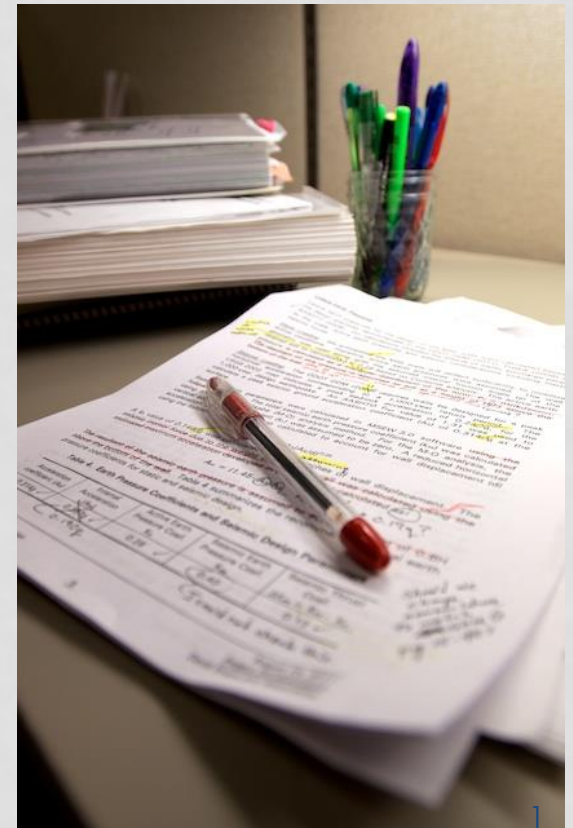


Three Myths about Writing In Engineering

Adapted from:
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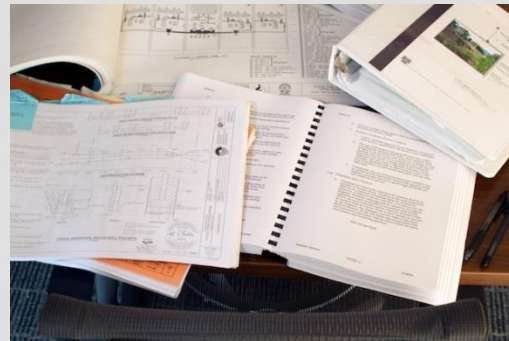


How were these myths revealed?

- Interviews of civil engineering practitioners, PSU students, and faculty
- Analysis of student writing vs. practitioner writing
- Legal consulting

Civil
Engineering
Writing Project

These myths were held by previous PSU students. If you share them, stop now – and start writing more effectively for engineering.



Myth #1: You can improve your writing by using long sentences and fancy words.

Student comments

“It looks better if it’s longer.”

“Make it fancy.”

“I kind of felt like I had to sound professional and smart. I mean, you want to sound really knowledgeable about things, and it seems like the easiest way to do that is to be wordy.”

Some examples of practitioner writing


1. Electronic packaging is evolving to meet the demands of higher functionality in ever smaller packages. To accomplish this, new packaging needs to be able to integrate dies with smaller nodes and greater heat densities, while being pushed into smaller and smaller footprints. [1]
2. A variety of coreless building blocks can be laminated to achieve electrical interconnection between adjacent blocks (Figure 1). Each building block can have signal, voltage, and ground planes. [1]
3. Janine Hernandez has more than 24 years of civil/structural experience. She spent eight years as a bridge designer for ODOT before joining ABC. Janine also spent approximately eight years performing construction surveying and bridge inspections for the City of Portland and ODOT. (Proposal)

Effective writing conveys information in concise sentences with precise words.

Which was written by a student and which by a professional engineer?

A. This bridge has three bays, and while the end bays are approximately 50 feet wide, the middle bay is about 110 feet wide with a height of approximately 20 feet, thereby making this a medium span bridge.

Shorter sentences
One idea/sentence
Nothing “fancy”



B. The existing bridge is a 9-span timber trestle bridge with a concrete deck. It is 217 feet long and 30 feet wide. The posted speed is 25 mph.

Which was written by a student and which by a professional engineer?

