



Technical Communication



Welcome to Technical Communication

OPTI 597B

M & W

12:30 – 1:45



Course Goals

- To gain a greater understanding of the mechanics of writing
- To improve the organization of written documents
- To recognize key elements of technical writing
- To effectively utilize figures and graphs in documents
- To appreciate the importance of good writing
- To gain a sense of confidence in the ability to communicate (written and verbal)



Expectations for this Class

- Complete at least one short writing assignment each week
- Participate in class discussions
- Take weekly grammar quizzes
- Read peer-reviewed journal articles and summarize
- Engage in peer-review/feedback
- Make significant weekly progress on assigned written work **or** work of your choice (e.g. dissertation, thesis, technical report, lab reports, etc.).
- Create and present an oral presentation

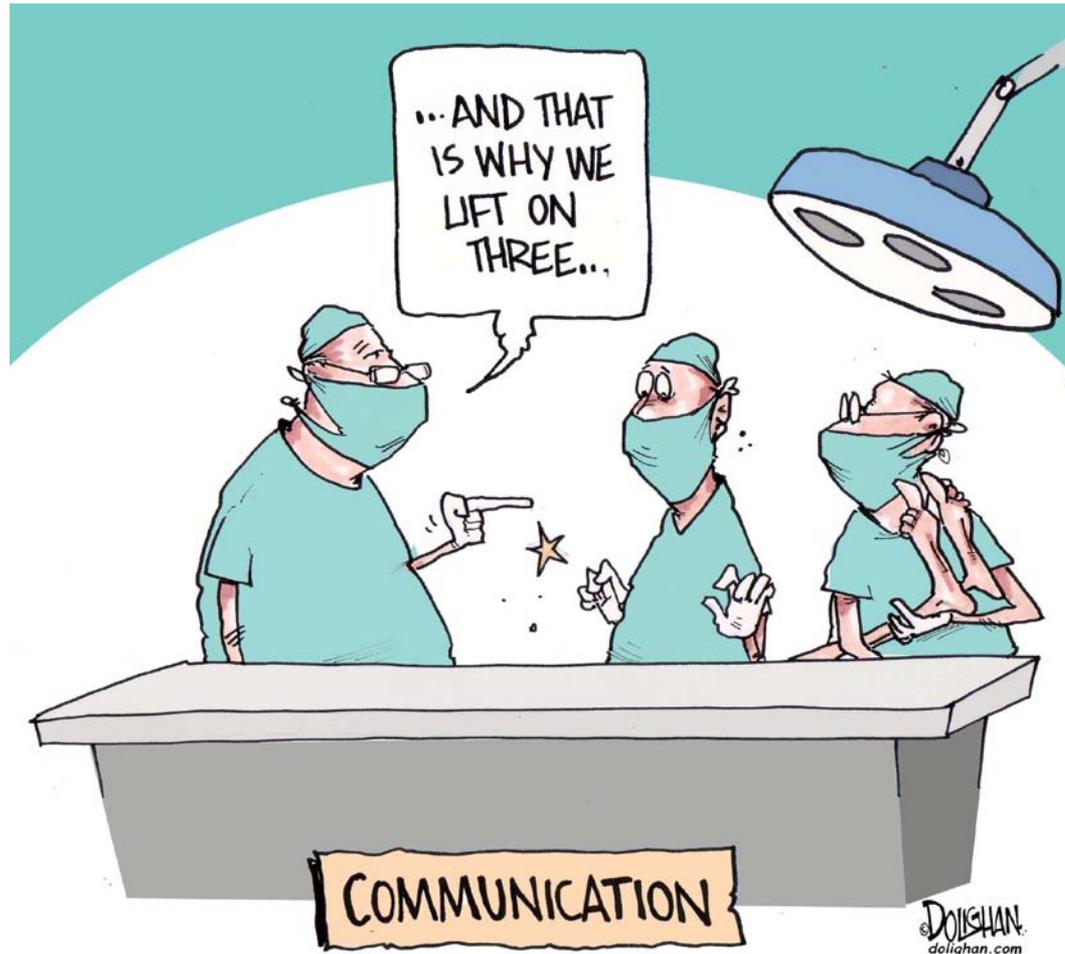


Week 1: 8/22 & 8/24

- This week we're going to focus on grammar and structure, which may lead into the following weeks, but the general idea is to go over the basics and then start learning how to construct a:
 - Sentence
 - Paragraph
 - Report

Of course there is a lot more to it than what meets the eye and my intention is to go at a pace that suits this group of students, while still moving ahead to meet our goals.

