Student-Driven Content Creation for e-Learning

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Abstract

In this paper we describe the content creation for e-learning called SNOWBALLS® which stands for Self Navigation Web-based Literacy Learning System and its usability as a platform of OCW contents. The SNOWBALLS® e-learning platform was originally conceived to teach Japanese undergraduate engineering students technical English vocabulary as we presented at the OCWC 2010. We are now at the stage of content creation and started two seminar style courses where students took the lead. One of the major challenges was to find the appropriate quality materials that students could exploit when creating the content. The creation of content for this e-learning system is still work in progress, with the final objective of offering a wide variety of language courses for the education of both Japanese and international students. Course A focused on creating content for Japanese students to learn technical English, while course B focused on content to help international students start their academic lives in Japan. Students brainstormed and selected the topics they wanted to investigate and about which they wanted to create content. Additionally, they discussed about what form the content should take to make the courseware both informative and appealing.

Keywords

E-learning, Web based learning, Education systems, student-driven, global courseware

1. Introduction

1.1 Background and purpose

In our globalizing world, it is essential for universities to nurture global leaders who are front-runners in their research fields and also feel comfortable in the international arena. Global competency is one of the most essential skills for these new leaders.

To offer Japanese students international experiences, the University of Tokyo is actively involved in the “Global 30 Project” (1) launched by the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT) in the middle of 2009. Due to the “Global 30 project” and other new policies of the MEXT, the number of foreign students from all over the world studying at the University of Tokyo campus has been increasing rapidly over the last few years. Especially at the school of Engineering, the number has increased from 700 to 900 in the last five years.

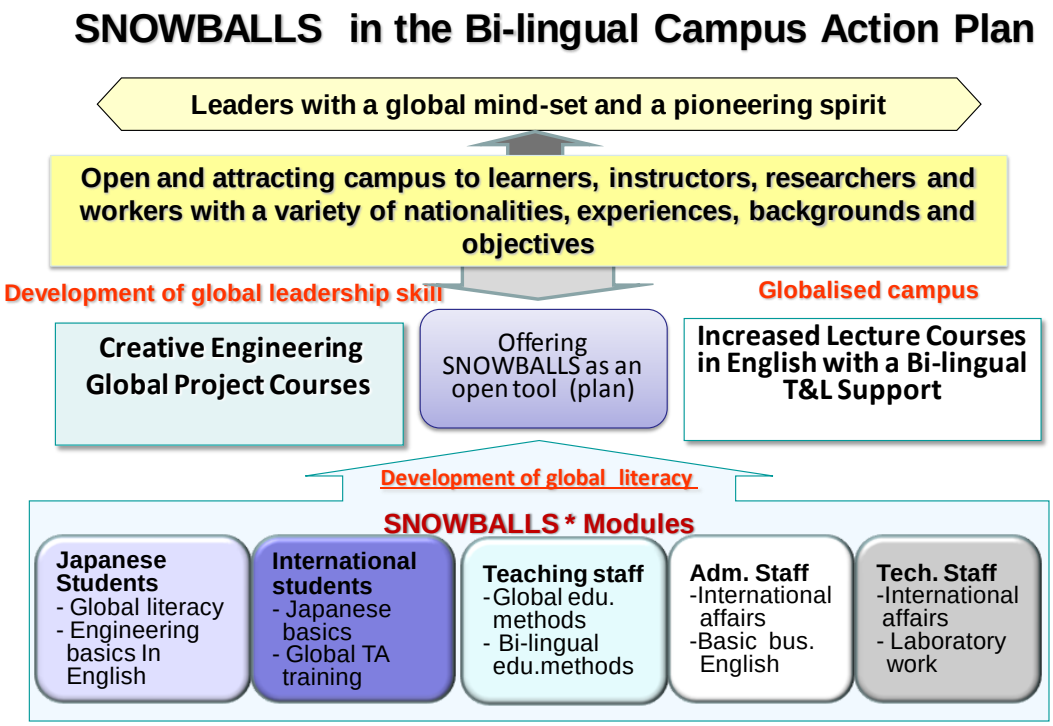
As one of the programs within “Global 30”, the School of Engineering at the University of Tokyo (SE-UT) is planning to create a “bilingual campus” in the school where Japanese and foreign students can encounter and educate each other by communicating in both Japanese and English seamlessly. To fill each student’s specific vocabulary gap effectively and efficiently, a tool is needed which enables everybody to study basic technical English or basic academic Japanese by self-study, thus minimizing the burden on teaching staff.

