Teaching Technical Terminology and Practical English Skills using the SNOWBALLS® e-Learning Platform

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About SNOWBALLS®

SNOWBALLS, which stands for “Self Navigation Web Based Literacy Learning System”, is primarily aimed at teaching third year undergraduate students basic technical English vocabulary. Since there are many students, and their levels and specific needs vary greatly, offering educational materials through e-learning is efficient for both teaching staff and students.

To increase student motivation, SNOWBALLS is set up as a game where points can be earned through quizzes or by answering questions of other students in the forum. Students can spend these points in a “shop” to buy clothes or new haircuts for their avatars.

① All 3rd year undergraduate students sign up.

② The main screen of SNOWBALLS

English Language Education for Internationalization

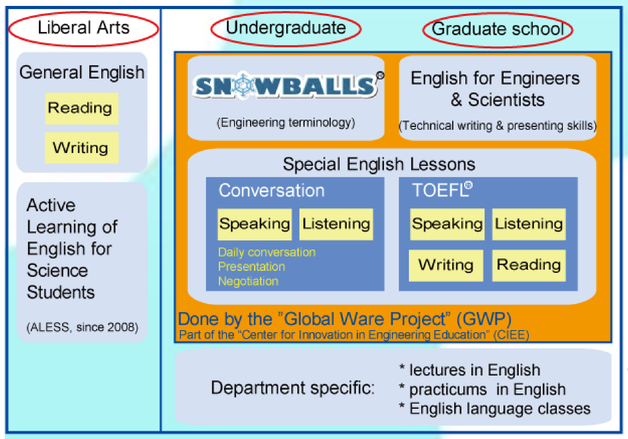
To push internationalization, the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT) launched the “Global 30 project” in the middle of 2009. As one of the programs within “Global 30”, the school of Engineering at the University of Tokyo is planning to create a “bilingual campus”, where Japanese and foreign students can encounter and educate each other by communicating in both Japanese and English.

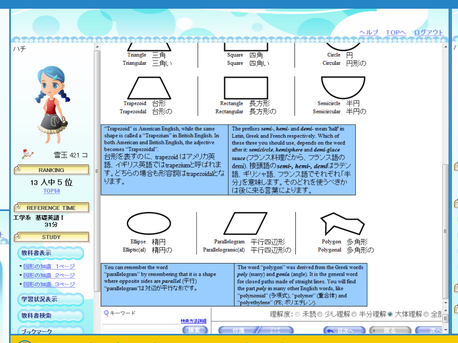
Students at the University of Tokyo are generally good at English grammar, reading and writing, but their technical vocabulary and conversation skills are lagging. This especially becomes an issue now that an increasing number of lectures are taught in English, and students are encouraged to join international conferences and do internships abroad.

The *“Special English Lessons”* program already takes care of teaching general conversation skills and preparing students for tests needed when going abroad, such as TOEFL®, while the *“English for Engineers and Scientists”* course teaches writing academic papers and giving technical presentations. However, when listening to engineering lectures in English, or when having to write or present their research in English, students often encounter a hiatus in their vocabulary.

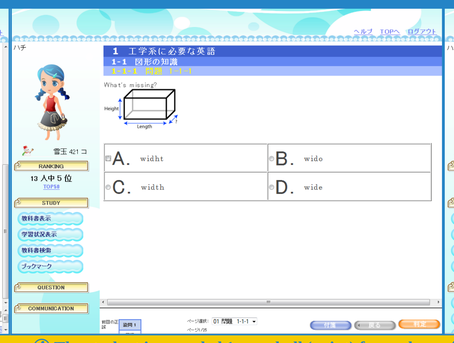
To fill each student’s specific vocabulary gap effectively and efficiently, a tool is needed which enables everybody to study technical English or Japanese by self-study, thus minimizing the burden on teaching staff. We therefore started the development of an e-learning system called SNOWBALLS in winter 2009.

English Education Engineering Students Receive at the UT



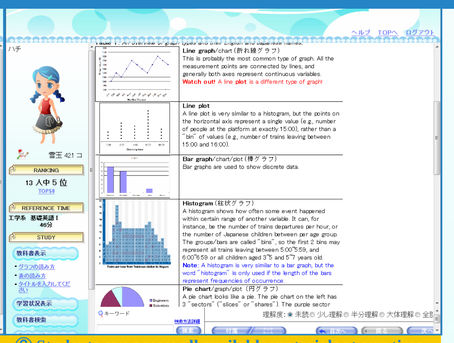


③ Example of teaching materials on basic engineering topics: *Geometry*.



④ The student is awarded 1 snowball (point) for each correctly answered multiple choice or open question.

⑤ Students can score their understanding of each section and get feedback on their performance.



⑥ Students can access all available materials at any time. They can also leave the study area and go to the *Battle*, *Shop*, or *Forum* area any time they like.

About the teaching materials

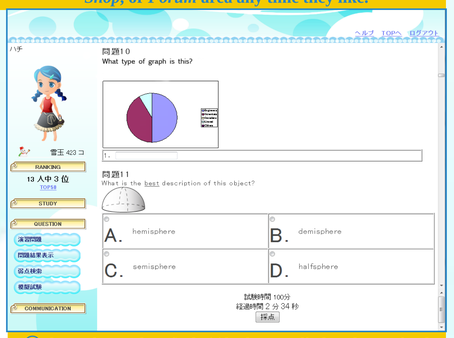
- Materials are developed together with students.
- Japanese materials are developed for international students
- The appropriateness of the materials (style, length, difficulty, etc.) is discussed with students and will be evaluated with a test run of 30 Nuclear Engineering students this winter.
- There are ideas to include adaptations of open course ware (OCW) materials as well.

Current topics in SNOWBALLS

Geometry
Lines & angles,
Reading formulae,
Graphs & tables,
Measuring instruments,
Units,
Robotics,
Linear algebra,
Materials,
Manufacturing tools,
Statistics.

Additional snowballs (points) can be earned by playing a battle against a friend (or enemy). Both players enter a private ‘room’ where they have to answer as many questions as possible in 1 minute time.

Avatars are visible in the rankings as well as with messages in the forum.



⑦ Once the student feels (s)he has studied and practiced enough, (s)he can take an exam.

⑧ In the *Shop* students can exchange the snowballs for shirts, pants, shoes, a new haircut, accessories, etc.

⑨ Students are motivated to keep studying by the possibility to enhance their avatars.

Acknowledgements

We like to thank the students who took part in the development of the SNOWBALLS e-learning system and its contents: Shota Ikeshima, Satoru Tomoshi, Min-Hyeok Lee, Takahiro Sekino, and Tatsuya Fujii. Without their help and the realization by the ICOM Corporation (http://www.icomcorp.jp/), it would have been impossible to reach these results in this short time.

Selected Publications

Kumiko Morimura, Jorg Entzinger and Shinji Suzuki, “Development of "SNOWBALLS" - An English Education Tool for Engineering Students”, *Journal of Information and Systems in Education*, Japanese Society for Information and Systems in Education, 2010. (In Press)

Kumiko Morimura, Makoto Yoshida, Shinji Suzuki, “SNOWBALLS: Self-navigation web-based Literacy Learning System and the Utilization of OCW Resources for Global Education”, *OCWC (Open Course Ware International Consortium) 2010*, 2010.5

ACM Conference on eLearning and Technical Documentation for the Developing World, University of Aizu, Japan. 30-31 Oct. 2010.