of various sizes. The very small grains capture equally fine detail. The term has spread to writing because it captures the relationship between audience, expertise, and writer.

Process documents tend to use specific terms

Step	Before	Begin	Next	Then
Open	Go to	Repeat	Flow Chart	Close
Check	Combine	Divide	Inventory	Measure
Identify	Remove	Replace	Sort	Order Missing Parts

These terms ask the reader to perform tasks. They create a series of operations that lead to a specific outcome. Readers depend on the writer to select words carefully, and to avoid a long string of sentences beginning with "then." Each step connects to what has already been accomplished, but also looks forward to what comes next. These documents frequently summarize what has been accomplished at each step of the process. For example, an instruction for inserting a computer battery might conclude with, "The battery is seated when it makes two clicking noises." Such phrases provide the readers with simple tests of their progress.

Process and Narration Share Features

So what makes the *language of process* different from that of the other modes? At first glance, it seems as if the language of narrative (story telling) is identical to that of process. Both emphasize sequence; both emphasize time; both have a meaning or outcome. Both seem to have a setting. How are the two different? The key difference is that process documents usually *begin* with a shared goal. Writer and reader want to assemble a bicycle, build a cabinet, etc. Surprise, discovery, and invention are seldom part of the purpose of a process document. In this sense, a process document usually lacks the sense of discovery that we see in scientific experiments, fiction, research, or scholarship. Process arrives at its conclusion with a clear solution for a definite problem.

Process has similarities to classification because the *use* of a classification system often requires a process. For example, classifying a platypus requires a series of yes-no decisions. The series of questions might seem like a process:

> Q. Do the cells of a platypus have a cell wall? Yes or no.
>
> > A. No; therefore it is an animal.

> Q. Does the platypus have a spine or a notochord? Yes or no.
>
> > A. Yes; therefore it is a vertebrate.

> Q. Does the platypus nurse its young, have fur, and regulate its body temperature? Yes or no.
>
> > A. Yes; thus, it is a mammal.

> Q. Does the platypus lay eggs? Yes or no.
>
> > A. Yes; therefore it is a monotreme.

The classification system goes forward through a process that lists features of the animal. A biologist who is classifying the platypus *uses* a process (choosing between pairs of characteristics) to find the category it fits into. Thus, classification emphasizes the *what*: what features the animal has. On the other hand, process emphasizes the *how*. Process often sharpens the critical effectiveness of other modes.

Putting Process to Work

1. Imagine that you are showing your twelve-year-old sister how to use Twitter. As you show the interface, your grandfather comes into the room and asks, "How do you do that?" What will be the differences in the two explanations you create?

2. Search out an online video that shows how to do something simple: install a washer in a faucet, caulk a bathtub, crochet a hotpad. How many steps are in the instructions? How

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many of those could be eliminated? If the instructions do *not* make sense, how has the video misjudged its audience?

TWO EXAMPLES OF PROCESS DOCUMENTS

Speaking to Your Audience

Simple directions are usually expressed in present tense verbs in the form of polite commands. For example, a recipe might say, "Beat three eggs lightly." The sentence is short; it eliminates the use of "you," and usually begins with a verb such as "beat," "insert," "twist," "heat," or whatever action is required. Time and measurements should be precise. "Stir in 1/8 tsp of oregano" rather than "shake some green stuff over the dish." To help the reader understand the sequence of actions, use numbers, bullets, or other separators. Words such as "next" and "then" also help the reader understand the sequence of operations.

Warnings, hints, and reinforcements guide readers toward success. They increase the sense of control that inspires confidence, and they provide legal protection when things go wrong. Most processes have stopping points where the progress can be assessed. For example, a chef making meringue knows that the vanilla is added when the egg white mixture forms peaks. The chef does not need a reminder, but a children's cook book will point out this milestone to keep the young reader engaged and confident.