Communication





What is Communication?

- Communication is simply the transfer of information from one source to another AND the interpretation of said information by the receiving source.
- It is a process and one that often fails for very avoidable reasons.
- As a professional you **WILL** be judged by your ability to communicate effectively and accurately



What is Technical Communication?

- Communication that is designed to transmit technical information so that a certain audience can understand it easily, effectively, and efficiently.
- It is concise, accurate, clear, and audience-savvy.
- Even though everyone speaks English, the same words may mean very different things in each situation. The usual aim of technical writing is practical: to help readers understand a theory or process or carry out a task.



Why Should You Take this Class?

- I believe you should take this class because of how much better you will learn to write documents and give oral presentations.

or

- This class should be taken to improve your written and oral communication.

Which sentence more efficiently got the point across?

What documents do Technical Writers Produce?



- Technical reports
- Product instructions
- Reference and maintenance manuals
- Journal articles
- Project proposals
- Training materials
- Catalogs
- Invention disclosures
- Online documentation and help systems
- Web pages
- multimedia presentations
- Parts lists
- Assembly instructions
- Sales promotion material
- Brochures
- Dissertation/thesis

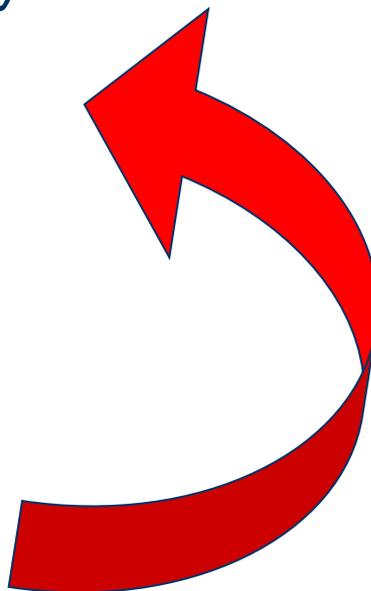
And many more....



Importance of good writing

- You are a reflection of your institution
- Your good communication may be a matter of safety
- Your communication may be a matter of \$\$\$\$
- You are what you write

Okay...so I made
the last one up!



What if English is Not my Native Language



- It is important for ALL writers and speakers to understand the culture of the country in which they are communicating.

Communication Values in the United States

- **Directness** – get to the point quickly and clearly (task orientation)
- **Independence** – as the author you are the authority. When appropriate to use first person, use “I” not “we”
- **Time Consciousness** – Meet deadlines. Arrive on time to appointments. Being slow to respond is a sign of disrespect



Grammar...a Love/Hate Relationship



The model that espouses one right answer for every grammatical question is pretty much defunct today. Influenced by the philosophy of language and postmodernism, most scholars now believe that language is a social construction. It is a game; it is a tool; it is a set of social conventions.



Most Common Writing Errors

- Apostrophe error
- Lack of subject/verb agreement
- Past tense error
- Past participle error
- Run-on sentence or comma splice
- Sentence fragment
- Pronoun error
- Comma error
- Illogical verb tense shift
- Misplaced or confusing modifier



Apostrophe “S”

The Apostrophe “s” is used to indicate a possessive.

Examples:

1. This laser’s power = The power of this laser **OR** the power that belongs to this laser
2. One's way of life = the way of life of one (person)
3. Jan’s car = the car owned by Jan



Lack of Subject/Verb Agreement

- Agreement error: The **instructions is** confusing
- Correct: The **instructions are** confusing.
- Agreement error: **One** of these orchids **bloom** at night.
- Correct: **One** of these orchids **blooms** at night.



Past Tense Error

- Past tense error: During the lecture, she **ask** many questions.
- Correct: During the lecture, she **asked** many questions.
- Past tense error: When he **propose**, Carla **say** no.
- Correct: When he **proposed**, Carla **said** no



Past Participle Error

- Past participle error: Ivan is a **qualify** paramedic.
- Correct: Ivan is a **qualified** paramedic.
- Past participle error: The dogs **have drank** all their water.
- Correct: The dogs **have drunk** all their water.

Run-on Sentence or Comma Splice



- Run-on sentence: Poetry isn't dead it's alive and well.
- Correct: Poetry isn't dead; it's alive and well.
- Correct: Poetry isn't dead; on the contrary, it's alive and well.
- Comma splice: My friend Bob is a genius, he's especially good at math.
- Correct: My friend Bob is a genius. He's especially good at math.
- Correct: My friend Bob is a genius; he's especially good at math.
- Correct: My friend Bob is a genius, and he's especially good at math.



