

Writing About Projects

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Abstract

Advice on how to write about projects, to accompany the first team assignment.

Whenever you write, your aim is to get your readers to build a structure of ideas and understandings in their minds. To do this effectively, it helps to think about what you ultimately want to convey (what should the finished structure look like?), what they need to know to properly understand that message (what are the materials?), and lead up to the final message in small, easy steps (how should the structure be assembled?). You need to create and manipulate a *context*, a collection of ideas that your readers already have, in which your final message makes sense. *You* already have such a context (since your message makes sense to you); the trick is to share it with your readers. You also need to get to that context by steps each of which themselves make sense.

Creating context in this way makes it easy for readers to follow what you write. When readers have to work to follow you, they make mistakes (mis-understand, mis-remember, “get lost”); if they have to work hard enough, readers will just give up on you. Since communication is essential to science, you want your writing to be as easy to follow as possible, without loss of information. The better you are at building context, the more information you can get across smoothly, and the more effectively you can communicate.

Looking at the write-ups you did on the project presentations, nobody seems to have any trouble understanding the presentations, but conveying that understanding is another matter, especially when you cannot presume that the reader shares the context with you of having heard the same presentations. Of course *your instructors* heard them, but the point of the exercise is to practice communicating with others who do not have the benefit of that shared knowledge.

Since you can expect to keep writing about projects in the future, here are some suggestions about how to organize such writings.

1. *Start by explaining to the reader, briefly, what the problem is.* Projects start with problems: try to put it in a sentence; if you can’t put it clearly in a sentence, put it in a short paragraph. This orients readers to what follows; everything about the project relates, somehow, to the problem.

2. *Give the motivation.* Problems come from *somewhere*; where does this one come from? Who is it important to, and why does it matter to them? Understanding a motivation helps convince the reader that the problem, and your writing, is worth paying attention to, and helps connect it to broader ideas and concerns.
3. *Explain the data.* What data are available? Where do they come from? Crucially, how do they relate to the problem? Knowing what you have to work with will help the reader understand what you can actually *do* about the problem, but the reader also needs to be shown how the data are linked to what you are trying to do.
4. *Characterize solutions.* Describe what a successful solution to the project would look like. How would it use the data? How would it resolve the underlying problem? Readers already have a rough idea of what the goal is; you have now created the context to give them one in much sharper focus, and this in turn will help them grasp the actual work.
5. *Discuss progress.* What has already been done? Who did it? How does this move towards a solution?
6. *What is to be done?* What still needs to be done to get to a solution? (In other words, what does the investigator need you for?) How will doing these work get you from the current state of the project to, or towards, the kind of successful resolution you have characterized?

Each of these points builds on the ones which have gone before to give the reader an increasingly precise idea of what you are going to do and why. It's not *always* going to be the best way to organize your write-up or presentation, but it's a fairly reliable one. If, for instance, you just start by describing the data, readers will not have a sense of why it's important or what it's trying to do, and will have to work harder to understand and retain what you are saying, which, as I said, is *not* the effect you want.¹ Similarly, painting a picture of what "success" would look like is a very effective way of helping the reader grasp your planned work, but it makes the most sense to do it after readers understand the broad goal and the specific conditions you're working under.

These points go beyond just writing up project descriptions. It is no coincidence that this outline is basically the same as Day and Bastel's standard organization for papers, because a paper is an account of a *finished* project. And it's not just about writing: all of this applies to making *presentations* about projects, and you'll be making several such presentations throughout the semester, culminating in the Meeting of the Minds poster session.

¹There are situations when you deliberately want to be hard to follow — perhaps you'd get in trouble if your readers understood what you were trying to achieve — but this class is *not* one of those situations.