Infographic Design and Audience Expectations: A Technical Communication Assignment

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Abstract

Engineering students must develop adaptable communication skills to succeed in the workplace, tailoring their style and content for different types of audiences and purposes. One of the fundamental decisions technical communicators make is which form of expression will best meet audience expectations. Infographics are an increasingly popular form of communication for diverse audiences because the combination of text and graphics can capture audience interest while concisely introducing usable information. This paper describes an infographic assignment in a junior-senior-level technical-communication course. While the course consistently emphasizes the importance of considering the audience in writing and speaking assignments, creating an infographic requires different types of decisions about how to reach audiences quickly while conveying substantive information. Students also had the opportunity to listen and respond to their audience's reactions as they viewed the infographics. Through this assignment, students reported learning more about audience expectations than they did through a written assignment about the same topic. While infographics cannot replace the depth and complexity of written assignments, they can be used effectively as an interactive classroom activity that students associate with understanding their audience.

Keywords

Technical communication, infographic, design

Infographics and Audience Engagement

As the name suggests, infographics are collections of visualizations and minimal text designed to introduce a topic in an engaging way. Despite the concept's simplicity, the combination of words and graphics has been shown to increase long-term retention by 83% compared to words alone[1]. By helping the brain understand patterns and relationships, Lyra, et al. [2] assert that infographics support "robust learning." Masterful examples of using visuals to make words more meaningful can be found in the European Renaissance[3]. In his studies of anatomy and engineering, Leonardo Da Vinci wrote descriptions to accompany his precise, vivid drawings. Figure 1 depicts a plan for a mechanical bell-ringing system taken from one of Da Vinci's notebooks (1487-90)[4]. Likewise, Galileo integrated written planetary observations with his illustrations. These examples have endured as a model of the intersection between science and art, influencing modern scientific visualizations.

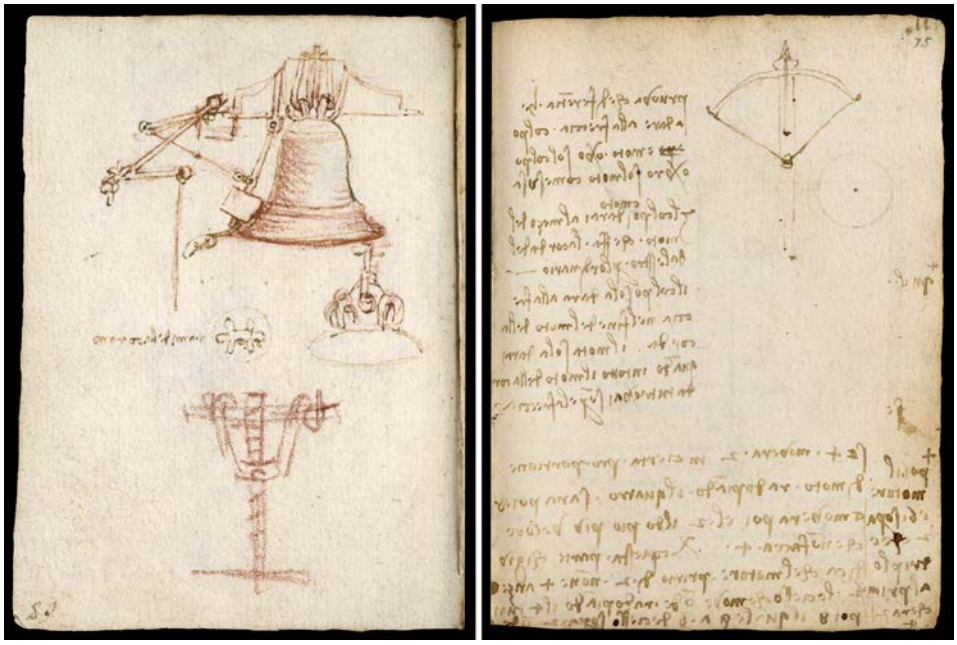

Figure 1. Da Vinci Notebook Drawing, published in Codex Forster (1487-90)[4]

