
Poster Presentation

An Approach to Develop Genre Awareness for Japanese Science & Engineering Students

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In the era of globalization, Japan needs good English education to maintain its position as a world leader in science and technology fields and to enable its people to conduct their research and business affairs in English. Also, with the rapid expansion of globalization in business fields, many companies in Japan are pressed with the need for more global human resources. Within the context of corporate and trade expansion into high growth overseas markets in efforts to revive Japan's long-stagnant post-bubble economy, the shortage of "globally qualified" human resources in Japan continues to present a serious problem. As defined in a summary of policy proposals for the development of Japan's global human resources issued by the Japanese Cabinet on June 11, 2012, one of the most urgent requirements for global human resources are good communication skills in foreign languages, emphasizing English communication skills, as the global language of science, trade, industry, and commerce.

Many Japanese university students in science and engineering, however, have not been able to make significant improvements, in field specific communicative competencies, in particular, of their English communication skills. The rigors of their academic programs generally offer them little time to allocate to their English language studies because their curriculum is set up so that their immediate priorities require devoting themselves to conducting research and experiments in their field. In Japan, over the past decade, outcome data based

on English for Specific Purposes (ESP) have produced impressive results in field specific English competencies and thus there has been an increasing recognition of ESP as a more efficient and effective pedagogical approach.

The two defining features of ESP are its being designed to meet specific needs of the learners and that ESP is centered on the language skills, discourse and genres appropriate to these activities (Dudley-Evans and St. John, 1998). In this paper, the importance of the learners' needs and genre are emphasized.

Learners' Needs and Genre Analysis in ESP

ESP highlights the importance of a learner-oriented approach, encouraging students to acquire applied technical vocabulary and field specific areas of communicative competencies or "genres." The term "genre" was first introduced in the area of ESP in 1981 and has become an important notion in ESP. Genre studies in ESP are based largely on Swales' work (1990) on the discourse structure and linguistic features of scientific reports. Genre, in ESP work, refers to communicative events such as seminar presentations and academic essays. Swales' studies have had a strong influence on the teaching of academic writing to graduate students of English as a second language (ESL). Yet, the emphasis on the teaching of academic writing skills to native English speaking university students or ESL students may differ when applied to learners in Japan. Therefore, considering university-level English education from another ESP approach is necessary to make its application optimal in Japan.

Moreover, Japanese university students in science and engineering prefer working in the private corporate sector after graduation because Japan is still one of the world economic leaders and the number of academic posts is limited. In fact, about 70% of university graduates and postgraduates who majored engineering have become engineers at companies. Since students will go on to work for a wide variety of companies in many fields, both students and instructors at universities don't know which English skills will be required at the future workplace. Regarding the required English level for business, many Japanese business persons have set CEFR (Common European Framework of Reference for Languages) B2 as the required goal: To be able to understand

the main ideas of complex text on both concrete and abstract topics, including technical discussions in his/her field of specialization (Araki et al., 2014; Terui et al., 2014). This suggests that employing an ESP approach is necessary also at the university level.

The term “genre”, in ESP, refers to a recognizable communicative pattern understood and utilized by the members of a professional and/or academic community that is called a “discourse community.” Students are members of a discourse community in which a genre text is frequently used for communication among its community members. With a working knowledge of genre characteristics, communications can be more efficiently and effectively conveyed, processed, and understood. This has direct relevance for the English communication skills that are required for global human resources.

Table 1
Example of a Genre Analysis on Safety Rules (Unit 1)

Genre	Safety Rules
Purpose of the text is:	To give safety rules to follow when doing a science activity
The text is aimed at: (Audience)	Students who will be doing an activity
The information includes:	What to be careful about when doing a science activity and detailed instructions on what should be done and what should not be done
Language features	1. Written in a clear and simple way so that the readers can understand the text well. 2. Same words and expressions are used so that the readers can understand it's a rule. 3. Imperative form is used so that the readers can understand they have to follow the rules.
Words & Phrases you think important/useful	1. Never do any experiment... 2. Always wear your safety goggles... 3. ...upon completion of your activity 4. ...without the approval and direct supervision of the instructor 5. Keep all food, drinks and snacks away from

Although there is a big gap between the social needs and the reality of Japanese university students, they can close the gap by developing their genre awareness. The goal of this ESP genre-analysis-based approach is to develop student's systemic literacy (Noguchi 2010), such as an awareness of genre features to identify framework structures.

