

Developing an ESP Presentation Course for Graduate Students of Science and Engineering

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The teaching of presentation skills in English for Specific Purposes (ESP) style classes is increasing in Japan since the skills being developed are important in both the educational setting and the professional workplace. This paper describes the development of a presentation course for graduate students from the faculty of Science and Engineering at Saga University. The author suggests that using an Experiential Language Learning approach to develop effective scientific presentations skills in English is a viable method to use, particularly with students who have poor English skills. After first defining ESP, the paper provides a brief description of the students the class was developed for and discusses then the development and justification of the course's goals and learning objectives. The author then explains how the course was designed in a scaffolded manner to become progressively more complex through the utilization of teacher modeling followed by a considerable amount cyclical practice done by the students. The paper will then discuss how the course materials were developed in the form of a class textbook and finally conclude by contending that the course is effective in developing low-level Science and Engineering Graduate students' English scientific presentation skills and that the course could easily be adapted to meet the needs of students from other faculties as well.

"Rhetoric – an art of influencing the soul through words"

Plato

Introduction

This paper describes the creation and continuing development of an English for Specific Purposes course (ESP), which was first offered in the spring semester of 2009, to the graduate students from the faculty of Science and Engineering at Saga University. The ESP course is an academic English presentation course taught completely in English to low-level English speaking graduate students. The paper begins with a brief explanation and justification of English for Specific Purposes and

then provides a cursory description of the students; their English level and their academic study area(s). The author then discusses how the goals and objectives of the course were determined based upon student needs and abilities, teacher knowledge, and the requirements and expectations of the faculty of Science and Engineering. Following this, the paper focuses on the development of content and class materials based upon the course goals and objectives. Next, the paper briefly explains how the course was planned to develop students' English presentation skills through teacher modeling and student practice. Finally the author will discuss the evaluation of the course and how the course has changed over the past 2 years since it was initiated.

English for Specific Purposes

English for Specific Purposes (ESP) has been a recognized area of English teaching since the 1960's (Mohseni, 2008) but has received closer scrutiny as an effective means for teaching university English classes in Japan recently. ESP is a course of study that involves teaching students the English and consequent skills necessary to function within their specific field of study or work. As such, ESP courses are more narrowly defined than general English courses and focus on more specific and identifiable needs than general English (Brandt, 2009). This narrow focus also separates ESP from EAP (English for Academic Purposes), as EAP involves the teaching of English forms and skills that can be applied over several academic areas and/or subjects. For instance, teaching academic writing skills, where the skills learned can presumably be applied throughout the university curriculum would be an example of an EAP type class. English for Specific Purposes; on the other hand, puts a much greater focus upon the specific linguistic knowledge and communication skills necessary in order to accomplish specific purposes (Orr, 1998) within a *specific discipline or profession*. An ESP course needs to introduce and/or reinforce specific language or skills needed within a particular discipline including the grammar, lexis, discourse, pragmatic knowledge and genre in order to communicate effectively. In other words, ESP focuses

on enabling students to function within their chosen academic community and/or the professional community they will ultimately be entering. In short, the content should lead language and the language studied must address the specific learning needs students have for their field of study and work (Lowe, 2009).

Background Information of Students' and Classes

In late 2008, the faculty of Science and Engineering requested that native English teachers from the Center of Research and Development for Higher Education (CRDHE) offer an English course to graduate students from the faculty of Science and Engineering. The CRDHE teachers were not required to teach any specific content but were asked to provide the graduate students something “more” than general English. As a result, the desire to create a more academically focused course led to the course name of Advanced Study of Scientific English (ASSE).

The graduate students who have taken and are taking the ASSE classes are predominantly first year graduate students from the faculty of Science and Engineering. The course is not compulsory in that students are not required to take the class - although are often recommended to study in the course by their academic advisers - but they do receive an elective credit required for their graduation. The science backgrounds of the students are quite varied and represent virtually all the study areas that are offered to the Science and Engineering graduate students at Saga University such as electrical engineering, structural engineering, systems engineering, computer science, physics, chemistry, mathematics and environmental engineering among others. The students are predominantly male and generally have very low English proficiency with most being at the false beginner level. However, several international graduate students who have had extensive English education prior to coming to Japan have enrolled in the course resulting in classes that range in English abilities from that of near native speakers to that of false beginners, with the vast majority of students falling into the latter category.