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Professional



**Shorter sentences
One idea/sentence
Nothing “fancy”**



B. The existing bridge is a 9-span timber trestle bridge with a concrete deck. It is 217 feet long and 30 feet wide. The posted speed is 25 mph.

So I delved into the topic that is the synthesis of sound and quickly realized that it lacked the depth I wanted in a topic. That said, I didn't want to abandon the whole idea, which led me to the thought that a synthesized sound is really an electronic signal that's being processed. Voila. We've arrived.

In the following paper I hope to give the reader a sense of what signal processing is, where it comes from, and how it's used in today's society.

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Original

As shown in the graph below, where all three diagrams have been put in one graph together, it could be recognized that the subject of the first and second test are most likely to be ductile.

Revision

As shown in Figure 1, samples 1 and 2 exhibited ductile behavior.

or

Samples 1 and 2 exhibited ductile behavior (Figure 1).

Myth #1: You can improve your writing by using long sentences and fancy words.

“It looks better if it’s longer.”

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“I kind of felt like I had to sound professional and smart. I mean, you want to sound really knowledgeable about things, and it seems like the easiest way to do that is to be wordy.”

Eradicate the myth:

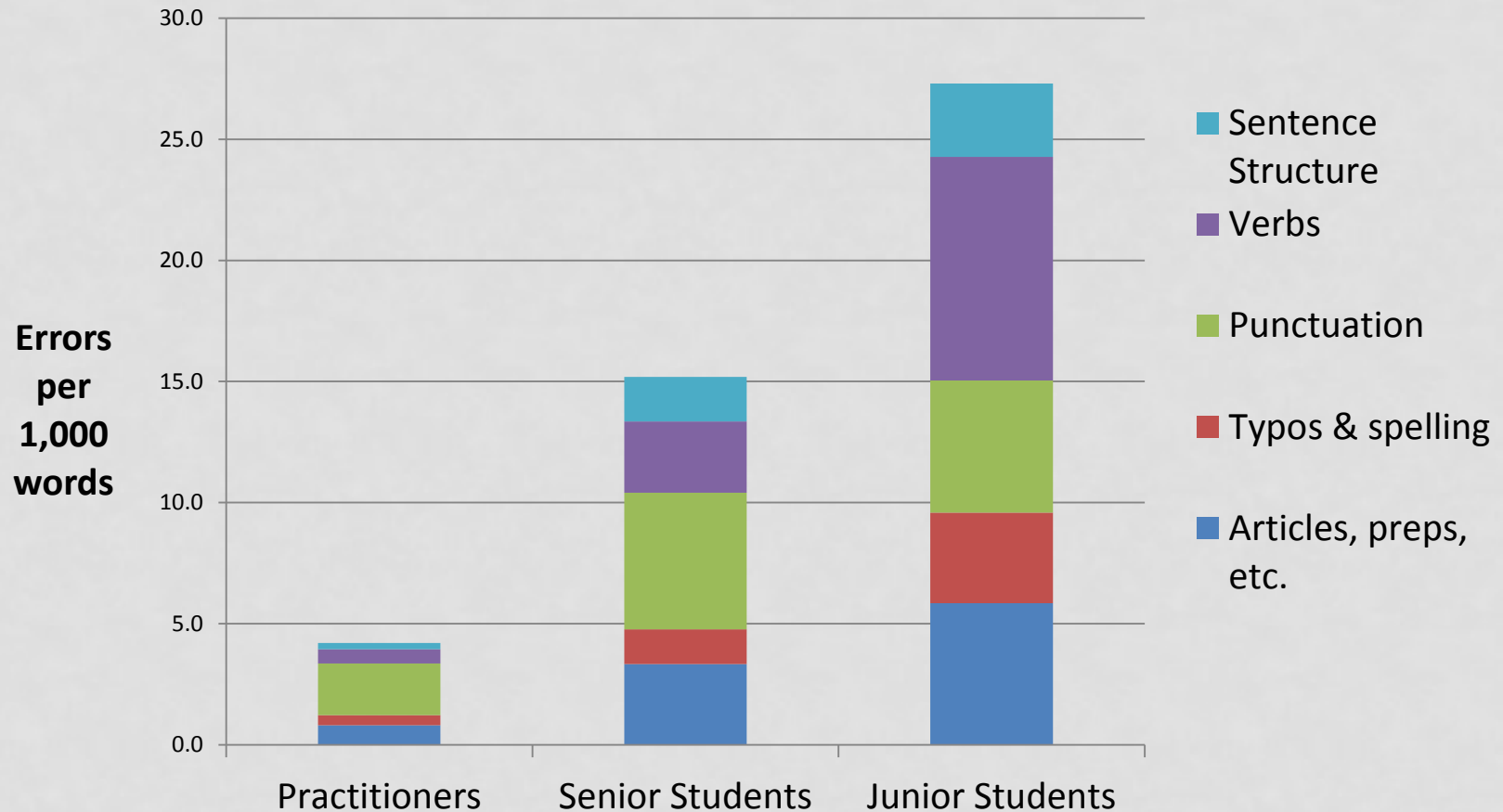
Concise sentences – one main idea

Precise words

Myth #2: Engineers don't know the rules of grammar and punctuation.



A comparison of practitioner and student errors



Practitioner comments about grammar errors and typos

- They convey carelessness. Who wants a careless engineer?
- They make the firm or agency look unprofessional.
- They run the danger of changing meaning.
- They make reading slower.
- “I quickly eliminate applicants if their CVs and cover letters have mistakes.”

