MODULE: ARTICLE PERSPECTIVES

OVERVIEW

Learning Objectives

At the conclusion of this module, you will be able to:

- ☐ Interpretation: Discuss characteristics of articles that appear in different types of publications (popular magazines, scientific journals, government reports)
- ☐ Interpretation: Define "lay audience"
- ☐ Analysis: Examine articles to determine intended audience
- ☐ Analysis: Compare and contrast articles written for different audiences
- ☐ Evaluation: Evaluate the effectiveness and appropriateness of an article considering its intended audience

Checklist

Prior to meeting with mentor

- ☐ Review the "Article Introduction"
- ☐ Read the three perspective articles included in Handout 1.
- ☐ Complete the 'Write a Paragraph' (or Tweet) assignment for technical and non-technical audiences
- ☐ Complete the Five--Minute Reflection

Discussion with mentor

- ☐ Importance of writing style – when advisor/mentor may use each type of style
- ☐ Five minute reflection

Mentee Deliverables

1. **Deliverable 1: Bring a printed copy of your two versions of the summaries (tweet or paragraph, your choice) to the next meeting.**
2. **Deliverable 2: Bring a printed copy of your responses to the Five-Minute Reflection to the next meeting.**

Materials for this Module

☐ Mentee should have an electronic or printed copy of Handout 1. The handout contains three papers:

- o Frazier, Ian. Form and Fungus. *The New Yorker*, May 20, 2013 ;
- o Holt, GA et al. Fungal Mycelium and Cotton Plant Materials in the Manufacture of Biodegradable Molded Packaging Material: Evaluation Study of Select Blends of Cotton Byproducts. (2012) *Journal of Biobased Materials and Bioegergy.* 6(4):431-439 ;
- o Bayer, Eben and McIntyre, Gavin. Methods for producing rapidly renewable chitinous material using fungal fruiting bodies and product made thereby. US 8001719 B2. 2011.

Article Perspectives Introduction

Scientists communicate their scientific results in very different mediums to very different audiences. To be an effective writer, you must use language that is audience-centered, not writer-centered. In other words, transcend your own perspective and consider the needs and interests of your readers. Ask yourself: What do my readers know about the topic? Are my readers likely to have an emotional response to my work? What do I want my readers to do, think or feel? Knowing your audience will also help you decide on the "voice" or writing style to use. This includes word choice (level of vocabulary), tone and format-- read the two following examples thinking about these differences.

Example of a Non-Technical Summary (e.g. press release or abstract for community group):

Human and animal tissues are made of living cells and non-living material that are arranged so that the cells can perform important jobs. Even unwelcome tissues like tumors, are made of patterns of cells working together to perform a function (in this case keep the tumor alive and healthy). We can build tissues in a laboratory setting in order to study them. The process of placing cells and a nonliving material is called biofabrication. The process is similar to building a wall, where we start with a base layer of bricks and mortar and keep adding new layers to increase the height. We can add different types of bricks, different colors, textures, and shapes, in each row. If we had a picture of the wall we would build each row to match the picture. Biofabrication is similar, we want to build layers of cells and nonliving materials that will look like a tissue when we have completed all of the layers; in particular, we want to build tumor tissue. Cells are very small and are difficult to move one at a time, fortunately cells can be put in a liquid and then the liquid sprayed as droplets where each droplet contains a cell. Thermal-inkjet printing, a process similar to that used by the color printer you may use at home, will spray a single drop at a time. We have used thermal-inkjet printing to deposit single cells in a pattern. We have made a machine named FABIO that can deposit layers of cells and materials in patterns, i.e. to fabricate tissue. This research project had two goals: 1) build a machine that can place cells in any desired pattern and 2) understand the patterns of cells in cancers. If we can place cells in patterns then we can build tumors in the laboratory. Using the manufactured tumors we can watch the tumors and understand why the cells are arranged in these patterns. Understanding the patterns may expose weaknesses in the tumors that can be used to develop cancer treatments.

Example of a Non-Technical Summary (e.g. social media post):

Human and animal tissues are made of living cells and non-living material. We can build tissues in a laboratory to study them. The process is similar to building a wall, start with a base layer of bricks and mortar and keep adding new layers to increase the height. Cells are very small and are difficult to move one at a time, fortunately we made a machine named FABIO that can deposit layers of cells and materials in patterns. If we can place cells in patterns then we can build tumors in the laboratory and understand weaknesses in the tumors that can be used to develop cancer treatments.

Example of a Technical Summary (e.g. abstract for scientific conference, abstract for journal article):

The vision of the proposed work is to demonstrate a new, analytic-centric means of studying the complex behavior of MCF12A and MCF-7 cells in a 3D tissue engineered structure. The approach centers on the long term goal of building a biofabricator to construct *in vitro* engineered tissue structures that reproduce the *in vivo* behavior of normal and cancerous cells and allows manipulation of microenvironmental parameters to build cause and effect models. The end-point of the proposed work will be a mathematical relationship defining breast epithelial normal and aberrant cell behavior as an interactive function of a combination of hypoxic levels and tissue moduli. The proposed approach will require development of new experimental and analytical tools to fabricate 3D tissues of hierarchical structure and to assess cell behavior within this framework. The key tools to be developed include a 3D tissue fabrication system, a mathematical model of the relationship between cancer cell migration and proliferation and oxygen and stiffness levels, a nanoparticle oxygen sensor, a close loop control system, and a modulus measurement system.

You may note that sometimes it takes extra words to explain a technical concept using lay terminology. Often, specific technical details must be omitted that seem scientifically important, but which are actually not necessary to a layperson's appreciation of the topic. For example, in the technical abstract above, a mathematical model, oxygen (hypoxia) and stiffness (modulus) levels were mentioned. While these details are important to the technical description of research activities, they are not crucial to a layperson's understanding of the project – i.e. the concept of building a tissue to understand, and therefore prevent and treat, disease.

Definition: A "layperson" is someone without any special or heightened knowledge about a particular thing....just a normal person, your average Joe. So, in this context, the text is aimed at a group of people who, while displaying a sense of decorum and intelligence, have just an average understanding of the topic.

The three documents we will study for this module use three different writing styles to talk about the same thing. As you read through these documents, please consider the audience, word choice, tone and format. How are they the same? How are they different?

Assignment(s) for this Module

Read the Perspective Articles

Note the use of language and descriptions relative to the target audiences.

Write a Paragraph

Talk with your mentor to determine a topic and associated article you can use to write a technical and non-technical paragraph/abstract to summarize the information for the two different audience types. Refer to example abstracts to analyze the appropriate tone for each type of audience. Limit your summaries to 350 words or less. A twist on this activity might be to craft technical and non-technical tweets (280 character limit!).

Deliverable 1: Printed copy of your two versions of the summaries (tweet or paragraph, your choice).

Five-Minute Reflection

Come up with one question to discuss with your mentor (maybe a concept you are unclear on, something you found interesting, etc.)

What information did you feel was the most informative? Least?

For each of the three articles provided, please describe the intended audience.

Deliverable 2: Printed copy of your responses to the Five-Minute Reflection.