Warnings also are parts of the process because they say what *not* to do. Often, they are integrated into the introductory sections of the instructions. Some warnings are written; for example, "Don't Open the Oven Door While Muffins are Baking." On the other hand, safety warnings often rely on visual signals. These range from skull-and-crossbones to circles with red slashes to signs flaunting the word "Danger." In three brief cartoons (left), Ikea lists the tools needed for a project, warns against

lifting too much, and reminds the reader that telephone assistance is available. The images are efficient and attract the readers' attention.

Conclusions are not necessary to instructions, but they can reassure the reader that the process is complete by providing a summary of how to begin using the product. The recipe below ends with a cheerful note that emphasizes the tone of the publications by America's Test Kitchen, and thus they are part of the identity of the organization.

Best Pesto Recipe Ever!

By Jennifer

We love Pesto -- not just in the summer months, but all year long. After 20+ years of making it, I believe I've found the Best Ever Pesto Recipe. It's, ironically, from The New Best Recipe Cookbook (from the editors of Cook's Illustrated) -- a must have cookbook! It's best, of course, when you make it with home grown basil and parsley (flat leaf is best), but store bought works fine, too.

What: Fresh basil, parsley, toasted garlic and pine nuts, good parmesan cheese and extra virgin olive oil -- what can be better?!

Recipe:

- 1/4 cup pine nuts (lightly toasted in a dry skillet for 4 to 5 minutes)

- 3 medium cloves of garlic (I use 4, and toast them, too, with the skins on for about 7 minutes, and then peel)

- 2 cups packed fresh basil leaves

- 2 TBS fresh parsley (I use extra -- about 1/4 cup of flat leaf -- it keeps the pesto nice and bright green)

- 7 TBS extra virgin olive oil, salt (to taste)

- 1/4 cup grated parmesan (pecorino is even better).

- Place the toasted nuts, garlic, basil/parsley (first bruise the leaves of these together in a freezer bag by beating with a mallet, or using a rolling pin -- or if you have one, a mortar and pestle), oil, and 1/2 tsp of salt in a food processor, and process until smooth.

- Transfer to a small bowl and stir in cheese.

- If you're not using right away, place a layer of plastic wrap over the top and refrigerate for up to three days.

- If you're using on pasta, be sure to mix about a 1/4 cup of reserved pasta cooking water into the pesto before you toss through the pasta. ENJOY!

Why It's the Best: Toasting the pine nuts lightly brings out the fullness of their flavor, and the toasting of the garlic cloves is key to the success of this recipe -- it tames the harsh garlic notes, and loosens the skin for easier peeling. And, pounding/bruising the leaves of the herbs before using them releases more of their wonderful flavor.

How We Know: Family and friends love it, and we never tire of eating it (in many different ways -- on pizza, pasta, grilled shrimp/chicken, crostini with goat cheese -- be creative), and it's the first pesto we've ever had where the flavors of the basil and other ingredients aren't overpowered by the garlic -- no dead vampires in our bedroom the morning after!

Side annotations:

- Describes motive for using the recipe and gives the context for using the recipe.
- Lists the items that will be used to make the item. Note that the tool list is absent because the setting is a kitchen.
- States both how the items from the list will be used and the quantity required. Note that the required tools are assumed to be part of the kitchen setting.
- Summarizes the results of following the instructions.
- Reports on assessments of the process.

http://foodiesfavorite.blogspot.com/2009/08/best-ever-pesto-recipe.html

Process Documents for Critical Understanding

Some process documents have a single, pre-determined outcome. Others do not. For example, anyone assembling a Schwinn Paramount Series 9 bicycle expects a highly specific product. On the other hand, the process for *selecting a bicycle* can be just as specific, but the outcomes can vary. An expert rider will choose the Paramount, but a first-time rider might choose an adult

tricycle. Process documents for making critical choices are similar to instructions. Writers have to make the same judgments they make when writing instructions, but they have additional tasks. The most important of these new tasks is the ability to encourage difference.

The process document below helps identify the steps for creating productive searches with Google. These steps will encourage the reader to consider a wide range of sources: scholarly publications vs. popular publications; corporate sources vs. professional sources, and so forth.