Can you correct these punctuation and grammar errors?

1. As stated in ASCE's Code of Ethics; "Engineers shall hold paramount the safety, health and welfare of the public...."
2. Slope of stress-strain curve in Figure 1 shows[...]
3. As an electrical engineer, the field of power electronics is highly affected by modern computing techniques.

1. As stated in ASCE's Code of Ethics, "Engineers shall hold paramount the safety, health and welfare of the public...."
2. **The** slope of **the** stress-strain curve in Figure 1 [...]
3. As an electrical engineer, **I know** the field of power electronics is highly affected by modern computing techniques..
or Electrical engineers know the field...

Can you correct these punctuation and grammar errors?

1. Another types of resistors that have a constant resistance can be broken down according to resistance of material and construction.
2. There are other green energy sources like solar energy or wind energy in which engineers have been studied and maximum the benefits to improve our daily life.
3. When it comes to computer science, as it deals with computer software programming and operating systems.

Can you correct these punctuation and grammar errors?

1. Another **type** of **resistor** that **has** a constant resistance can be broken down according to resistance of material and construction.
2. There are other green energy sources like solar energy or wind energy **that** engineers **study to improve the quality of our daily lives.**
3. When it comes to computer science, as it deals with computer software programming and operating systems.

Computer science involves software programming and operating systems. - original meaning unclear

Myth #2: Engineers don't know the rules of grammar and punctuation.



Eradicate the myth:

Learn to use standard English.

Revise and edit for standard English.

Proofread, and then proofread again.

Myth #3: Effective writing is produced by people who were born as good writers.

