

A four-year longitudinal case study on a Japanese college laboratory of science majors preparing for the TOEIC

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The paper will discuss the findings of a four-year longitudinal case study on a Japanese college laboratory of science majors preparing for the Test of English for International Communication (TOEIC). They prepared outside of English classes—alone at home, in self-study groups in their lab, and at summer retreats designed for and by them. Presented are the four study habits that proved effective for making progress on the TOEIC. Also included are eight false study beliefs. The paper concludes with general guidelines for developing a TOEIC curriculum for Japanese learners.

本稿は日本の大学に於いて理科系研究室の学生がTOEICを目標に英語学習に取り組む過程を4年間にわたって調査、分析したものである。自宅で個人学習、研究室でグループ学習、研究室主宰の夏季英語合宿と、学生たちはカリキュラムの枠外でも多岐にわたって自主的な英語学習活動を行った。これらの学習活動内容の分析結果として、効果的な学習習慣が4項目、英語学習に関する誤信が8項目あることが確認された。これら各項目を検証し、日本の英語学習者を対象としたTOEIC学習用カリキュラム構築に必要なガイドラインを提案する。

A science laboratory at a college comprises researchers, from undergraduates to professors. Students are required at some stage in their academic careers to enter a lab, which is headed by one or more professors. The professors act as research supervisors and academic advisors, setting goals for both the lab and the individual. Lab members gather around the clock most days of the week to research, present, and publish within a scientific discipline.

The lab members in this study behaved no differently, except they also used their collectivity to prepare for the Test of English for International Communication (TOEIC). This preparation was not compulsory or guided by external policy; students studied outside of curricular restraints, and by their own design and will,

which characterizes these activities as autonomous.

In this four-year longitudinal case study, I found four study habits that proved effective for making progress on TOEIC scores. First I explain these habits, and then I contrast them with eight false study beliefs that proved ineffective for these participants.

Participants and procedures

TOEIC Goals

The lab has about thirty-five students, half graduate, half undergraduate seniors, with around one-third of them coming and leaving each year. They are specialists in science, some of whom wish to work in foreign divisions. Almost all believe their scores should be 600 or higher to be competitive in the job market (see Figure 1).

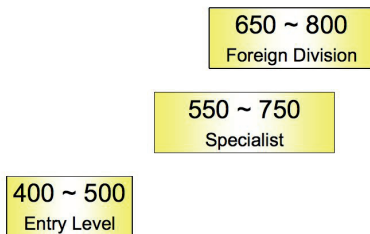


Figure 1. TOEIC levels companies expect from employees (ETS, 2005).

College curriculum

Their college encourages study for the TOEIC in four ways: (1) A one-year course within the curriculum, *jitsuyo eigo*, or practical English, is designed to boost scores on all institutional English tests, such as the Society for Testing English Proficiency (STEP) Test or the Test of English as a Foreign Language (TOEFL). But in practice, 98% of the classes are devoted solely to the TOEIC. The college offers more *jitsuyo eigo* classes than any other type of English class. (2) The college offers *jitsuyo eigo* course credits to those who receive a TOEIC score of 590 points or higher. (3) The e-learning research group offers TOEIC seminars three times per year. These seminars are three-day courses where students learn at their own pace through online activities on customized software, and through interactive activities with other students. (4) Twice a year, the college hosts the TOEIC Institutional Placement test (TOEIC IP), the official practice test by the makers of the TOEIC.

Retreats for TOEIC

Once every summer the participants, all members from the laboratory, went on a four-day TOEIC retreat that I conducted. Before each retreat, a needs analysis survey was administered for perceived strengths and weaknesses, and goals. The surveys were examined alongside past surveys and progress, and a program was designed.

Classes at the retreats were learner-centered, and featured task-based, group activities. The students focused on learning strategies and receptive skills to increase comprehension on the input, and produced output to

proceduralize skills (for details about this learning, see Falout, 2005). Minimum sets of practice questions (using Arbogast, Ashmore, Duke, Jerris, Locke, & Shearin, 2001; Oxford, 2000; Rogers, 2003) were used to familiarize the students with the format of the TOEIC and the skills needed to succeed on it.

Progress on TOEIC scores

For each student a portfolio was compiled from surveys, interviews, and progress reports. The beliefs and practices of each learner were compared against the progress across four test sessions: Post-test (using Rogers, 2003) from the 2003 retreat to the TOEIC IP two months later; post-test (using Oxford, 2000) from the 2004 retreat to the TOEIC IP two months later; the TOEIC IP in 2003 to the TOEIC IP in 2004; and the TOEIC IP in 2004 to the TOEIC IP in 2005 (see Table). From this analysis, four effective study habits and eight false study beliefs were found.