How to Google

Search terms called **'operators'** can help you get far more specific results than you would by only using generic search terms. Here are some of the most useful.

What You Want

NYTimes **articles** about test scores in college, but not the SATs, written between 2008 and 2010.

How To Google It

site:
Only searches the pages of that site.

" "
Searches for the exact phrase, not each of the words separately.

-
Excludes this term from the search.

site:nytimes.com ~college "test scores" -SATs 2008..2010

~
Will also search related words, such as 'higher education' and 'university'.

..
Shows all results from within the designated timerange.

What You Want

A **report** on the different air speed velocities of common swallows.

How To Google It

Don't ask Google questions. Think about how an answer would be phrased, and search for that (ie, never search for 'What is the air speed velocity...').

filetype:
Searches only results of the file type you designate. Can use for pdf, doc, jpg, etc.

intitle:
Only shows results with that word in the title (in this case, 'velocity').

filetype:pdf air speed intitle:velocity of *swallow

*
Replaces itself with common terms in your search (in this case, Red Rumped swallow and Lesser Striped swallow will both be searched, along with many others).

The search has a specific goal: finding articles about test scores. The process for discovering these articles is the process of doing effective Google searches. It is a basic process that does not need additional steps. A general user who needs the directions for making pesto will find this kind of search sufficient. However, some users of the process will find that that the *results* of the process will require additional evaluation and judgment by the user. These will force the process document to become more detailed. This new layer of process is connected to the increased need for critical thinking.

Once the general case for searches has been explained, both reader and writer have to ask if they are interested in sources with more expertise. If so, both have to recognize that the desire for more expertise requires that they become more specific. In this case, the new level of expertise has its own separate process. The expertise is searched through a special version of Google, scholar.google.com. The infographic expands by adding another layer of process steps:

Google Scholar

For most projects you work on in college, simple Googling won't do the trick on its own. Enter Google Scholar, which exclusively searches **academic and scholarly work** - that is, the kind of work you'll need to be citing in your papers.

What You Want

Papers about photosynthesis by Dr. Ronald L. Green and Dr. Thomas P. Buttz.

How To Google It

author:
This will search for papers by Green rather than papers involving the word 'green.'

" "
For more specific results, you can put the authors full name or initials in quotes.

author:green photosynthesis "tp buttz"

Just like a normal Google search, this is where the topic you're looking for goes.

The addition of a new level of expertise transforms the process. It emphasizes the role of expertise by using an additional filter that selects only scholarly materials. Both the basic search information and the scholarly search information are process documents, but they serve different needs. These differences reflect differences in expertise.

Such process documents require careful descriptions of each step, and they offer an answer to an important "So what?" Often, these process documents build on existing process documents, but they add steps of their own that reveal a new aspect of the topic. Stop for a moment and think about the process that this book recommends for writing a paper: TEQ Sheets, Purpose &

Problems Statement, Prospectus, Rough Drafts, Submission Draft. It is a straightforward set of steps that focuses on building ideas. Most teachers use something similar to this process, but all teachers know that each writer has her/his own variation on the process. Writers are different, and they adapt the process to their own needs. Those adaptations become parts of a new process. A student can explain her/his own process, and the document can explain the purpose of various steps. This is especially true for the writing process, and many students adapt what a textbook or a teacher tells them. The adaptation often strengthens a part of the creative process that is especially important. Consider the following note from a first-term student to his professor:

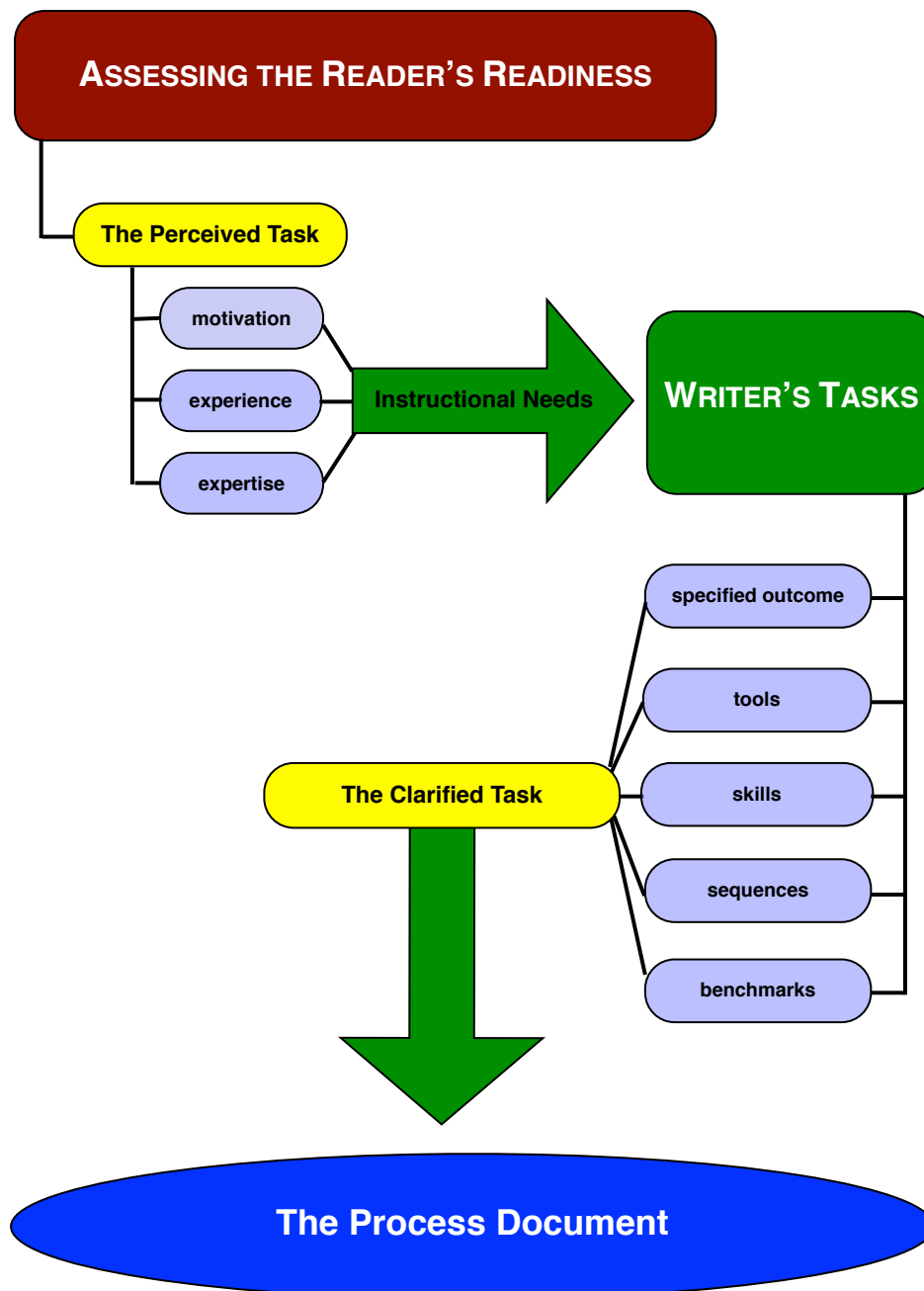|	
Dear Mr. C:	
I'm using all the required steps for my papers, but so far I haven't got anything above a C+. I'm not complaining about the grades, but I have to get something better or there's no way I'm getting into UVa. Not that I'll get in anyway. Ok: I did my own version of the process you require. I'll be showing it to you because I don't want to get marked down. I'll turn it all in with the paper (of course), but I don't want to surprise you or get surprised. So far, this is what I did:	The paper names a problem: the fit between existing processes and the writer's needs. The topic names the writer's motive, and notes a problem with the specificity of the process.
1. I did the readings and I completed my TEQSheets. That was my background knowledge and the beginning of my own question. 2. I did the Purpose & Problems Statement the way you say, and that's more specific about your assignment and my version of the question that needs to be answered. 3. I did the Prospectus, and that's my best guess at what I'll claim and what chunks of evidence I'll use.	The writer specifies his expertise with the *existing* information about the writing process. He establishes his level of knowledge, and uses it as a platform for his additional insights. This baseline information prepares the reader for an additional layer of insight and additional process steps.

