



Translating Your Science: the Dual Poster Concept

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Abstract

Many scientists do important work that could have a profound impact on their own field as well as others, but then struggle to communicate their results. Part of the challenge is that each discipline, and specialty within it, has jargon that is often not understood by the general public or others in complementary fields of research.

We are early in the process of learning how we learn a discipline, and how learning in one discipline varies from learning in another (Middendorf and Pace, 2004). Mental skills needed for undergraduate success are not generally explicitly taught. By guiding students through the steps essential to acquiring the needed communication skills, we can make invisible learning visible as we guide their metamorphosis from novice to professional scientist (Bass and Eynon, 2009).

By learning to reduce jargon and describe highly complex ideas so that most well-educated people can understand, researchers will be better equipped to share the significance of their work with those in other disciplines, and better able to inform policymakers about their science.

Project Design: Phase One

With consent of their faculty mentors, science students performing research at Texas Woman's University were solicited to participate in a pilot project. One chemistry and one biology student (both masters level) developed public versions of their technical research posters using a handbook developed by Shepard and Wallis (2011) to guide the process of replacing jargon with commonly understood language. These dual pairs were completed during March 2011.

Since then, by consulting scholars in the Scholarship of Teaching and Learning (SoTL) community, Maguire has pursued experimental design of a broader project in Phase Two involving multiple institutions and disciplines in further study.

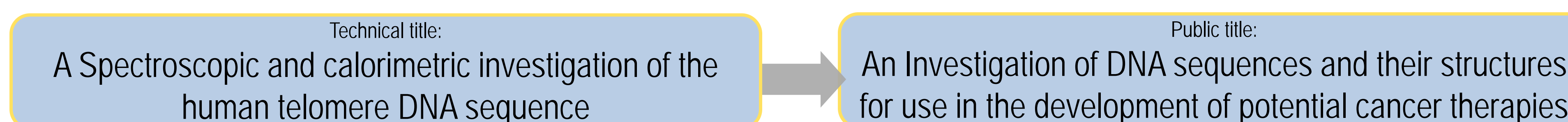
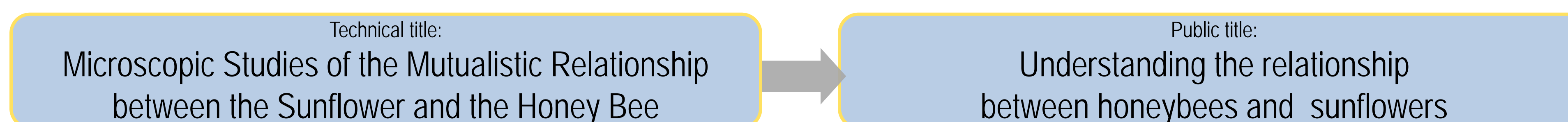
Future Research

Beginning in 2013-14, Phase Two will be implemented. This will involve collecting qualitative data from students and their research mentors while they are writing a "technical" and "public" poster pair. Questions to pursue in future research include:

- What effect does preparing a public poster have on the student researcher?
- How do students learn to "translate" scientific findings for a general audience?
- Does translating technical scientific findings for a general audience lead to deeper scientific understanding on the part of students? and
- What is the impact on participating faculty mentors?

Each of these questions is addressable using generally accepted concepts and methods in the SoTL research community. The author plans to proceed by coding qualitative data obtained from written journals kept during development of dual posters and during oral interviews with student researchers and their mentors (Maguire, et al 2012). Potential collaborators for Phase Two should contact Cynthia Maguire at Cmaguire@twu.edu.

