Chapter 1 – Case Study
What Joseph Templin Learned About the Importance of Communication in the Engineering Workplace[1]

When teaching this chapter, consider using the following notes to frame the example:

The writing attributes taught in this chapter—clear, complete, concise, accessible, correct and accurate—are crucial to ensure that despite the pressures and limitations that time and money impose on any project, clients will benefit from high-quality work.

Joseph Templin retired in 2013 with over 36 years of experience as an engineer in the government and private sectors. His most recent position was the Director of Science Technology (Air) at Defence Research and Development Canada. For about a decade, from 2010 to 2019, Mr. Templin volunteered to speak with the students of Technical Report Writing at the University of Ottawa.

Mr. Templin remembers one instance in which his work took him to the Alaskan arctic, where his team had to explain to the local inhabitants the potential benefits of snow fences.

A typical snow fence is a porous barrier that causes a drift to form downwind of it, thus capturing the drifting snow and preventing it from travelling further downwind. This can be especially beneficial in large, open spaces, such as those in the Alaskan Arctic.

This particular village in the Arctic consists of individual homes elevated on pylons about 4 feet above the ground, along with some larger building such as a 2-storey school. Very large snow drifts (up to two-stories high) accumulated on and around many of the buildings, particularly those buildings that were not elevated. The objective of the proposed snow fences was to reduce the amount of blowing snow that reached the village and therefore reduce the drifting.

When Templin's team described the way the proposed snow fences would work, they used a slide presentation and an oral presentation, followed by a question-and-answer session. The slides were used to give graphic and photographic illustrations of the problem that the residents had been experiencing. They were also used to illustrate the function of snow fences and to show where the fences might be installed. Some slides were used to summarize key issues, proposed solutions, and challenges to be addressed. Ultimately, written reports were used to explain in greater detail the definition of the problem, the concepts, the proposed construction, and the costs.

When communicating with residents, Templin's team focused not on the technicalities but on the impact that the technology would have on minimizing snow drifts and improving living conditions.

The initial reaction from the residents was a combination of curiosity and scepticism (What would southerners know about northern issues such as snow drifting?). Through discussion, Templin's team learned more about the residents' concerns. The concept of fences or enclosures in a fundamentally open space such as the Arctic was foreign and almost repulsive to them. In addition, they were concerned about freedom of movement to and from the village with snowmobiles.

[1] This case-study was written in consultation with Joseph Templin, who also contributed some of the text.

The team needed to address those concerns as effectively as possible by designing the fences to allow access points at convenient intervals. Ultimately, the local residents were able to balance their dislike and practical concerns with the clear benefits of less snow accumulation in the villages.

This was a multi-year effort prior to construction, within which Mr. Templin was involved in only the first meetings. Ultimately, fences were installed, and, to the best of Mr. Templin's knowledge, they are still in use. He therefore assumes that the local residents accepted the solution as beneficial.

Mr. Templin recently found an aerial photo of the area. One can see remaining snow in the summer, west and southwest of the village. These snow patches are probably the remnants of the snow-fence drifts. You can see the fence lines beside the drifts.

This project was a successful example of how taking into account audience and purpose helped to reduce cultural resistance to technological innovation (see the "Determine the Purpose" and "Consider the Audience" sections of the textbook for more information).

Web Links

Mr. Templin recommended the following article about the importance of diversity in the workplace:

> How Diversity Makes Us Smarter: http://www.scientificamerican.com/article/how-diversity-makes-us-smarter/

Mr. Templin shared the following links with students looking for summer jobs in the fields of their study. Working a summer job can be a highly effective way to develop your writing skills:

> Federal Student Work Experience Program: https://www.canada.ca/en/public-service-commission/jobs/services/recruitment/students/federal-student-work-program.html
>
> National Research Council Canada: http://www.nrc-cnrc.gc.ca/eng/careers/programs/undergraduates.html
>
> Defence Research and Development Canada: http://www.drdc-rddc.gc.ca/en/careers.page

Critical Thinking Questions

1. What was your attitude toward English in high school? What were the experiences or assumptions that helped to shape that attitude? How has your attitude changed after reading this chapter?
2. Reflect on a situation in your life in which poor communication had a cost. How would you apply the lessons from that situation to your future profession?

3. In the following interview in *Coders at Work: Reflections on the Craft of Programming: Interviews with Some of the Top Programmers of our Times*[2], Douglas Crockford, who invented parts of Java Script, gives the following advice to students:

   > I would focus on the communication aspect [of education]. Learn to write. Learn to read. My advice for everyone is pretty much the same, to read and write. I generally don't hire for specific skills…. Are you a good java programmer, a good C programmer, or whatever? I don't care. I just want to know that you know how to put an algorithm together, you understand data structure, and you know how to document it. If you can do that, you should be able to figure out Java script.

   Why does Crockford speak in such an apparently dismissive way about programming and advise students to focus on reading and writing?

Teaching Suggestions

1. Ask the students to speak to relatives, friends or acquaintances who are working in the technical fields and ask them what they have learned about the importance of writing in their workplace.
2. Discuss with students the concept that people in the technical fields should have a dual identity/dual citizenship: one as an engineer/scientist, etc. and the other as a writer. What does it mean to have the identity of a writer? What should you do to develop your writing voice (i.e., read, keep a reading journal, etc.)? What is the difference between language and the tools that you use in your other classes (i.e., math equations or lab equipment)?
3. Discuss the following quote from Albert Einstein, who seems to take it for granted that the duty to understand reality comes hand in hand with the duty to write about it clearly:

   > Great spirits have always found violent opposition from mediocre minds. The latter cannot understand it when a man does not thoughtlessly submit to hereditary prejudices but honestly and courageously uses his intelligence and fulfills the duty to express the results of his thoughts in clear form.[3]

[2] Seibel, Peter. *Coders at Work: Reflections on the Craft of Programming.* Apress, 2009. Online. https://books.google.ca/books?id=nneBa6-mWfgC&pg=PA130&lpg=PA130&dq=Coders+at+Work:+Reflections+on+the+Craft+of+Programming+I+would+focus+on+the+communication+aspect&source=bl&ots=gGxyGgRV_y&sig=ACfU3U32vUcgy_hkjwW1sib7F9HB1SPKdw&hl=en&sa=X&ved=2ahUKEwiU04-AifHkAhVGPq0KHc6wDywQ6AEwBXoECAkQAQ#v=onepage&q=Coders%20at%20Work%3A%20Reflections%20on%20the%20Craft%20of%20Programming%20I%20would%20focus%20on%20the%20communication%20aspect&f=false

[3] https://www.passiton.com/inspirational-quotes/3373-great-spirits-have-always-found-violent