Ok . . . so far, I'm not worried. You have that thing about SWOT analysis, and I did one of those, but that's optional and it didn't really help, so I figured it wasn't a biggie, and I dropped it. But then I really couldn't figure out all the pieces of my Prospectus, so I did one of those bubble drawings. I needed it to see how my prospectus is going to divide up into body paragraphs. Maybe you can see what will come out of it just by reading, but I have to draw it. Sorry about that. Anyway, I'm going to turn it in as part of my process. I hope you're ok with this.	Reminds the teacher that there are variations on the basic process (SWOT analysis), and states the problem: the existing model needs modification for his needs. He modifies the process model and explains the rationale for the change.
Yours truly,	

The student's note is excellent. It has two layers. The first layer is the list of steps that he already follows. He could use these process steps exactly as they have been taught, and the resulting paper would be acceptable. However, as he uses the established process, he decides that it needs to be adapted to his own needs. This second layer of process writing has begun with a recognition of established knowledge, and builds upon it. His proposed change to the writing process is a simple one: create a "bubble drawing" that will show the network of ideas that he is considering. The suggestion is practical, and it is based on experience. By adding this new set of steps, he has a process that increases his emphasis on critical thinking.

Putting Process to Work

1. Re-read the letter above. Imagine that you are the teacher who receives the note, and compose a response to what the student proposes. What are the most important issues that you need to bring to his attention?

2. How is the letter similar to the two levels of search techniques presented in the graphic that explains how to do searches using Google?

ASSESSING THE READER'S READINESS

The Perceived Task

motivation

experience

expertise

Instructional Needs

WRITER'S TASKS

specified outcome

tools

skills

sequences

benchmarks

The Clarified Task

The Process Document

SUMMARY

Process focuses on the audience and its needs, and then it explains *how* to do something. By understanding what the audience knows and what it can do, the writer puts together a clear set of steps that lead to the successful completion of a specific task. Process becomes a critical tactic when it is used to understand the gaps between the specific step to see what has been assumed about the audience, the task, or the writer's own knowledge and needs.

Looking Ahead

Processes tend to have a conclusion, and thus they are suggest the kinds of connections found in cause and effect relationships. The next chapter helps make the distinction between these two closely related modes by seeing how they work in the real world.

WRITING YOUR OWN PROCESS DOCUMENTS

Assignment #1

So Far:
We have talked about process; the reader and author each play a pivotal role in how a process document is constructed. We have observed that process can be pragmatic or critical, and that critical process, when combined with expertise, allows for innovation.

So Now:
Your job is to identify something that you are good at doing. It could be baking a cake, parking a car, performing an arm bar, or knitting a scarf. Next, construct a set of instructions (a process document) for doing that thing. The instructions should be built for a specific audience: a person who is a novice in doing this particular task. Discuss why performing the task in this particular fashion is necessary for someone who is a beginner.

Assignment #2

So Far:

We have discussed how most people who achieve a high level of proficiency at some task make small adaptations to the "textbook" way of doing things. For instance, prolific writers have often developed their own process for writing that most likely deviates from the way they were originally taught to write.

So Now:

As in question one, you should identify something that you are good at doing. Describe the textbook way of performing that particular task, and then point out your innovation -- your adaptation -- of the particular task. Discuss how you created the innovation. What are the differences between the textbook way of doing things and your innovation? Why (or why not) would your innovation be appropriate for a novice to learn?