
Poster Presentation

Easing Agricultural Graduate Students into Scientific Poster Presentations

Glen Hill

Obihiro University of Agriculture and Veterinary Medicine

Many resources exist for teaching how to create a scientific poster. They tend to focus on the layout design, but that is only part of the problem for second language students. Once a poster is displayed, some students will expect the information to speak for itself, and they dread the moment when they have to talk to visitors. With a dearth of language courses in the latter half of undergraduate life, graduate students at a science university in Hokkaido lack the necessary English explanatory skills to talk to visitors about what they have written on the poster. This paper will describe some lessons intended to provide confidence and experience in using spoken English to describe scientific information at a poster presentation. A weekly lab news conversation practice is introduced as a unique lesson plan in the syllabus.

Graduate students in scientific fields often display their research data as conference posters to be shown at professional meetings. Sharing such information in a poster format is different from a slideshow presentation or journal paper, which are arguably more difficult to do. Posters accomplish communication of the data in a more casual setting and with authentic material to concentrate on linguistic or content aims as well as social interaction (Jost, 2005) and encourage critical thinking. Construction of posters also improves graphical representation of data (Boggu & Singh, 2015). Since English is the common language of science, it is needed for two purposes: to draft the text on the poster and to interact with visitors who want to learn more. However, most science and engineering students in Japan usually do not take English courses after their second year as undergraduates, so their conversational and written skills often decline by the time they reach graduate school.

This gap in language learning poses problems in communication and causes

emotional stress. Non-native English majors in science often recognize the importance of English and their own inadequacies (Tardy, 2004). Graduate students at the current university also complain that creating and preparing to present a poster in English takes time away from their research, which has greater priority in the minds of students and their advisors.

Curriculum Description from Undergraduate to Graduate School

Obihiro University (OU) requires one English course per semester for the first three semesters. Consequently, students end up in roughly equal numbers in a reading, *or* writing, *or* oral communication section in the first year. Only those who passed the writing courses could take the third semester course in technical writing, but extremely few do that. This arrangement creates lopsided opportunities for students to learn four skills in English, and very few take any elective English courses after these three mandatory ones.

In 2009, OU created a mandatory English course for graduate students that would help them make presentations and hold conversations about casual and research topics at scientific conferences. Most of the Japanese students were among the lowest in English reading, writing, listening, and speaking proficiency, so their 2.5-year gap of English studies was not the only cause for concern in providing a workable syllabus. Each of the course sections consisted of 12-14 students (mostly Japanese, mostly from OU) and was taught by a different native English speaker. The course was mandatory, and it was the only English course in the graduate school program. Several language goals had to be accommodated, so only a limited amount of time was available for poster presentation training.

Language Fears and Consequences

Graduate students at OU often prepare Japanese or English posters for exhibitions on campus as well as for conferences in Japan and abroad. These are typically part of their ongoing research, and many are displayed afterward in the halls outside of their laboratories. Students who attended foreign conferences express trepidation about meeting English-speaking visitors at their posters. Their fears about the

visitors are related to speed of speaking and understanding grammatical structure. They feel unable to produce sufficient responses or descriptions of their work because of their lack of vocabulary and grammar.

English teachers rarely have the chance to assist in designing such posters, but when they do, the problems are typical:

- Too much text information or almost none except figure captions
- Figures are too small
- Too numerous tables and figures
- Cute clip art used instead of professional figures
- Irregular layout leading to unclear flow of information
- Improper grammar and sentence structure

Poster Planning Lessons

The graduate school course English Communication for Science (ECS) has weekly 90-minute lessons. While the native teachers follow a similar syllabus, lesson plans differ. This paper will describe only the author's course section and how it is taught to provide students with experience using spoken and written English on a scientific poster. Overall, the lesson plans include the following:

- making a Powerpoint presentation
- writing business documents (resume, self-invitation to labs, application letter for internships, professional bio)
- taking weekly academic vocabulary quizzes
- making & presenting a science-based poster

A series of lessons is proposed to gradually instill speaking confidence and poster layout know-how. Two lessons are dedicated to showing students organizational poster formatting. Classroom discussions are conducted in small groups to trigger current knowledge about differences in posters and slideshow presentations. In class they collectively evaluate a bad poster (<http://colinpurrington.com/tips/poster-design/bad>), and they critique actual research posters from their lab units to see what mistakes to avoid and strengths to mimic. A mock poster template allows them to talk about a hobby and to think about potential questions to ask. This exercise is sometimes extended for one

more lesson by a longer “pecha kucha” presentation in triads; pecha kucha is a slideshow methodology which displays simplified slides automatically on a timer instead of allowing the presenter to control them (<http://www.pechakucha.org/>). It was implemented in this course to encourage students to think strongly about timing (i.e., lack of delays in speaking) and making slides with little text. The two audience members watch the laptop computer slideshow and speaker, then provide immediate feedback orally. All of these lessons build to the final poster presentation.