Sentence Fragment

A sentence fragment is a group of words passing itself off as a sentence without having a subject and a verb

- **Sentence fragment**: The dance troupe that visited our campus.
- **Correct**: The dance troupe that visited our campus was inspiring.
- **Sentence fragment**: Studying all night long.
- **Correct**: We stayed up studying all night long. Sentence fragment:
- **Correct**: Because he is allergic to peanuts.
Because he is allergic to peanuts, he cannot eat that sandwich.



Pronoun Error

- Pronoun error: Everybody needs to bring **their** own canteen.
- Correct: Everybody needs to bring **his or her** own canteen.
- Pronoun error: Each student should study their own notes.
- Correct: Each student should bring his or her own notes.

What about sexist language???



The Use of Sexist Language

- The movement to be less sexist in our writing has created some awkward words:
 - Waiter, waitress, or waitperson??
 - Mailman, mailwoman, or mailperson??
 - Steward, stewardess, or flight attendant?
 - Chairman, chairwoman, or chairperson??

Ugh!

Does it really matter?

YES!



Sexist language in writing

- Each person should drive his own car. = male chauvinist?
- Each person should drive her own car. = sarcastic?
- Each person should drive his or her own car. = clumsy?
- Each person should drive his/her car. = informal?

- There are several ways out.
 - You can opt for *his or her*, and try to keep the extra words from being intrusive.
 - You can use his.....or you can use her. Just be consistent.
 - You can make everything plural and use “their”
 - All of them should drive their own car.



Comma Error

1. Missing commas in a series of items

- Comma error: : I ordered a salad hamburger and French fries.
- Correct: I ordered a salad, hamburger, and French fries.

2. A missing comma after an introductory dependent clause

- Comma error: Because he is ill he will not golf today.
- Correct: Because he is ill, he will not golf today.

1. A missing comma between two independent clauses joined by a coordinating conjunction

- Comma error: She plays well so she wants to join the team.
- Correct: She plays well, so she wants to join the team.



Illogical Verb Tense Shift

- Tense Shift: We **drove** to the lake, and Joe **dives** right in.
- Correct: We **drove** to the lake, and Joe **dove** right in.
- Correct: We **drive** to the lake, and Joe **dives** right in.



Misplaced or Confusing Modifier

- Misplaced Modifier: **At five years old**, my father taught me to ski.
- Correct: **When I was five years old**, my father taught me to ski.

Now...what you've all been waiting for...Technical Writing



Characteristics of a Good Technical Communication



- Honesty – Do not mislead the reader.
- Clarity – Convey a single meaning the reader can understand easily.
- Accuracy – Record the facts correctly.
- Comprehensiveness – Provide all the information a reader needs.

Characteristics of a Good Technical Communication (cont.)



- Accessibility – Organize the document to make each part easily accessible
- Conciseness – Just long enough to be clear, but not a word longer.
- Professional appearance – First impressions last.
- Correctness – Grammar, punctuation, spelling, and usage matter.



What is Good Writing?

- Unfortunately, good writing is subjective. However, there are some common characteristics of good writing:
 - correctness
 - clarity
 - cohesion

“A good scientific report conveys its substance in ways that accommodate the highly structured, collective expectations of the readers.”

-(Gottschalk & Hjortshoj, 2004)

Scientists & Engineers Often Write Like This:

- long sentences & passive voice
- a preference for nouns instead of verbs
- an objective, non-personal point of view
- a preference for which instead of that or who
- little punctuation
- major ideas that remain implied, underdeveloped, or non-explicit
- a tendency to personify the inanimate ("the missile's nose cone")

Scientists and Engineers Often Write Like This (cont.):

- a preference for inflated, wordy prose, multiple adjectives, & a Latinized vocabulary

Example:

– "It would have been difficult to accomplish a similar objective with the older techniques."

- inapplicable or false logic
- verbosity
- clipped or stunted development; conciseness



Elements of Good Writing

- Writing has a voice.
 - **active voice** not passive
- Writing is not chatty or personal, but not rigid and detached either.
- The AUTHOR writes with **AUTHORity**.
 - purpose is to make difficult subjects easier to understand
- Organization and flow sustains continuous reading.
 - point of departure, in a clear direction, toward a destination



Sentence Construction

A sentence is any group of words that conveys a complete thought.

- Sentences should convey information without calling attention to themselves and should be:
 - clear
 - correct
 - graceful



How to Write a Proper Sentence

Every sentence must have a subject and predicate to be complete and proper.

- The **subject** is whom or what the sentence is about.
- The **predicate** tells you about the subject.