With a multitude of templates and tools available today, anyone can create infographics to represent any topic, as demonstrated by their ubiquity. A 2017 *Forbes* survey[5] found that 56% of companies use infographics as part of their marketing campaigns. This ubiquity does not mean that all infographics are masterful or even beneficial. Effective design choices are critical to avoid meaningless, misleading, or oversimplified content, and each choice requires careful consideration of the audience. Websites such as David McCandless's *Information is Beautiful*[6] demonstrate effective design through collections of original and curated infographics about a wide range of topics, from "Millions of Lines of Code" to "Oil Well: Every Cooking Oil Compared." The audience does not need to be particularly knowledgeable about or even interested in a topic to find an effective infographic compelling and educational. Graphical abstracts, becoming increasingly popular in scientific journals[7], also combine text and images to create a "visual summary" of a scientific paper. As opposed to a traditional text abstract that summarizes the entire paper, a graphical abstract "is designed to give readers an immediate understanding of the take-home message of the paper"[8]. By distilling their message, authors are engaging a broader audience while facilitating judgments about the paper's relevance.

Developing the Infographic Assignment

The Shackouls Technical Communication Program is an academic department within the Bagley College of Engineering. Established in 1999, the program supports the integration of writing instruction in the engineering curriculum through workshops, an engineering writing tutor program, and a required junior-senior-level writing course, GE 3513 Technical Writing. The instructors in this program have English rather than engineering backgrounds, which provides students with a different type of audience than they encounter in their technical coursework. Students must adjust their communication content, organization, and style for an audience that does not share their knowledge base, and one of the course goals is to demonstrate the value of this adaptability to professional competence and preparation for the workplace. With this goal in

mind, it is important to develop assignments that require students to consider audience needs and expectations in a variety of contexts. While the course's focus is writing, students also deliver presentations, teach the class an ethics lesson, and create videos, navigating the different choices required for each type of communication.

The infographic assignment in the technical writing course developed from an existing writing assignment. During the first week of class, students are asked to choose from a list of provided topics in science and engineering and write a brief description (2 or 3 paragraphs) introducing the topic to a non-expert reader. This assignment functions as a diagnostic writing sample, with the instructor providing constructive comments to give students some early feedback on their writing. The other goal of the assignment is to introduce the principles of effective technical descriptions and the importance of anticipating reader expectations. The second part of this assignment, the infographic, is completed in class during the second week of the semester, after students have received feedback on their writing samples. For this assignment, students form groups with those who wrote about the same topic (3 or 4 students per group), and they collaboratively design an infographic representing that same topic. Although students are still targeting a non-expert audience, the infographic introduces different considerations, including how to emphasize the most important information, how to use text and visualizations (and what types of visualizations best meet their goals), and how to arrange the elements to maximize engagement and understanding. The only requirements are that the infographic fit on one page and combine text, graphics, and layout to introduce the topic to a non-expert who should be able to understand its basic principles from quickly scanning the infographic. While students are not required to use any particular program or tools to design their infographic, the previous class session includes an introduction to some of the websites that provide free templates and design tools, including Canva, Visme, Venngage, and Adobe Spark. Two examples of infographics student groups created for this assignment are shown below in Figures 2 and 3 (both created using Canva).