Another unique lesson begins earlier in the semester. “Lab news chats” are conducted in every lesson to focus on explaining scientific activities in their labs, such as reading or finding journals, learning new techniques, making mistakes in analysis or experimentation, preparing for a conference, taking measurements. Chats about casual topics (even lab dinner parties) are forbidden. Students are randomly assigned a partner who may or may not have the same major, so they practice how to simplify technical terms and how to interrupt a speaker for various reasons. The pair speaks for a total of 6-7 minutes then switch to a new partner at least once to repeat the activity. The teacher monitors language weaknesses and gives individual advice. Since the idea is to teach simplification of terms, the teacher does not have to know the actual science. After one or two rotations, larger groups sit and discuss their weaknesses then announce them to the class so the teacher can provide instruction to the entire class on how to overcome them. The entire lab news chat uses about one third of the class period, so there is time for other lessons that day.

Relative clauses are taught because they are a common way to explain unfamiliar things, but they are also a difficult grammatical point for these students. Lessons begin by asking students to assign a “category” to a familiar object (usually something traditionally Japanese such as a kimono or chopsticks), and then add the “that” clauses which provide more descriptive information. The second half of the lesson involves writing tasks to describe general scientific items with relative clauses, and homework focuses on student choices of specific materials in their lab as the items to describe. For example, “In my lab I use ELISA. That is an analysis technique that measures very small amounts of

chemicals.”

The topic for each student’s poster was to describe their unit laboratory, its research goals and some data, the members, and main advisor. If the unit has specialized equipment or software, the poster includes it. All of this information has at some prior time been discussed during the Lab News Chat activities.

A week prior to presentation day, students with the same major brainstorm potential vocabulary that they share from their unit labs. Everyone receives a mock poster to show them how to display information on their unit’s goals, members, machinery, and data. Each student is provided with an A0 size sheet of poster paper, on which they could write by hand or affix typed material. Two reference books with English and Japanese instructions were available to help with poster planning (Langham, 2007) and science conversation (Kato & Cohen, 2004).

Poster Presentation Day

Half the students hung their posters around the classroom. The other half visited a poster from a different science unit for three minutes with one visitor per poster. Presenters were expected to talk but also take questions. Visitors then had 1-2 minutes to complete a feedback form (Appendix A) submitted to the teacher. Subsequently, visitors rotated to two more posters, thus affording presenters with the opportunity to deliver their poster a total of three times. When this session ended, the visitors changed places with the presenters to show their own posters.

Feedback forms were examined by the teacher and returned to presenters with the visitors’ names removed. Peer feedback has been found useful for students making presentations (Topping, 1998; Otoshi & Heffernen, 2008; Girard, Pinar, & Trapp, 2011). Pictures of each poster were taken by the teacher, and they were graded according to a rubric (Appendix B).

Grading

Teacher scores have been consistent over the years that this project has been used (Table 1). The average score is 7.278 out of 10 points, with a range of 4 to 10 and a median score of 7.5.

Table 1.
Average Scores of Posters

2013	2014	2015	2016	2017
7.15	8.00	6.68	7.73	6.83

Despite some posters being designed on Microsoft Word, there are still spelling and grammar mistakes that should have been discovered with spell checker and grammar checker. A fair number of posters either have too little information (with huge font or handwriting size) or too small font, so they are not always able to remember their previous lessons about weak points to avoid. As Endo (2015) pointed out, it may take more than one poster project to get across the various ideas of proper format design. Nevertheless, students who have taken this course show better quality posters than those prior to this course's inception.

Project Evaluation

Time constraints imposed by the syllabus content and by the students' research activities prevented them from practicing their final posters or borrowing the reference books, but every year many report enjoying this activity as useful. Lab news chats were also very popular despite their difficulties in learning to interrupt and simplify scientific terminology. During the poster presentations, students recognized these weaknesses, whether they spoke to students in the same or different field. However, they admitted that repeated presentations improved their speed and amount of material that they could convey to the visitors, which supports earlier observations (Nagasaki, 2007). Student feedback appeared honest and accurate. Giving students a chance to see and judge authentic posters from their older colleagues as part of earlier homework provided a foundation for any posters they would have to design in the future. Students pointed out that practical nature of the chats and posters as they relate to their professions, so this project and its support lessons fulfilled some of the goals of the course design.

Alternative Poster Concepts

With no research data in their first year (and first semester) of research, graduate students can still make a poster to describe something scientific: their department's research and techniques. Other researchers have reported different ways to select topics, such as designing experiments to be performed (Cullen & Pudwill, 2003; Rajagopalan, 2015) or conducting class surveys (Brown, Glick, Holst, & Tomei, 1997). Cullen and Pudwill (2003) also spent one day prior to poster presentations to allow a warm-up presentation with worksheets to complete as visitors. An alternative topic could have come from their undergraduate research; however, students in this course were deemed too weak in English to handle that.

