How do we teach engineers to write anyway?

What’s your role in this process?

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Overview of this talk

• My interest in teaching engineers to write

• Literature review – what’s been done on the topic

• Perspectives
  • Classroom teachers in engineering and outside
  • Technical communication courses / design courses
  • Professional contacts in co-ops and first jobs
  • Non-professional writing courses (e.g. Literature course)
  • writing supports like the Writing Centre

• What can be done better?
My interest ...

• **My kids**
  - Both are recent Dal engineering grads,
  - Both are employed as engineers,
  - Both have discussed their writing within the program and employer expectations.

• **My PhD**
  - A study of inter-professionals working in a mixed-presence environment (engineering teams working both in an office setting and virtually).

• And most importantly...
Communication matters
Basic principles in communication

As you know, effective communication is geared to

1. the audience(s)
2. the writer’s purpose
3. the context
So what does the literature say about teaching engineering students to write?

- Writing is discipline/profession specific
  - It can look like a very different thing in different communities of practice.

- Goals for writing at university and in the workplace are different (Artemeva & Freedman 2001)
  - University – writer gets a grade, reader learns little
  - Workplace – reader makes decisions based on what they learned

- Students (and new employees) need a long time to adapt
  - Writing is an on-going craft or skill.
Adaptation can be made easier by:

- Good general writing skills
- An understanding of writing in different disciplines and workplaces
- Communication and design courses that are tied to workplaces (real life)
- *Students must perceive that their engineering professors have a high regard for the value of written and oral communication*
Then who’s involved in teaching engineers to write?

During their time in the engineering program here at Dal (4-5 years) and in the associate universities (2 years) students have access to -

1. Writing courses,
2. Technical communication and design courses,
3. Co-op terms,
4. The Writing Centre,
5. Their professors
“Writing” courses - WAC

- Writing is only an evaluation criterion
  - It does not mean that there will be any writing instruction

- Discipline-specific content is the aim, not writing
  - E.g. English 1000 – short stories, novels, poetry

- Writing is a means to an end
  - It is rarely discussed as an activity in itself
Example Assignment

How would this assignment help an engineer to write?

“The truth was Punch had noticed that Quoyle, who spoke little himself, inspired talkers. His only skill in the game of life. His attentive posture, his flattering nods urged waterfalls of opinion, reminiscence, recollection, theorizing, guesstimating, exposition, synopsis and explication, juiced the life stories out of strangers.” (The Shipping News, p. 9)

Comment on how and why Quoyle’s one skill—as a listener, as an inspirer of talkers—is crucial to the success of his efforts to establish himself in Newfoundland. Provide specific examples to support your argument.
The value of writing courses

These courses are of great value to engineering students if students

• Pick up the idea that we write differently in different fields (we look for different things, too)
• Learn something about our civilization and our cultural heritage
• Gain insight into the human condition
• Learn that writing has the power to inform, entertain and persuade,

Engineering graduates will work with many other types of people (professions and cultures) in many different contexts. Learning more about other people has value!

Will it teach them to write in engineering?
Technical communication and design courses

- Taught by a variety of people
- Attempt to tie the work into the workplace experience
- Not connected to co-op work terms, nor engineering workplaces
- Assumption that there are one-size fits all engineering conventions (?)
- Advantage: if taught by an engineer or a practising technical communication expert, there is real credibility and a real connection with the profession
Professional experience (co-op)

• Can be an excellent opportunity to see the value of communication skills
• Can be an excellent learning opportunity (learn to write like the engineers!)
• Can be rather unsettling
• Can teach students that writing is a developing skill
• Can teach them that writing conventions and expectations vary from company to company and situation to situation
Writing centre

• Gives students the opportunity to –
  • Talk about writing
  • Work on written assignments
  • Work with an engineering PhD student at Sexton
So what can be done better?

- Program changes – all sorts of possibilities for improvement
  - Connecting classes, co-op terms, industry to the skill development
  - New classes such as an early design course
  - Mentorship opportunities

However
Engineering professors – what’s your role in teaching writing?

- Talk to your students about how to write in your field and in your class.
- Show them that you value good communication skills.
- Give academic value for writing in your grades!
How would you include a value for writing?

- What do you value?
- How can you include it in your marking scheme?
Rubrics

Here is a rubric for a written assignment.

http://www.writing.engr.psu.edu/handbook.index.html

It may or may not include what you would be looking for given that you may teach technical or science subjects. However, you can see that there is a *breakdown of elements or characteristics (left hand side)* and a *breakdown of standards or expectations.*
Thank you for your time.

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