The ASSE classes are held once a week, on Wednesdays' in periods II and III, for ninety minutes and occur over the 15 weeks of the semester. The class size varies slightly from semester to semester with a maximum enrollment of sixteen students and a minimum of seven. Generally the larger sized classes occur during the first semester and smaller classes held during the second semester.

Goals and Objectives

Determining specific goals and objectives for the ASSE course was initially quite challenging since the teachers were only given the very vague goal of *improving the students' academic English skills* but to *not teach conversation style classes*. While this overall goal is relatively vague, I viewed the lack of clarity as constructive since it gave me a great deal of autonomy in coming up with specific goals and objectives for the course. Before describing the specific goals and objectives it is necessary to define what is meant by the terms goals and objectives. Goals are the broad general intentions of a course. They are largely intangible, difficult to measure, long term and at the most basic level, goals are what a teacher is striving to achieve. In other words, goals are the learning destination, or the intended end result of learning. Objectives, on the other hand, are narrow in nature and consist of the concrete steps needed to achieve the course goal(s). They are specific, measurable and as such, short term. Put another way, objectives are what the students will be able to do, or master, in order to illustrate that they have attained the course goal.

As mentioned above, the over all goal of the faculty Science and Engineering for the ASSE courses offered by the CRDHE is to improve the students' academic English skills. In order to accommodate this goal I decided to offer a course on making scientific presentations in English. As such, my specific goal for the class is that by the end of the course students will be able to develop and deliver an effective English presentation on their area of research.

There were several reasons why I chose this goal. First, I have very little background in the field of engineering and therefore could not teach a content-based course to graduate students. This in itself is not that unusual as Orr (1997), states that few native English speaking ESP teachers in Japanese universities teach ESP courses in areas where they have subject specific expertise. Therefore, focusing on developing presentation skills, an area I have substantial experience with, freed me from attempting to teach material I am not familiar with. Secondly, the variety of science backgrounds of the class made it necessary to find a common goal that would benefit all the students. Since it would be impossible to teach content that is applicable to all students, the use of presentations were seen as a suitable common goal that could benefit all. A third reason for choosing scientific presentations as a goal is that the specific skills involved in making and giving presentations are both cross-cultural and cross-contextual. The development of presentation skills results in students acquiring skills that are transferable, whether the presentations are in English or Japanese and whether they are for school or work (Apple & Kikuchi, 2007, Cooper, 2006, Yamashiro & Johnson, 1997, Meloni & Thompson, 1980). For this reason I strongly recommended that students present on their specific areas of research. Doing so not only aids students in gaining experience in presenting about their research but also in providing them with meaningful opportunities to communicate in English about subject material they are most familiar with. This is important as the perceived relevancy of what students are learning has a strong impact on their motivation to learn (Yamashiro & Johnson, 1997). A final reason that I decided upon the goal of developing students scientific presentation skills was that it requires students to use and develop all four language skills of reading, writing, speaking and listening in researching and presenting on science-based topics. This factor is important in ensuring that the course meets the overall goal of improving students' academic English skills as a number of researchers such as Nation (2007) and Oxford (2001) have shown that students learn a language and the subsequent communication skills best when those skills they are presented and encountered in an integrated manner rather than in isolation.

Specific Objectives

The specific course objectives are as follows Students will be able to:

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| Speaking | <ul style="list-style-type: none">- communicate effectively using English in a formal academic presentation- use 3-4 word science word bundles/chunks effectively when explaining the presentation overview, describing slides and explaining research findings- respond effectively to questions from the audience regarding their presentation |
| Listening | <ul style="list-style-type: none">- understand instructions and explanations about presentations during the class- understand questions asked by fellow students and the teacher regarding their presentation- understand classmate's presentation well enough to ask questions |
| Writing | <ul style="list-style-type: none">- write correct English on their presentation slides using only key words- write grammatically correct handouts to accompany presentation |
| Reading | <ul style="list-style-type: none">- understand scientific texts in areas related to their research |
| Presentations | <ul style="list-style-type: none">- design, create and deliver presentations that are effective in both academic and professional contexts and across cultures and languages. |