This paper details how students can acquire an awareness of genres.

English for Science Class

A 90-minute 15-week ESP class is given to third-year students as an elective class choice from required courses at the Faculty of Science and Engineering of a private university. The ESP classes are given to students of all 13 departments in the faculty, and my classes are given to students in mechanical engineering, information technology, and physics. The classes are popular among the students and as many as about 80% of all the engineering majors have taken this class, for example. So, eight classes of 25-45 students are given per week. "English for Science I" is for the spring semester and "English for Science II" is for the fall semester. Students can elect to take the first or the second course without prerequisites for any single or both semesters.

The textbook "Essential Genres in SciTech English" was written by one of Japan's leading ESP professionals and me. The textbook includes 14 genres: Safety Rules, Recipe, Product Specifications, Instruction Manual, Background and Procedures of Laboratory Manual, Q&A: Facts (sheet), Science Feature Article, Meeting Announcement, Company Website, Curriculum Vitae, Call for Papers, Registration Form, Email, Research Paper Abstract. All the materials are authentic genres, which are written for a certain purpose in a discourse community and are distinct from standard and simplified materials written for general language learning. Although some instructors worry that such authentic materials may be too difficult for most university students, it is implicitly realized that graduating students will have to struggle with such authentic English on the job.

Classroom facilities allow me to maximize the use of the Computer-Assisted Language Learning (CALL) and encourage students to utilize digital

information. In ESP classes, moreover, students do not simply memorize their technical terms but focus on the analyses of their data. The students are asked to find the purpose, audience of a genre text, what kind of information this text carries and what kind of language features this text has. They are encouraged to discover from their own data the collocations of terms, verb tense, and how terms are used in a genre and in context, thus leading to effective application in their written and oral communications. A table is given to the students in class to fill out their findings from genre analysis. Here is an example of a genre analysis on Safety Rules (Unit 1).

1. **Never** do any experiment...
2. **Always** wear your safety goggles...
3. ... **upon completion of** your activity
4. ... **without the approval and direct supervision of** the instructor
5. **Keep** all food, drinks and snacks **away from** ...

The students are also asked to 1) read several safety rules and summarized what you got, 2) submit the assignment, and 3) read safety rules and answered to questions related to the rules for the semester-end exam. End result is a color-coded progressively more developed table used for comparative study of genres, which facilitates the students to develop their genre awareness. (See the appendix) The assignments submitted in class, the results of the semester-end exam and a post-course questionnaire have shown that the students were able to understand the genres and grasped the genre features.

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Author bio



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Received: November 16, 2014



Accepted: July 23, 2016

Appendix

Genres that students learn in a semester

	Unit1	Unit3
		
Genre (Topic)	Safety Rules	Product Specifications
Purpose of the text is:	To give safety rules to follow when doing a science activity	To present the technical and other specific details
The text is aimed at:	Students who will be doing an activity	The person who is going to use the product
(Audience)		
The information includes:	What to be careful about when doing a science activity and detailed instructions on what should be done and what should not be done.	Descriptions of the components, specific dimensions and electrical power and voltage details
Language features	<ol style="list-style-type: none"> 1. Written in a clear and simple way so that the readers can understand the text well. 2. Some words and expressions are used so that the readers can understand it's a rule. 3. Imperative form is used so that the readers can understand they have to follow the rules. 	<ol style="list-style-type: none"> 1. The specification is consist of two parts: product description and technical data. 2. A table is given to show the product technical data. 3. Bullet points and a table are used. 4. Technical terms and units are used so that the readers can compare the product specifications with other ones easily.
Words & Phrases you think important/useful	<ol style="list-style-type: none"> 1. Never do any experiment... 2. Tell your teacher/the instructor immediately if an accident occurs. 3. Always wear your safety goggles.... 4. ...upon completion of your activity/the experiment. 5. ...without the approval and direct supervision of your teacher/ the instructor 6. Keep all food, drinks and snacks away from bounce houses. 	<ol style="list-style-type: none"> 1. This appliance can be used either with 2. Selector for ...for... 3. Removable 4. coffee filter- 5. -system means
Further class activities	<ol style="list-style-type: none"> 1. Read several safety rules and summarized what you got. 2. Submitted the above assignment. 3. Read safety rules and answered to questions related to the rules at the term-end exam. 	<ol style="list-style-type: none"> 1. Found the specifications of a product your group (3-5 members) is interested in 2. Made a PPT slide to describe the product and its specifications, 3. Gave a 5-minute presentation in class. 4. Read specifications and answered to questions related to the rules at the term-end exam.