Pilot Project Data



Pilot Survey Results

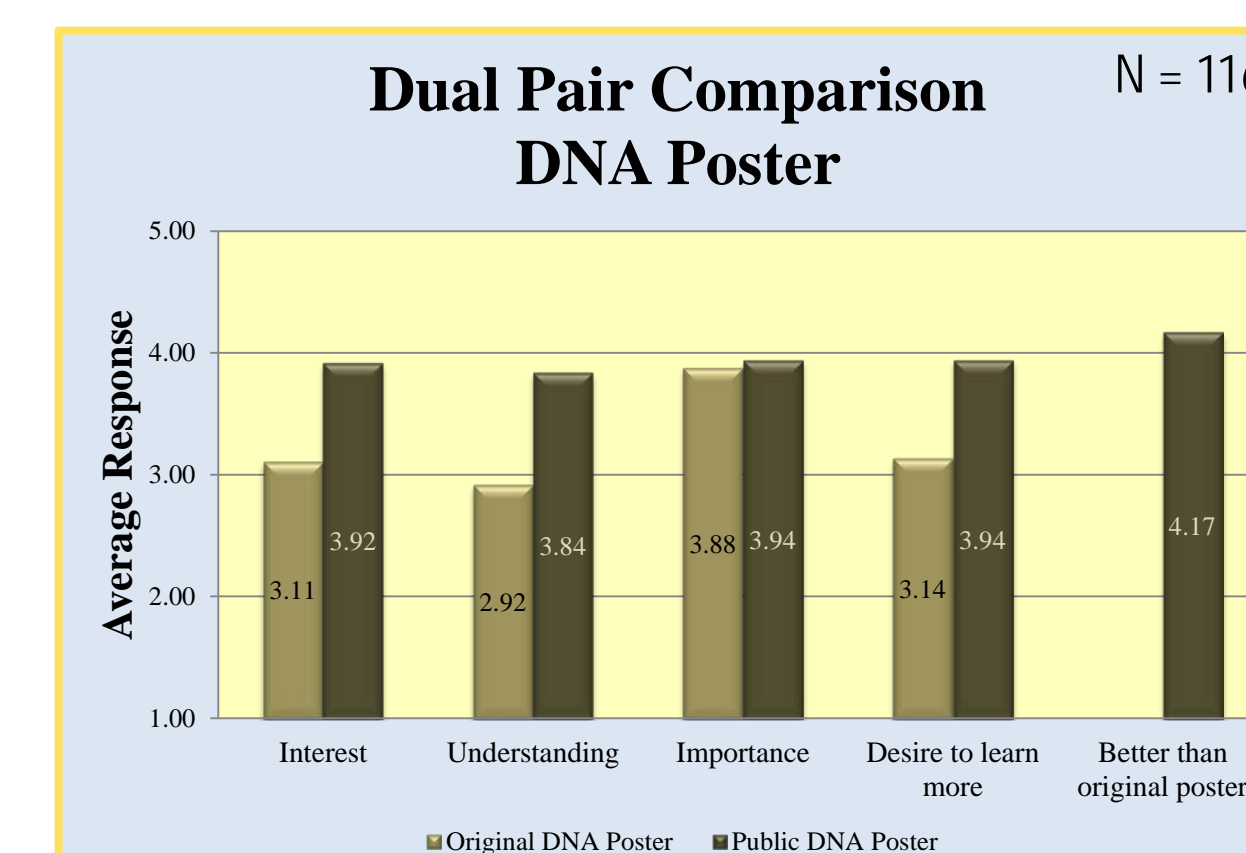
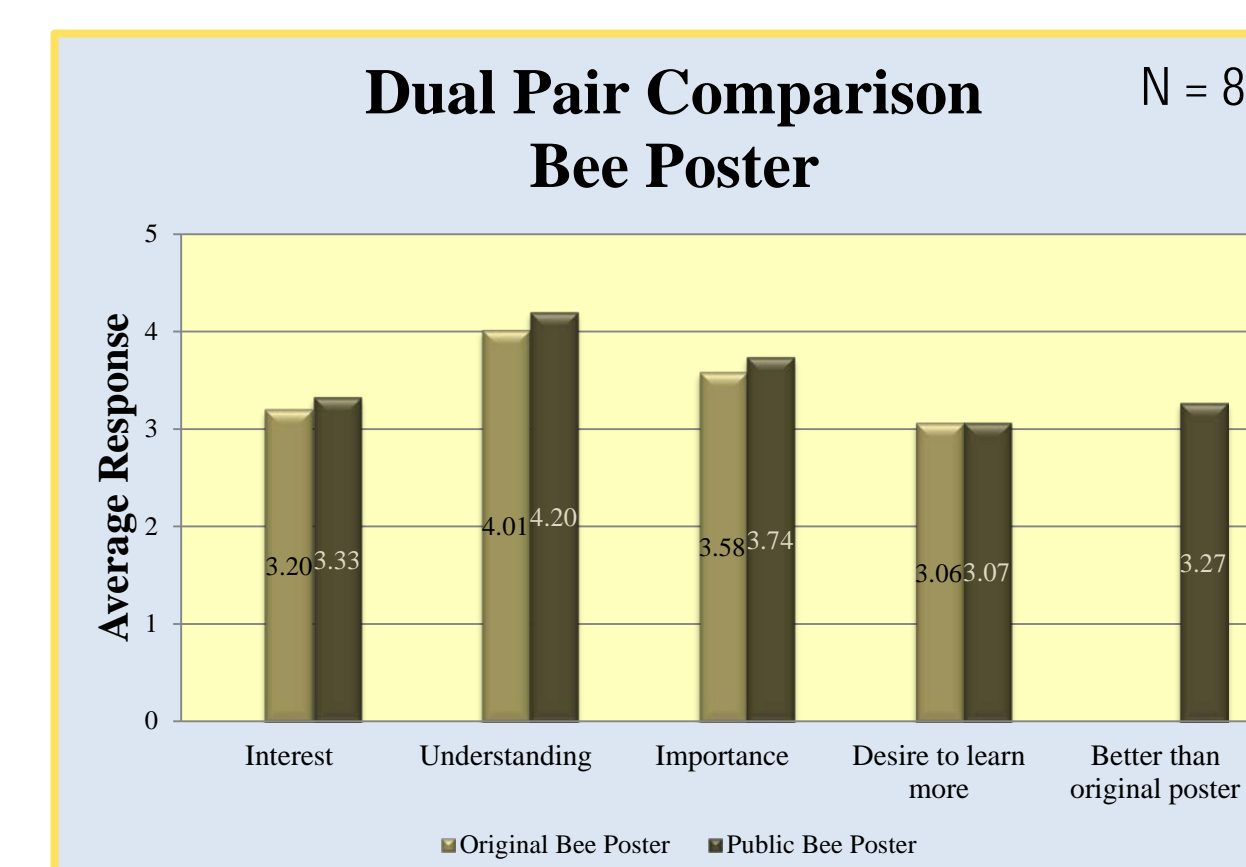
To measure responses to viewing poster pairs, the posters were shown—first technical, then public—to undergraduate students in a core science course during June, 2011. They were asked to rate their agreement with the following statements.