The e-learning system developed for this purpose by the Center for Innovation in Engineering Education (CIEE) in the School of Engineering at the University of Tokyo, was named SNOWBALLS®, after its functional name, "Self Navigation Web-based Literacy Learning System." SNOWBALLS® is considered one of the first steps in enhancing students' global competency. In this first phase, SNOWBALLS® is used to teach Japanese students English engineering vocabulary and phrases they can use in meetings or at international conferences.

SNOWBALLS is a useful system and it can be used in many different ways. As we do not have enough resources such as facilities or faculty, an e-learning system like SNOWBALLS is an interesting alternative to offer flexible and personalized learning solutions and could be used as a platform for OCW resources as is mentioned at the OCWC2010 (Yoshida, Morimura, & Suzuki, 2010). This is especially important when focusing on brushing up knowledge or skills to ensure a more or less uniform basic level.

1.2 Bilingual campus

As previously mentioned, the University of Tokyo is planning to make a "Bilingual Campus" where both Japanese and foreign students and teachers work together and educate each other. SNOWBALLS will play a very important role in the practical realization of this bilingual campus, as currently the language skills of Japanese students and administrative staff are sufficient to have simple conversations with international students and technical staff, but insufficient to conduct research or non-standardized office work. The outline of the bilingual campus policy is shown in figure 1.



* Self Navigation Web-Based Literacy Learning System

figure 1. SNOWBALLS in the Bi-Lingual Campus Action Plan

As mentioned before, SNOWBALLS was in the first place created to teach Japanese students technical and academic English. Additionally, it is going to be used to teach international students technical and academic Japanese and special materials are being created to support the internationalization teaching and administrative staff. This will prepare students for the subsequent phases where they should be able to follow lectures taught in English (or Japanese for the international students), where they have to communicate and integrate in a laboratory or research environment, where they may want to do an internship overseas (or in Japan for international students), and where they have to find a job.

2. English Language Education at The University of Tokyo

2.1 Current education system

There is a big difference between general English and the jargon students actually need to follow courses in their field of study. Moreover, when entering graduate school, students didn't have the basic English literacy skills they needed to write journal papers and attend international conferences.

