Communicating results

Objective – What is the purpose of your communication? i.e., to convey results, impress the reader, cover yourself legally, warn about impending problems, get a job, build your business, etc. In any form of communication, whether it is a lecture, conversation, homework assignment, or thesis you need to think about the purpose of that communication and prepare accordingly. It is highly unlikely that you write for fun; instead you do it when you want something.

Speaking to your audience – After defining your objective it is crucial to assess the person who will be receiving your communication. It is your responsibility to put your communication in a form that is useful to the recipient. For example, assume that you are evaluating a potential site for a landfill, communicating to regulators will be very different from design engineers or an outraged citizen group. The basic information transmitted to each of these groups might be the same, but how it is presented for consumption should differ. You must aim for the technical ability of your audience.

Written vs. verbal – One-on-one oral communication is fraught with peril as the information transmitted is subject to misinterpretation or outright falsehood. There are instances where oral communication is best (e.g., speaking to a group, off the record conversations); take care when entering into a gray area. Written communications are a permanent record of what was transmitted, for better or worse.

Appearance – Sad to say, but appearance is critical. This is particularly true in today's world where computer generated graphics and word processing are the norm. Your communication should be clearly legible and well organized. The initial impression should be one of professionalism. Given two technical studies, one that is beautifully presented but technically flawed and another that is technically correct but sloppy, which one will your recipient choose to believe? You must assume that your recipient does not have either the technical expertise or time to do a full evaluation, otherwise they would have done it themselves. The recipient values their time, so make it easy for them to find the information that they need. Do not try to bury them with excess information to make yourself appear thorough. If the task requires lots of information, guide your reader through it efficiently by making things easy to find.

Transmittal – Results are usually provided to the recipient as either a letter of transmittal or a memorandum with or without attachments. Memos are less formal than letters. Generally (but not always), a memo is preferred when the communication is relatively routine, and is sent to someone (or an organization) with which you have a prior relationship. So if your boss asks you to do something in the course of your job that is important enough to require documentation, then you would provide the results in the form of a memo (routine, prior relationship). Unless you are working as part of a long-term project that requires frequent minor communications, a client would get a letter, so would a non-routine communiqué to your boss (e.g., resignation). Details on letters/memos below.
Attachments – All but the most simple communications will involve supporting documentation, which is sent in the form of attachments to the letter/memo. This documentation should have a professional appearance if it is to be reviewed directly by the recipient. Sometimes raw notes are transmitted for completeness, those are what they are. Attachments should be marked by name or number, neatly organized, and referenced directly in the letter/memo.

Ethical considerations – Your communication should be consistent with the ethical obligations of your profession (i.e., lawyers have different obligations than engineers).

Notes on memos/letters

Brevity is a virtue.

Get to the point quickly, don't tell a story with the answer at the end.

Be factual.

Don't overstate your results.

Be clear and specific, don't leave room for misinterpretation.

Restate the problem.

Spell out methods and potential sources of uncertainty.

Use the positive voice when appropriate.

Cover yourself for liability.

Most companies/agencies have a form letter/memo approved by their legal office.

Conceptual Models

Class discussion – propose several problems and discuss the relevant conceptual model(s)