- I am interested in this poster.
- I understand what this poster is about.
- I think this research is important.
- I want to learn more about this topic.
- A fifth statement added after viewing the public poster asked viewers to rate agreement with whether they thought the public version was "better than the technical poster?"

Responses were (5) Strongly agree, (4) Somewhat agree, (3) Neutral, (2) Somewhat disagree and (1) Strongly disagree.

The least technical topic (relation between honeybees and sunflowers) showed a small increase (<5% change) in level of interest, comprehension, opinion of importance of the research, or desire to learn more about the topic. A more technical topic (structural changes in telomeres of human DNA) revealed greater changes (ranging from 20 to 31% increases for the same scales), favoring the dual version of this pair.

When asked their preference, 80% of respondents preferred the public DNA poster while only 43% preferred the public Bee poster (Maguire, et al 2012).



Why get involved?

Among the advantages identified are:

- The student adds a publication to her/his resume.
- Participating in this process helps students focus on why their work is important & what it is used for.
- Preparing a public poster is a valuable teaching tool. (*Do your students really understand their research?*)
- Public versions are easier for general audiences to understand (and *the more complex the material, the more successful the public version seems to be*).
- Using the dual pair can create a significant recruitment tool. (Arrange a display of dual pairs during an open house when prospective students and their parents visit your campus.)

(Maguire, et al 2012)

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