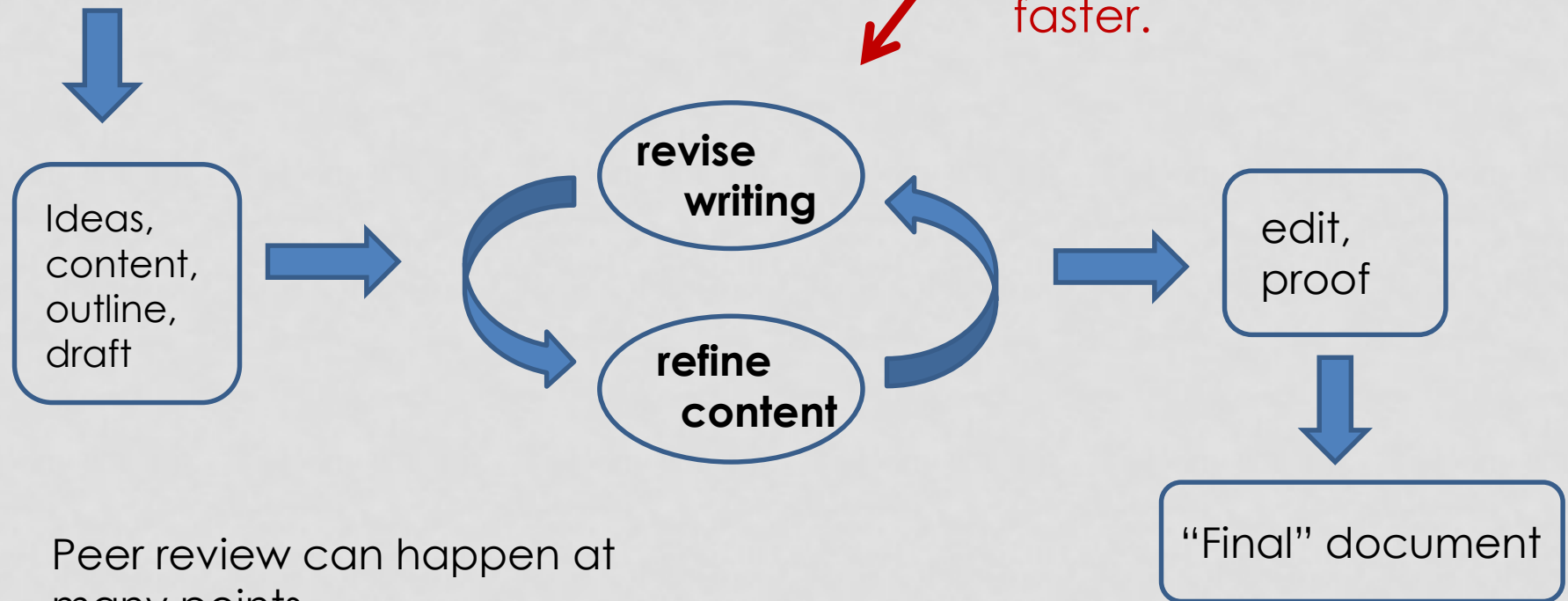


Photo of all the engineers who believe they were born as good writers

The Writing Process

- Understand the purpose and requirements
- Analyze the audience's needs and expectations

Effective writing comes from revising and revising and revising – and learning from feedback so the process becomes faster.



Peer review can happen at many points.



“...my draft goes through my own three or four revisions before I’m satisfied enough to get somebody else’s opinion on it...”

- the principal of an engineering firm
(who has many years of experience)

Revise

It takes much less time today to send messages, get the news, do quick research, and even find places of interest to visit than it did 30 years ago, but it still takes the same amount of time to do the dishes, the laundry, drive to work, and mow the lawn (and countless other physical tasks) as it did 30 years ago.

Revise

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Thirty years ago it took much longer to perform tasks that seem simple today. Sending a message, getting the news, and researching travel destinations can all be done instantly. However, tasks like washing the dishes, and driving to work still take a considerable amount of time.

Revise

Power engineers serve many different industries. They are employed in schools, universities, hospitals, hotels, apartment buildings, shopping malls, airports, power generation stations/plants, mines, industrial and manufacturing plants, refineries, pulp mills, food production plants, breweries, cogeneration plants, petrochemical plants, office and commercial buildings, government facilities and other workplaces.

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Too many examples!

Power engineers are employed by a number of different industries that range from production plants to shopping malls.

Revise

Without power engineers, power systems in society today would not be as advanced as they are. We need power engineers to design our power grids and find various ways to generate power. Power engineers are the reason we have ways of generating power using other natural resources so that our current ones do not get depleted completely. The importance of power engineers and the work they do is overlooked unless there is an issue with power. Without power engineers, we would not have a constant source of power being supplied to our house and other buildings. They make it possible for us to use our computer, lights, and other electrical appliances. Without power engineers to develop a power grid, many countries would not be as connected to the rest of the world. Power engineering holds a vital role in society that tends to go overlooked.

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Redundant!

1. Use concise sentences and precise words.
(One main idea/sentence)
2. Use standard English and proofread.
3. Revise extensively. Learn from feedback
on previous papers.

Resources for Writing

Civil Engineering Writing Project: cewriting.org

Department Style Guide

PSU Writing Center

[1] R.N. Das, F.D. Egitto, J. M. Lauffer, E. Chenelly and M. D. Polliks, "Versatile z-axis interconnection-based coreless technology solutions for next generation packaging" Endicott Interconnect Technologies, Inc., Endicott, NY.

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