Skunkworks!

Using Unconventional Paper Airplanes to Teach the Communication of Technical Information and Procedural Instructions

Courses. This activity is intended for classes on health communication, technical communication, communication in the STEM fields, or any other course where communicating instructions or procedures is important.

Goals and Objectives.

- ✓ To identify the challenges of communicating technical and procedural instructions.
- ✓ To assist students in implementing current best practices for procedural instructions.

Rationale. Good directions can be life and death. Using a product, drug, or medical device incorrectly can result in serious injuries or complications. It is hard to write good directions. Some people will not look at them at all, some will glance over the pictures, some skim the text, and a minority will carefully read every step. The challenge of writing good instructions is to write instructions which are accessible to this wide variety of approaches. Despite the clear importance of writing clear instructions, we have all experienced the challenge of struggling through confusing and poorly written instructions. Writing good instructions is a life skill which school systems largely leave untrained.

Description. You will need: several identical unusually-shaped sheets of paper (2 for each student, a stack of scrap paper chopped on an oblique angle in a paper chopper does quite well), and a target (we used a hula-hoop, but any similar object will work).

Students take on the roles of "designer/pilot" and "factory supervisor." Students are given one sheet of paper and allowed 2-5 minutes to prototype a paper airplane. Students then get out a sheet of notebook paper and write instructions for the "factory supervisor" to follow to create their paper aircraft. Allow up to 10 minutes for the creation of instructions. Encourage the students to provide as much detail (text, illustrations, etc.) as they can.

Next, pick up the prototype aircraft, then randomly select pairs of students to exchange instructions. Pass out new sheets of the unusually-shaped paper. Now students get to be the "factory supervisor." Allow students 2-5 minutes to create the aircraft described by the instructions they have received. Then, have the students return the aircraft to the "pilot."

Finally, have students give their aircraft its maiden voyage by trying to fly it through the hoop from a distance of approx. 2 meters.

Debriefing. Typically there are several examples of paper airplanes that are very different from what their designers expected, and one or two that are exactly correct. Most are similar to what was expected, but it is not uncommon for a single, important step to be omitted. Typically, the simplest airplane designs are reproduced most successfully. Engage the class in discussion. Ask questions such as: What challenges did you face in following the instructions? Which parts of the directions did you pay attention to? Which parts did you ignore? What parts did you find confusing? How were the instructions for more successful teams different from less successful

Kurtis D. Miller & Marcy Lendaro

Brian Lamb School of Communication – Purdue University – mille518@purdue.edu

teams? How good did you think the directions you wrote were before you handed them off? Did you get the aircraft you expected? You may want to let students compare their prototypes with the final product.

Appraisal. Students enjoy that this activity allows them to engage in creating something during classroom time and clearly connects the class content with relevant prescriptive readings about procedural instruction design. They also like that it allows them to exercise and improve specific communication-relevant skills. With appropriate discussion, students see writing clear and effective instructions as a relevant skill in their future careers.

Variations: this activity also works for groups of three. We have also had students discuss their experience in pairs in front of the class before flying, eliminating class discussion.

References and Suggested Readings

*Caldwell, C. A., and Millen A. E. (2009). Social learning mechanisms and cumulative cultural evolution: Is imitation necessary? *Psychological Science, 20*, 1478-1483.

Eiriksdottir, E., and Catrambone, R. (2008). How do people use instructions in procedural tasks? *Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 52*(8), 673-677.

Fukuoka, W., Kojima, Y., and Spyridakis, J. H., (1999). Illustrations in user manuals: Preference and effectiveness with Japanese and American readers. *Technical Communication, 46*(2), 167-176.

Harvey, G. (2008). Designing procedural instructions: 5 key components. *Information Design Journal, 16*(1), 19-24.

McCroskey, J. C., Valencic, K. M., and Richmond, V. P. (2004) Toward a general model of instructional communication. *Communication Quarterly, 52*(3) 197-210.

van Hooijdonk, C., and Krahmer, E. (2008). Information modalities for procedural instructions: The influence of text, pictures and film clips on learning and executing RSI exercises. *IEEE Transactions on Dependable and Secure Computing, 51*(1), 50-62.

* The activity was inspired by methodologies employed in Caldwell and Millen (2009).

Kurtis D. Miller & Marcy Lendaro

Brian Lamb School of Communication – Purdue University – mille518@purdue.edu