Course design

Despite the fact that the vast majority of graduate students enrolled in the course have very limited English skills, the course was conducted largely in the target language of English. There were two primary reasons for this. First, it would be particularly challenging for me to teach the course in Japanese, as my Japanese

speaking skills are not adequate to conduct an entire class in that language. However, due to the extremely low English abilities of the students, the use of some Japanese for explanations has proven helpful when they have significant difficulty in understanding some of the content. The second reason the course was taught largely in English is that I believed the students would make the most significant improvement in their overall English proficiency if the course were conducted in English as much as possible. Indeed, one of the factors leading to the poor English communication skills of Japanese students is that they rarely have had the opportunity to study English “in” the target language of English. Therefore, I felt that instructing the students solely or largely in Japanese would have circumvented the faculty’s overall goal since the course would have no longer been an English course, but merely a presentation course. Additionally, although I realized that most of the students would find the class to be challenging in English, this factor was mitigated by the belief that the perceived relevancy of the task would have a greater positive impact on the desired outcomes than the students’ perception of difficulty. This belief is supported by Robinson (2007), who contends that, conversely to what most language teachers may think, students often make more significant linguistic gains when the tasks are more challenging. It was hoped that the students would view acquiring English presentation skills as more important and valuable than the challenge presented by having to take the class conducted in English.

The emphasis on using English as the language of instruction did not mean that the course could be taught in a chalk and talk manner. In fact, the students’ low English proficiency levels made teaching in such a manner impossible. Instead it was necessary to design a course that is as accessible as possible for students to develop their English language communication skills along with their presentation skills. The desire of making the course accessible led me to design the course upon the principles of the Experiential Language Learning approach (ELL). ELL is an approach that adopts both a functional and interactional view of language where the activities are student-centered and the learning comes from using the language in meaningful ways

(Fellner, 2003). In this instance, students would learn how to make scientific presentations by doing such presentations.

Conducting the course in such a manner held several advantages. First, it provided me with a methodology where I could scaffold the skills required for scientific presentations. Secondly it allowed me to separate and focus on the presentation skills and language targets in a logical manner corresponding with those that are needed first in a presentation. A third advantage was that was considered an effective means of dealing with a variety of English levels in one class.

The scaffolding of activities is particularly important as it enables students to learn and develop presentation skills through a series of small, doable steps. The scaffolding followed the general order of a brief explanation of the specific skill or linguistic target in English. This was followed by a short science presentation where the targeted skills and/or linguistic targets were modeled. After that, students were required to work in pairs and identify the specific targets in the presentation. The pairs would then practice the skills using the targeted language chunks with each other. While the student pairs practiced I move around the room providing assistance or further explanation when needed. After the students have had the opportunity to practice the skills and language with a partner, they are then asked to do repeat the activity again in front of the entire class. The heavy reliance on practice is not without support and is considered essential if it has a focus on form, the learners feel the practice is useful (Ortega, 2007), and helps them transition from declarative knowledge to procedural knowledge (Muranoi, 2007).

During this practice stage of skill demonstration, audience members are not allowed to be passive members, as they were required to provide feedback to the presenters on how well they did. Only after students show some mastery of the skill and language involved would me move on to the next lesson target. This scaffolding is cyclical in nature and is important as DeKeyser (2007) claims that learners need a cyclical approach to practice if any meaningful learning is going to occur as such practice helps students to notice gaps in their abilities and aids them in becoming more fluent. The final step is the actual presentation where the students have the opportunity to

integrate the skills and language learned indicating they have acquired and mastered the skills in an effective manner for scientific presentations.

A key element with the cyclical practice in the ELL approach used in the presentation course is student feedback. The use of feedback is essential for students to understand both their strengths and weakness and thereby develop strategies that lead to improvement (Leeman, 2007). Students received feedback from two sources, their peers and myself. Having students provide feedback served several purposes. First peer feedback can help students better understand what they were doing wrong as they often receive such feedback in their native language. Secondly, peer feedback develops what Vygotsky (1978, in Lantolf, 2000), terms the Zone of Proximal Development (ZPD) where learners work collaboratively and transform feedback into beneficial learning experiences. Additionally, asking students to provide feedback increases the likelihood that they will notice gaps in their own understanding and abilities and with what is expected in the class. My own feedback was restricted only to the specific targets that are supposed to be exhibited by the students. This is done solely in English, both verbal and written, and consisted first on areas that need improving and then on areas students have already mastered or can do well. Both forms of feedback are seen as pivotal so that students are informed when they reflect on their performances and are able to think of strategies and actions needed to improve their presentation skills.