Acknowledgement

The author is grateful to David Campbell, who offered advice and shared ideas through the years on how to design elements of this project.

References

- Boggu, A. T., & Singh, J. S. (2015). Poster presentation as an effective communication tool in an EFL context. *International Journal of Language and Linguistics*, 2(5), 203-213.
- Brown, C., Glick, C., Holst, M., & Tomei, J. (1997). Project work in the Japanese language classroom. *JALT Hokkaido Chapter 1997 conference proceedings*. Sapporo, Japan: JALT Hokkaido.
- Cameron, C., Chang, S., & Pagel, W. (2011). Scientific English: A program for addressing linguistic barriers of international research trainees in the United States. *Journal of Cancer Education*, 26, 72-78.
- Cullen, B., & Pudwill, L. (2003). Presentations in the technical English classroom. *JALT2002 conference proceedings*. Tokyo, Japan: JALT.
- Endo, J. (2015). Proposal for research presentation poster design workshop. Visual Literacy Today. Retrieved from <http://visualliteracytoday.org/proposal-for-research-presentation-poster-design-workshop-by-junichi-endo/>
- Girard, T., Pinar, M., & Trapp, P. (2011). An exploratory study of class

presentations and peer evaluations: Do students perceive the benefits?

Academy of Educational Leadership Journal, 15(1), 77-94.

Kato, S., & Cohen, M. (2004). *Bio kenkyuu rabo eikaiwa* [Bioscience laboratory English conversation]. Tokyo, Japan: Yodosha.

Langham, C. S. (2007). *Kokusai gakkai ingurissbu* [English for oral and poster presentations]. Tokyo, Japan: Ishiyaku Publishers.

Nagasaki, M. (2007). Communication through a poster presentation task. In K. Bradford-Watts (Ed.), *JALT2006 conference proceedings*. Tokyo, Japan: JALT.

Otoshi, J., & Heffernen, N. (2008). Factors predicting effective oral presentations in EFL classrooms. *The Asian EFL Journal*, 10(1), 65-78.

Rajagopalan, U. M. (2015). Critical reflection on teaching of poster to Japanese technical university students. *Proceedings of the 2nd International Symposium on Innovative Teaching and Research in ESP*. Tokyo, Japan: The University of Electro-Communications.

Tardy, C. (2004). The role of English in scientific communication: *Lingua franca* or *Tyrannosaurus rex*? *Journal of English for Academic Purposes*, 3, 247-269.

Topping, K. (1998). Peer assessment between students in colleges and universities. *Review of Educational Research*, 68(3), 249-276.

Author bio

Glen Hill is an associate professor at Obihiro University of Agriculture and Veterinary Medicine, where he teaches undergraduate courses reading skills and technical writing, as well as the graduate school course English for Communication in Science. He has a strong interest in teaching English to science majors. hill@obihiro.ac.jp

Received: September 30, 2017

Accepted: July 15, 2018

Appendix A

Student Feedback Scores for Poster Presentations

Poster presenter's name _____

How easy is it to see these items from 2 meters away?

- Title Easy
 A little difficult
 Too difficult
 This was not on the poster

Student and department name

- Easy
 A little difficult
 Too difficult
 This was not on the poster

Headings

- Easy
 A little difficult
 Too difficult
 This was not on the poster

How is the contrast of text color and background color?

- Good so-so Poor

In your opinion, how much writing (text) is on the poster?

- It's enough but not too much. A little too much Too much writing

How is the layout of the poster items?

- Easy to understand and follow
 A little difficult to understand and follow
 Too difficult to understand and follow

How was font type and size?

- font was good
 font was so-so
 font was not very good

Did the poster have any information that was NOT needed?

- no, it was all needed yes, a little was not needed yes, a lot was not needed

PRESENTER'S EXPLANATION and SPEAKING ABILITY

How well did the poster explain their poster in English?

- very clearly
 clearly, but some problems
 I understood only a little
 unclear

GENERAL SCORE (1= very good, 10=poor) _____

COMMENTS?

Appendix B

Teacher Scores for Poster Presentations

10 points per poster:

1 pt Full student name

1 pt Interesting title, not just name of laboratory unit?

1 pt Font size (or handwriting size) ok?

2 pt Layout easy to understand flow, neatly organized?

1 pt Figures/tables/pics suitable size?

2 pt Spelling and grammar

2 pt Content about lab describes all members & prof, not just you?

(includes necessary figure captions/explanations)

[comments about strong and weak points in detail, plus copy of poster photo]