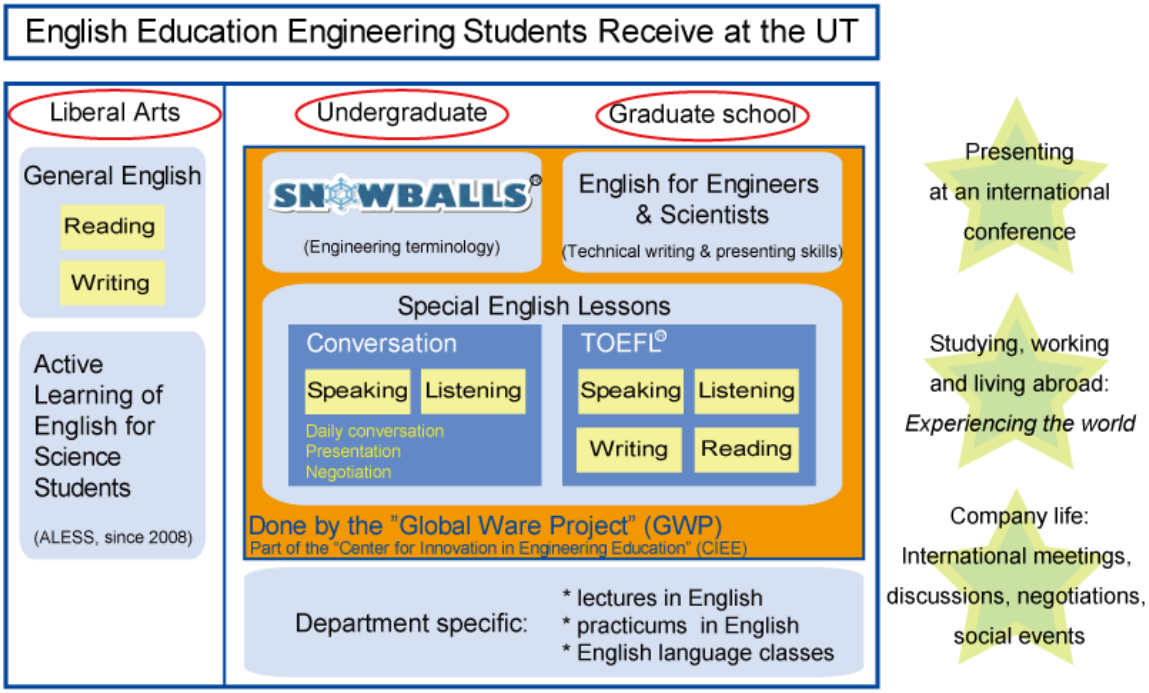


Fig. 2, *English Education offered at the SE-UT.*

The university of Tokyo already offers various classes to help students develop their English language skills, such as a small research project in English ("ALESS"), academic writing and presentations in English ("English for Engineers and Scientists") and general conversational English and TOEFL® preparation ("Special English Lessons") as shown in figure 2.

2.2 What is lacking

What was lacking here is the basic English literacy that all the students should have before they enter the department to study their specific field. Additionally, the English education system in Japan is somehow one-sided and the students learn difficult words that are seldom used in daily life, but they don't know practical words that could be used in their field of study. Thus, it is

necessary to teach them such English but universities cannot afford much time nor money teaching basic words or literacy. E-learning is therefore considered the best way to solve the above problems.

3. The SNOWBALLS Project

3.1 Concept

The authors launched a seminar course in which students and an instructor discussed the design of the SNOWBALLS e-learning system as a project team. Participating students could obtain two course credits by contributing to the development of the system and its contents. In this team, we studied what the system should look like, what fields/themes it should first focus on, and which style would be preferred by the users. The students who joined the seminar course in winter semester of 2009 took the lead and designed the system as they preferred.

In the first few months, the team discussed the requirements of the SNOWBALLS system. First the teaching style to be adopted in the system was discussed and decided, then the appearance, and finally the educational content. As for the style, the students wanted it to be a game-like style. They considered that there are many existing e-learning systems for language learning, but they easily lose concentration and it is difficult to keep the learners' motivation high when using them. The students' generation is so exposed to playing games that a game-like setting will help them keep their motivation up when they are learning foreign languages. Next, the team decided to use avatars in order not to show their own names or faces in the games, and be able to behave more freely. Avatars are popular in all kinds of games especially among technical students. In SNOWBALLS, students can dress up their avatars as they like with the "snowballs" (points) they earned from learning. Gaining snowballs from solving problems and winning the online games is a merit of the system as well.

3.2 Creating content

The quality of the courseware has to be high and worthy to learn at the university. The team studied to find out what third year engineering students actually need to learn before entering their specific study field. Cooperation with teachers, researchers, and students from various departments is considered to be indispensable for the success of SNOWBALLS.

"e-learning A", the original course which was set up to create SNOWBALLS, focuses on creating content for Japanese students to learn technical and academic English, while course B focuses on content to help international students start their academic lives in Japan. In both courses the students brainstorm and select the topics they want to investigate and about which they want to create content. Additionally, they discuss about what form the content should take to make the courseware both informative and appealing. The teachers are supervising and catalyzing the process, trying to create as much information, ideas, opinions, and finally course ware as possible.

Up to now, 7 students from 5 different engineering departments took part in course A. Excellent students were asked to become a teaching assistant (TA) in the next semester, to keep most of the initiative with the students and to keep the momentum of the system and content development. The TAs helped the students to quickly get familiar with the system and its limitations. Their knowledge of the previous developing phases was also valuable in the various discussions, and when it came to creating additional materials such as manuals and a quick-start guide.