The final aspect of course design was deciding to have the students make three presentations of increasing time during the course term. I decided to assign the students three presentations because doing so fit the scaffolded format where each subsequent presentation becomes more complex in skills and longer in time. As was discussed above, after each presentation students were given recorded feedback provided by both their peers and myself. This feedback session was of a more formal type and consisted of the students coming to my office at a scheduled time to receive their feedback, presentation score and ask any questions they may have regarding their feedback and presentation performance.

Development of content and materials

A thorough search for teaching materials regarding engineering and scientific presentations surprisingly found very few books. I say this was surprising since the use of presentations in ESL has been widely reported in the literature recently (Brandt, 2009, Horvand, 2009, Ootshi & Jeffereson, 2008, Apple & Kikuchi, 2007, King 2002, Yamashiro & Johnson 1997). The few books that do exist have too simplistic presentation formats for graduate students or, do not provide the specific linguistic features needed by particularly low-level science students. Therefore I decided to develop the content myself and make my own materials for the class in the form of a class textbook. In doing so I relied upon my own experience of having made over 200 professional presentations throughout Japan as well as in Korea, Cambodia, Poland, Great Britain, Thailand, the U.S.A. and Africa as well as the experience of having taught English classes to other Science and Engineering students.

The content of the presentation course was developed to cover two separate but related target areas; that of scientific presentations and the English needed to do presentations effectively. The first area of scientific presentations focused on factors such as the purposes of presenting, the scientific presentation format, and the specific presentation skills such as eye contact, using transitions, using visual aids properly, etc., that are essential for effective scientific presentations. The second target area was the actual language students needed in order to successfully give a scientific presentation in English. This is important since making an effective presentation requires a different set of communication skills than those required for speaking a foreign language well. Presentations are a type of formal speech and are made for specific purposes such as informing, explaining, persuading, and illustrating. As such, students need to learn and acquire the language targets to present most effectively in English.

Before each presentation, three classes are used to first introduce students to the various elements of the presentation, give them the language needed in these elements and then allow them to practice using the language to complete each element. The

presentations became increasingly longer with the first presentation being 5 minutes in length, the second presentation being 10 minutes in length and the third and final presentation being 20 minutes in length. As mentioned above, not only did the presentations become longer but they also became more complex in skills and increased depth in information.

The first presentation of 5 minutes was to give students an actual opportunity to illustrate that they can give a proper introduction, presentation overview, message objective, and use transitional phrases. The second presentation is 10 minutes in length and students are required to relate their presentation to their particular area of research. Not surprisingly, students often report that the second presentation is the most difficult for them to prepare for and deliver since it the first time to actually present on their graduate research in either English or Japanese.

During the second presentation students are expected to improve on all skill areas required for the first presentation as well as to show evidence they can effectively incorporate the new elements of presentations that have been covered, such as using and describing visual aids effectively and making accurate conclusions. Additionally, during this presentation, audience members are both evaluating their classmates and are encouraged to ask questions about the presentation's content. This is done to help the audience focus on understanding what they are hearing and to introduce the upcoming presenting skill of dealing with questions. As most student presenters are not yet ready to deal with questions effectively at this stage, this serves as a wake up call to how important questions are and thereby helps them to notice the gaps between their current presentation abilities and what they need to acquire.

The third and final presentation is considerably longer than the second as it is 20 minutes in length and, like the preceding presentation, must be related to students' research areas. It is worth 40% of students' final score and during this presentation, presenters are expected to show that they have mastered the elements covered in the first and second presentations as well as use question and answer strategies and make informative handouts for the audience. The specific targets for each presentation are shown in Figure 1.

Figure 1.