- It is fairly easy to determine what is the subject and what is the predicate.
 - Find the verb (the action word) in the sentence.
 - The word the verb is describing is the subject.
 - The predicate, which includes the verb, tells about the subject.



Clarity of Sentences

- **Introduce new and important information at the end**
 - Because of the labor problems, we anticipate a three-week delay.

- **Transitional words**
 - There are many words in English that cue our readers to relationships between sentences, joining sentences together. - words such as however, therefore, in addition, also, but, moreover, etc.

- **Subordinate clauses**
 - Avoid interrupting the main clause with a subordinate clause if the interruption will cause confusion



Clarity of Sentences (cont.)

- Use **active voice**.

- Sentences in active voice are usually **easier to understand** than those in passive voice. In addition, changing from passive voice to active often results in a more **concise** sentence. So use active voice unless you have good reason to use the passive.

- not as clear (passive):

- A decision was reached to postpone the vote.

- **clear (active):**

- The committee decided to postpone the vote.



Use parallel constructions

- When you have a series of words, phrases, or clauses, put them in parallel form (similar grammatical construction) so that the reader can identify the linking relationship more easily and clearly.
- not as clear (not parallel):
 - In Florida, where the threat of hurricanes is an annual event, we learned that it is important (1) to become aware of the warning signs. (2) There are precautions to take, and (3) deciding when to take shelter is important.
- **clear (parallel):**
 - In Florida, where the threat of hurricanes is an annual event, we learned that it is important (1) to become aware of the warning signs, (2) to know what precautions to take, and (3) to decide when to seek shelter.



Avoid Noun Strings

- Try not to string nouns together one after the other because a series of nouns is difficult to understand. One way to revise a string of nouns is to **change one noun to a verb**.
- unclear (string of nouns):
 - This report explains our investment growth stimulation projects.
- **clear**:
 - This report explains our projects to stimulate growth in investments.



Avoid Overusing Noun Forms of Verbs

- Use verbs when possible rather than noun forms known as "nominalizations."
 - unclear (use of nominalization):
 - The implementation of the plan was successful.
 - **clear:**
 - The plan was implemented successfully.



Choose Action Verbs Over Forms of Be

- When possible, avoid using forms of be as the main verbs in your sentences and clauses. This problem tends to accompany nominalization (previous slides).
- Instead of using a “be” verb, focus on the actions you wish to express, and choose the appropriate verbs.

Choose Action Verbs Over Forms of Be (cont.)



- unclear (overuse of be verbs):
 - One difference between television news reporting and the coverage provided by newspapers is the time factor between the actual happening of an event and the time it takes to be reported. The problem is that instantaneous coverage is physically impossible for newspapers
- **clear:**
 - Television news reporting differs from that of newspapers in that television, unlike newspapers, can provide instantaneous coverage of events as they happen.



Avoid Unclear Pronoun References

- Be sure that the pronouns you use refer **clearly** to a noun in the current or previous sentence. If the pronoun refers to a noun that has been implied but not stated, you can clarify the reference by explicitly using that noun.
- *This, that, these, those, he, she, it, they,* and *we* are useful pronouns for referring back to something previously mentioned. Be sure, however, that what you are referring to is **clear**.
 - Other pronouns: *I, you, me, him, her, us,* and *them*.

Avoid Unclear Pronoun References (cont.)



- Unclear (unclear pronoun reference):
 - With the spread of globalized capitalism, American universities increasingly follow a corporate fiscal model, tightening budgets and hiring temporary contract employees as teachers. This has prompted faculty and adjunct instructors at many schools to join unions as a way of protecting job security and benefits.

- Clear:
 - With the spread of globalized capitalism, American universities increasingly follow a corporate fiscal model, tightening budgets and hiring temporary contract employees as teachers. This trend has prompted faculty and adjunct instructors at many schools to join unions as a way of protecting job security and benefits.



Listing Items/Ideas in a Sentence

- Arrangement of words in a sentence helps or hurts.
- If listing things in a sentence, consider using bullets or numbers
- See pages 223-225 of Technical Communication text book.



Ethical Considerations

- Avoid using euphemisms when it alters or clouds the point
 - A **Euphemism** is a word or series of words which replaces sad, unpleasant or shocking ideas with softer and nicer expressions. For instance: “departure from life” is a euphemism for “death.”

Example

- Afraid that we were between a rock and a hard place, we decided to throw caution to the wind with a grandstand play that would catch our competition with its pants down
- Afraid that we were in a difficult position, we decided on a risky, aggressive move that would surprise our competition.