Starting in the winter semester of 2009, the lectures focused mainly on the development of the SNOWBALLS platform. This included a lot of brainstorming, setting goals, and making avarious prototypes (implemented as online Adobe® Flash® games. Finally, at the end of the semester, the results of the course were presented to an external company (ICOM Corp.), which made a professional web-based implementation based on our requirements and following our ideas. In the 2010 summer semester, we focused mainly on testing the SNOWBALLS platform and creating content. Students of course A picked up general engineering topics such as linear algebra, statistics and materials because they felt that their English vocabulary was insufficient to discuss or follow lectures about these topics. In the current semester, students chose to investigate global problems such as energy sources, climate change, and life cycle analysis, and wrote teaching materials that do not just introduce technical vocabulary, but also offer some food for thought on the socio-political aspects.

In course B, which started in the winter semester of 2010, 12 international students from 5 different (Asian) countries and 8 different engineering disciplines took part. 5 of them were Master course students and 7 were Doctor course students. 4 students arrived in Japan at the beginning of that semester, and 4 had been in Japan for less than one year. The class was conducted by two teachers, of which one has experience in helping foreign students getting settled in Japan as a Japanese language teacher, and the other experienced these very problems by himself several years ago when coming to study at the University of Tokyo as a European. Work in class, as well as homework, were done partly individually and partly in groups of 3 students.
The course focused on gathering all kinds of information about life in Japan and getting settled at the University of Tokyo campus in particular. International students discussed their problems and questions, and shared their solutions and experiences. We started out by brainstorming for important keywords and searching readily available information. We tried to identify the areas where (multilingual) information sources were still insufficient and tried to fill these blanks.

One of the problems students face when they have to create content is to find trustable information sources and to deal with copyright issues appropriately. In class we pay attention to these issues, but with the wealth of information in (possibly out-dated) textbooks and on the internet, it is impossible to find a general rule. Also the fact that the daily use meaning and the technical meaning of a word may be different (e.g., “a significant difference”) and the fact that general use and technical vocabulary may be different (e.g., “oval” versus “ellipse”) causes problems for non-native speakers.

We believe that the OpenCourseWare system could be a great source for quickly developing multilingual courseware or courseware that focuses on vocabulary training for particular academic topics. In return, we plan to make both the adapted or newly generated courseware, and the SNOWBALLS e-learning system itself available to the community as the open course ware.

3.3 Application

Through this course, students learn various things they cannot learn in most other courses. First of all, there is the obvious one: they learn the technical English or Japanese vocabulary they create content about. Then there is the aspect of working as a project team, where the classes are basically meetings where ideas, problems, and results are discussed. Since the course is an

elective open to both undergraduate and graduate students from all engineering departments, and since some course alumni are hired as teaching assistants for the next semester, a dynamic team with many different information flows results. Finally, creating courseware puts the students on the seat of the teacher. Students noted that this was a very interesting and challenging experience, which required them to look at the same topic with very different eyes.
The benefit for the School of Engineering is that the SNOWBALLS system and its contents are more likely to match with the interests and requirements of the students, since students were not only involved, but driving the project from the very early stages.

4. Conclusion

Students participated both in construction and in making contents of SNOWBALLS e-learning system in a seminar style course. Through close collaboration with teachers and students from several departments during the development of SNOWBALLS, there is a constant flow of new ideas, improvements and feedback on both the educational content and on the implementation as a game. Currently SNOWBALLS focuses on teaching third year university students English engineering terms they will encounter in their fourth year classes, and it is being expanded to other areas, including teaching Japanese to foreign students or administrative staff to learn necessary terms in their job. In these cases the international students and the staff are involved in the creation of the contents.
The questions, problems, wishes and interests of students from various backgrounds played a pivotal role in the creation of the SNOWBALLS® e-learning platform and its content. We let students take the lead in developing their own materials, and aimed to compile a highly varied set of global courseware, which we believe is necessary to prepare students for leading functions in the globalized world.

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