Presentation	Time	Score	Illustrate Mastery of:
# 1	5 min.	10% of final mark	- self-introduction
			- topic introduction
			- clearly organized overview
			- clear message objective
			- use of transitioning phrases
			- same as above
#2	10 min.	20% of final mark	- introduce and describe visual aids
			- use visual aids effectively
			- provide a conclusion
			- summarize presentation with key points
			- repeat message objective
#3	20 min.	40% of final mark	- same as above
			- sustain a presentation of 20 minutes
			- adequately answer questions about their presentation
			- provide informative handouts to the audience

Course evaluation

The efficacy of the course has been derived from two different sources. The first source comes from the results given by the class surveys carried out by Saga University to all students near the end of the semester. From this survey, several questions in particular stand out as evidence that the course has been effective in developing students' presentation skills and viewed as an important and necessary class for their studies. Question A4 asks students if they could understand the aim of study/work in the class. This question has received a score of 4.3 out of 5 clearly indicating that students felt very strongly that they understood what was expected of them. It should be mentioned that this score is significantly higher than both the faculty's and university's average score for this question at 3.8 and 3.6 respectively

suggesting not only understand the need for presentation skills but view them as important. The second question, D1, refers to students' satisfaction of the course. The presentation class received an average score of 4.5 out of 5, which is 0.6 points higher than the faculty of Science and Engineering average score and nearly 1 point higher than the university's average. From these two questions alone it would appear that the students considered the class to be worthwhile and academically satisfying.

The second form of evaluation can be derived from the increase in student presentation scores from the first through to the final presentations. A progressive increase in average scores would indicate that students steadily improved their presentation skills during the duration of the class. In all three classes this course has been offered to thus far, scores have increased from an average of 70% on the first presentation to 78% on the last presentation. This increase is more impressive when considering the fact that the final presentations are more difficult for students as the length of presentation time has been quadruped, the complexity and number of skills that must be mastered by the students have increased and the subject content has been expanded and deepened.

Future directions

The course is now being taught for the fourth time to graduate students from the faculty of Science and Engineering with the ELL methodology largely unchanged. This, however; does not mean that the course has not been improved. I have constantly improved, added, and removed material from the course in order to make it as useful as possible for the students. For example, one area that has been altered and improved has been through the increase use of teacher modeling when giving instructions and explanations. Due to the very limited listening skills of the students, a greater emphasis on teacher modeling has assisted in speeding up the pace of the class, reduced unneeded and possibly confusing teacher talk, and reduced the potential of student misunderstandings. Another improvement as been the addition of new

material such as style of graphs best suited for illustrating different types of information, more information about handouts along with the rationale behind different handout styles, as well as including English language “chunks” such as collocations and phrases specific to the subject of science and engineering.

One direction that may prove beneficial for other students from other faculties in the future is to alter the course so that it can be offered to students from other departments. The current course is geared towards scientific presentations in general and graduate Engineering students’ presentations in particular. While many of the skills are transferable to other disciplines, each subject area has different specific needs. For example, Culture and Education students need to become familiar with educational style of presentations that are most often used in educational settings such as schools and universities. These presentations do not focus on results so much as they do on the use of explanations through pictures, photographs rather than numerical graphs. Economics students wanting to go into business, on the other hand, would benefit from a greater emphasis on presentations that both inform and persuade such as those that are normally found in business settings. Developing slightly different presentation courses focusing on the specific needs of students from the various faculties is the next logical step. I believe that doing so will better enable all students at Saga University to have opportunities to develop effective English presentation skills that will serve them in both their academic lives and later on, in their professional lives.

Conclusion

This paper describes the development of an ESP presentation course for graduate students from the faculty of Science and Engineering. It describes how the course is being conducted in the target language of English despite the fact that most of the students have extremely low English abilities. The course effectively develops students’ presentation and English abilities through the Experiential Language

Learning approach, where the learning of lesson targets is accomplished through the cyclical use of practice and teacher modeling. Students are required to give a total of 3 presentations of increasing length, complexity, and content depth during the course of the class. Results from student surveys indicate that students feel the course is worthwhile and they were able to learn important skills for their academic life and future professional careers. Additionally student evaluations by myself indicate that students have indeed developed and improved their English presentation skills during the course. It is suggested that the course be adapted for and offered to students from the other faculties at Saga University. This will not only provide more students with opportunities to develop desirable skills that will benefit them in the increasingly competitive work environment they face upon graduation but also help standardize the English education offered to all students at Saga University.

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