Active vs. Passive Voice

- It is more commonly recommended today to use active voice in technical writing and journal articles
- However...some “scientific journals” still use passive voice

Know your audience!



Active Voice

- In a sentence written in the *active voice*, the subject of the sentence performs the action.

Converting sentences to active voice

- Look for a "by" phrase (e.g., "by the dog" in the last example above). If you find one, the sentence may be in the passive voice. Rewrite the sentence so that the subject buried in the "by" clause is closer to the beginning of the sentence.
- If the subject of the sentence is somewhat anonymous, see if you can use a general term, such as "researchers," or "the study," or "experts in this field."



When to Use Active Voice

- In general, writing should be composed in the active voice because of the sense of immediacy and conciseness conveyed when the subject of the sentence carries out the action.
- Fewer words are usually required for the active voice, it is more efficient, and it takes the reader from point A to point B in a “straight line.”
- Try to use the active voice whenever possible.



Passive Voice

- The passive voice tells what is done to the subject of the sentence.
- The person or thing doing the action may or may not be mentioned, but is always implied.
- There is nothing inherently wrong with the passive voice, but if you can say the same thing in the active mode, do so.

Caution

Do not mix active and passive constructions in the same sentence



When to Use Passive

There are sometimes good reasons to use the passive voice:

- To emphasize the action rather than the actor
- To keep the subject and focus consistent throughout a passage
- To be tactful by not naming the actor
- To describe a condition in which the actor is unknown or unimportant
- To create an authoritative tone



Examples

- **Active:** *The candidate believes that Congress must place a ceiling on the budget.*
- **Passive:** *It is believed by the candidate that a ceiling must be placed on the budget by Congress.*
- **Active:** *Researchers earlier showed that high stress can cause heart attacks.*
- **Passive:** *It was earlier demonstrated that heart attacks can be caused by high stress. (by whom?)*
- **Active:** *The dog bit the man.*
- **Passive:** *The man was bitten by the dog.*



How to Change from Passive to Active

Rule Summary Chart for Changing Sentences from Active to Passive

- | | |
|--|--|
| 1. Start with active-voice sentence. | Prof. Sorensen ate the apple. |
| 2. Remove the subject from the sentence. | _____ ate the apple. |
| 3. Move the object to the subject "slot" | The apple ate. |
| 4. Add "to be" before the verb in the same tense as the original verb. | The apple was ate. |
| 5. Change the original verb to its past participiple* form. | The apple was eaten. |
| 6. Optional: Add "by" and the original subject after the verb. | The apple was eaten by Prof. Sorensen. |



Constructing a good paragraph

- There are 2 kinds of paragraphs
 - body paragraphs
 - transitional paragraphs

Body Paragraphs

A group of sentences (or sometimes one sentence) that is complete and self-sufficient. It contributes a larger discussion and supports the main point.

Transitional Paragraphs

Helps readers move from one major point to another. Tends to summarize previous point, introduces another point, and makes the connection of the two for the reader



Paragraph Structure – Topic Sentence

- Include the topic sentence up front (i.e the point)
 - Get to the point. No one wants suspense in technical documents

“The most recent inspection of this design revealed no problems.” ...*continue with supporting information*

- Make sure each of your topic sentences relates clearly to the organizational pattern of your document.



Paragraph Structure - Support

- After the topic sentence follows the support
- The support must be clear and convincing

Roles of supporting information

1. It defines a key term or idea in the topic sentence
2. It provides examples or illustrations of the situation described in the topic sentence.
3. It identifies causes: factors that led to the situation
4. It identifies effects: implications of the situation
5. It defends the assertion made in the topic sentence



Paragraph Structure – Length

- Generally, a paragraph should run about 75 to 125 words (topic sentence and 4 to 5 supporting sentences)
- This is an arbitrary guideline and definitely not intended to constrain your writing. However, long paragraphs often don't get read completely.



Draft paragraph:

Our estimates are based on our generating power during eight months of the year and purchasing it the other four. Based on the 2002 purchased power rate of \$0.034/KW (January through April cost data) inflating at 8 percent annually, and a constant coal cost of \$45-50, the projected 2003 savings resulting from a conversion to coal would be \$225,000.

What's the first problem here??



Revision paragraph

The projected 2003 savings resulting from a conversion to coal are \$225,000. This estimate is based on three assumptions: (1) that we will be generating power during eight months of the year and purchasing it the other four, (2) that power rates inflate at 8 percent from the 2002 figure of \$0.034/KW (January through April cost data), and (3) that coal costs remain constant at \$45 – 50.



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