Unit4		Unit8	
			
Instruction Manual		Science Feature Article	
To explain how to use a device		To try to persuade people to eat less meat (and more vegetables) in order to help reduce greenhouse gases	
People who bought the product		children	
How to use a kettle. This text uses illustration to show the parts and their names.		How food production can affect global warming	
<ol style="list-style-type: none"> 1. The instruction manual is consist of two parts: Instructions and notes/don'ts. 2. Imperative form is used so that the readers can understand they have to follow the instructions. 3. For prohibited matter, sentences start with Do not, Never, Only etc. 4. British English is used for the users in the UK. 		<ol style="list-style-type: none"> 1. The article is consist of a picture and several paragraphs. 2. The picture is given with a brief introduction of the article 3. The first paragraph begins with a question to attract the readers attention. 4. In the second paragraph, the answer to the question is given to attract the readers attention. 5. The following paragraphs describe in details with specific numbers and citations from research articles. 6. In the end, the readers can understand that the title is informative and catchy. 	
<p>British English VS American English:</p> <p>mains VS outlet</p> <p>GB stands for Great Britain and is used in this manual but recently the UK is used more often, which is corresponding to the US.</p>		<p>environmental friendly</p> <p>global warming</p> <p>greenhouse gases</p> <p>methane</p> <p>carbon dioxide</p> <p>atmosphere</p> <p>diet</p> <p>fuel</p> <p>climate</p> <p>meat-eater</p> <p>vegetarian</p>	
<ol style="list-style-type: none"> 1. Read an instruction manual in which includes product specifications 2. Submitted the above assignment. 3. Read instruction manuals and answered to questions related to the rules at the term-end exam. 		<ol style="list-style-type: none"> 1. Found a science feature article from TED and websites for news article. 2. Submitted the above assignment. 	

Unit 10	Unit 12
	
<p>Company Website</p> <p>To describe the company's efforts to promote its corporate social responsibility</p> <p>The general public, which include consumers/customers, investors and prospective employees</p> <p>What the company has done using a table and graphs to present data on reduction of CO2 emission and reduction of fuel consumption</p> <p>1. The company uses words and expressions that give the readers a strong and positive impression. (Ex: We at (company name), Impact/Charter etc.)</p> <p>2. "We" "The product" "The company" are often used as a subject.</p>	<p>Call for Papers</p> <p>To ask those (=people who are) in a certain research area to submit papers describing their research</p> <p>Young researchers who wish to present their research at a conference in their research area</p> <p>The conference dates, instructions for submission of proposals and various deadlines, the reviewing process, caution against repetitive submission of the same research, and suggested topics of interest</p> <p>1. Bullet points are used so that the readers</p> <p>2. Fixed text structure, expressions, rhetorical order make the readers get the information easily.</p> <p>3. Headings are useful to get the information quickly.</p>
<p>job hunting</p> <p>apply for a job/a position</p> <p>CSR (Corporate Social Responsibility)</p> <p>IR (Investor Relations)</p> <p>market (verb) (=mass production</p> <p>world's first product</p> <p>CO2 emission</p> <p>zero emissions</p> <p>sustainability</p> <p>sustainable society</p>	<p>(youth) conference</p> <p>electronically</p> <p>submission</p> <p>to submit</p> <p>review</p> <p>double-blind(ed)</p> <p>manuscript</p> <p>including, but are not limited to</p> <p>full paper</p> <p>camera-ready</p> <p>notification (to notify)</p> <p>registration (to register)</p>
<p>1. Visited a corporate website (TOYOTA) and compared company profiles both in Japanese and English</p> <p>2. Found a corporate profile in English, which you are interested in.</p> <p>3. Summarized the corporate profile and submitted it.</p> <p>4. Read corporate website and answered to questions related to the article at the term-end exam.</p>	<p>1. Found a "Call for papers" in your own field.</p> <p>2. Summarized what you found and submitted it.</p> <p>3. Read "Call for papers" of an international competition and answered to questions related to the text at the term-end exam.</p>