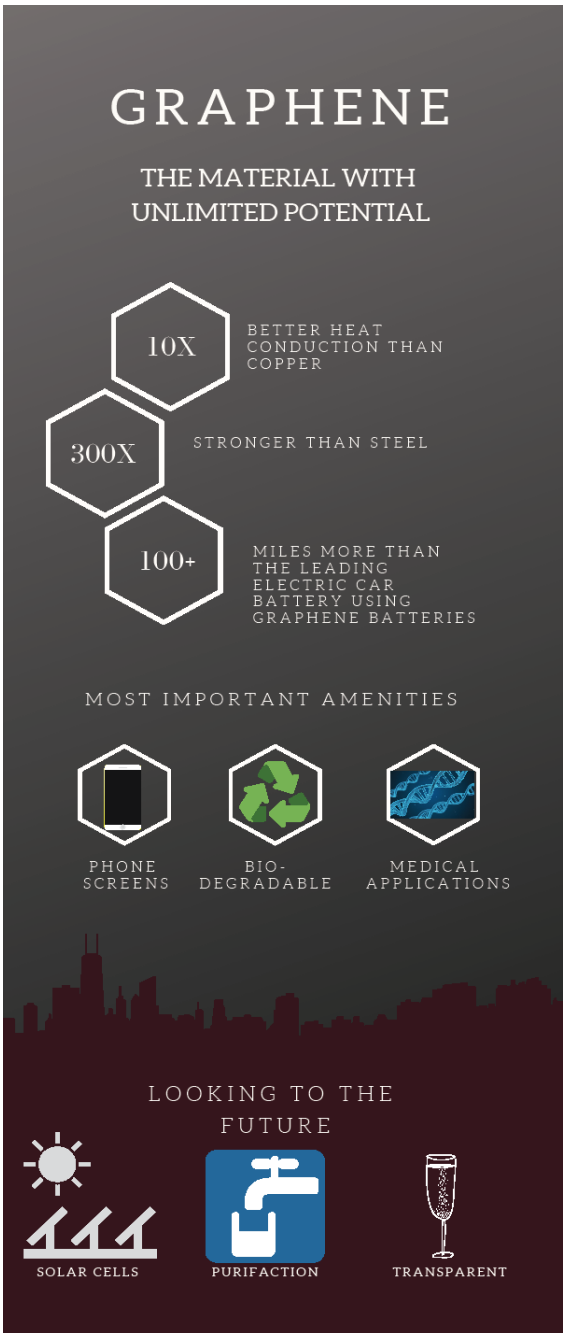

Figure 2. Graphene

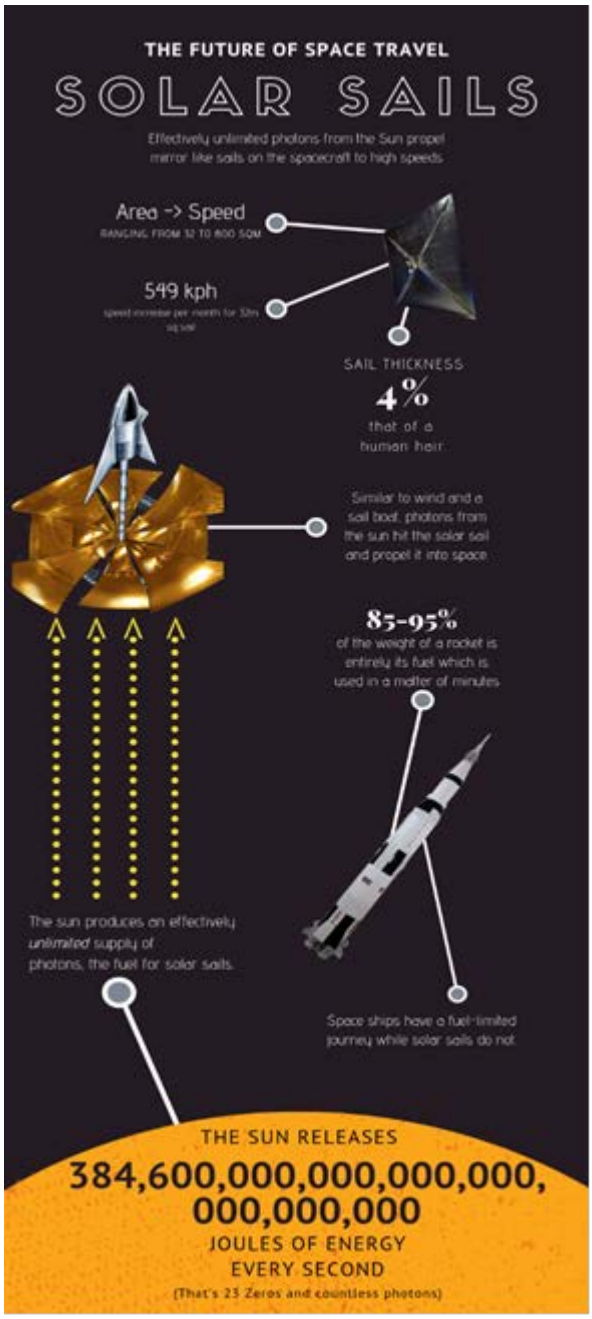

Figure 3. Solar Sails

The final step of the assignment is to get audience feedback. During the class meeting after submitting their infographic, each group stands at the front of the classroom, displays their infographic on the projector screen, and asks the audience three questions:

1. What do you notice first?
2. What is your favorite element of the infographic? (can be anything: a fact, an image, a design choice)
3. How do you think the infographic could be improved?

Each group spends about 10 minutes listening to audience feedback and responding about why they made particular choices and how they might make changes based on the responses.

Student Perceptions of the Activity

At the end of the activity, students in two course sections (25 total responses) were asked to reflect on what each part of the assignment helped them learn about audience expectations (Figure 4).

One of the main objectives of this activity is to help you understand and anticipate reader/audience expectations. Please answer the following questions based on the feedback you received on each assignment:

1. **On a scale of 1 (worst) to 5 (best), how well did your written description (Part 1) meet reader/audience expectations? _____**
2. **On a scale of 1 (worst) to 5 (best), how well did your infographic (Part 2) meet reader/audience expectations?_____**
3. **Which assignment did you find more helpful in learning to anticipate reader/audience expectations? Briefly explain your answer.**

Figure 4. Post-Activity Student Survey

On questions 1 and 2, students on average rated their success higher in meeting audience expectations for the infographic (4.64/5.0) than the written description (4.12/5.0). On question 3, 23/25 students reported that the infographic assignment was more helpful in learning to anticipate audience expectations. In explaining why the infographic was more instructive, 17/25 students mentioned the feedback the class provided, as in the representative response below:

> "*The infographic, because we knew the class would see what we created. You realize you're trying to explain it to a broader group of people rather than one teacher. I also liked hearing people's first impressions and comparing what we did to the rest of the groups.*"

A second common factor, included in 14/25 responses, was the design process and decisions the group made together:

> *"The infographic was more interactive in both creation and evolution. It was also a better representation of the topic due to the pictures and layout."*

Despite the overwhelming preference for the infographic, one student commented that the instructor feedback on the written description "*helped me learn what to look for when writing and improving for other assignments.*"

Conclusions and Next Steps

Because students gained insight into their audience's expectations through this assignment, an important next step is to have groups revise their infographics based on the class's feedback. In discussion with the class, groups frequently mentioned what they would change if given more time, but they did not have the chance to follow through on those ideas. This modification would

demonstrate that it is not just important to anticipate and listen to audience feedback but also to revise based on it, while emphasizing the process approach that is critical to effective communication. Additionally, the infographic assignment, which is currently graded just for participation, could be adapted as part of a higher stakes assignment. As a third step of the assignment, groups might research their topic more thoroughly and deliver a formal presentation for the class, using the revised infographic as a handout. This adaptation would allow them to receive feedback from the same audience on both their revised infographic and their presentation of the topic, expanding the feedback loop.

From a pedagogical perspective, the primary lesson of this assignment is that infographics can be valuable additions to any course material that relates to communicating an idea in an efficient, compelling way. While infographics cannot replace the depth and complexity of written assignments, they can be used as an interactive classroom activity that students associate with understanding their audience.

References

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