Results and discussion

Effective habits

These science students found it easier to study English regularly in groups at the lab than individually at home. One drawback many found was not being able to work at their own pace. In groups sized three to twenty, they did activities such as: 45-minute practice TOEIC tests each morning; translating science problems; story dictation with question and answer sessions; group shadowing; nightly chats in English; e-mail postings in English.

Table 1. Improvement between test sessions

		Listening improvement in TOEIC points	Reading improvement in TOEIC points	Total score improvement in TOEIC points
Pre-retreat— Post-retreat 2003 (N=39)	Mean	35.8	76	111.7
	SD	76.5	53.3	102.4
Post-retreat— TOEIC IP 2003 (N=32)	Mean	24.1	0.5	24.5
	SD	33	47.3	60.5
Pre-retreat— Post-retreat 2004 (N=33)	Mean	8.7	-14.6	-5.8
	SD	37.6	50.8	66.7
Post-retreat— TOEIC IP 2004 (N=29)	Mean	8.1	26.7	34.8
	SD	75.7	59.8	113.9
TOEIC IP 2003— TOEIC IP 2004 (N=15)	Mean	21	10.7	31.7
	SD	41	47.2	80.1
TOEIC IP 2004— TOEIC IP 2005 (N=13)	Mean	4.6	20	24.6
	SD	27.7	46.1	57.4

Besides studying together, these students also shared insights with each other on how to study English, thus exposing themselves to fresh ideas. Trends have come and gone. Now they are: listening to world and science news on MP3 files from the Internet; communicating through the Internet with international colleagues; reading extensively—they have been sharing graded readers and building a graded reader library in the lab; and attending conversation schools, which most of them have never done.

Recent studies in Japan show a similar effect from group work. Martin, Mita, Shirao, Hatagaki, & Dendo (2006, this proceedings) used group work to boost motivation so that students could sustain interest and effort through lull periods in the school year. They assert that collective autonomy works the best for Japanese students. Hiromori (2005) explains that in such groups, each member can feel useful to the others—whether the tasks are reading, writing, or speaking—and be positively affected in three psychological needs: autonomy, competence, and relatedness.

Effective habit 1: Study daily

The more successful students studied regularly (see Appendix 1). They found a way to fit these studies into their busy schedule. Often the English studies overlapped or augmented the science studies, such as writing research papers, preparing to ask questions or give explanations at international conferences, and presenting research in English. Many listened to personal digital players during the daily train commute. One student incorporated 30 minutes of listening practice into his pre-existing schedule of walking the dog. In this way, he never missed a day of listening practice in over one year.

Effective habit 2: Study actively

Students who studied actively did not robotically follow exercises in the book, but augmented their learning by raising awareness, producing output, and monitoring progress. Some of the learning strategies were first encountered in the summer retreats, such as metrical

segmentation, shadowing, and predicting (for details about this strategy training, see Falout, 2005).

Some of the strategies were self-invented. One student translated dialogue in movies and then checked the translation by the subtitles—checking not word for word, but gist and pragmatic meaning. This student monitored progress by seeing how close each translation came. Others did self-monitoring by scores from successive practice TOEIC tests.

Effective habit 3: Study top-down

All of the students studied through bottom-up processing skills, familiar from secondary education, but the students who made progress also used top-down processing skills. These are practiced by using schemata to help comprehend the general meaning of a message or text, and to build that comprehension through predicting and inferencing. Furthermore, practicing comprehension along with speed builds fluency for listening and reading.

Top-down study is something that few students did before explicit exposure to it in the summer retreats. Fluency and comprehending the general meaning were practiced with graded readers and authentic short stories or novels, through both print and audio formats. The students consciously practiced inferencing and predicting on TOEIC study materials, and checked their accuracy with the answer and explanation section of the book, or with the feedback from their study group.

Effective habit 4: Study diversely

Those who relied only on group study tended not to advance

on TOEIC scores. But those who participated in both group study and individual study saw improvement. Also, the more strategies and the more variety of materials the students used, the greater their improvement. Furthermore, the more variety of study materials used, the higher the TOEIC score.

Overall, the more students related English to their life, the more they progressed. All of the students who progressed on the TOEIC had all of these habits: study daily, study actively, study top-down, study diversely.

False study beliefs

Certain beliefs about learning English seemed to foster practices that did not improve TOEIC scores. Common across most of the individuals in this study, these beliefs result from past successes and failures in preparing for college entrance exams. But the TOEIC differs in language and questions. It uses natural English. Answering correctly requires schemata of the target culture, and understanding beyond the text, or inferencing skills. In contrast, the tests students are familiar with comprise less listening and reading, and less authenticity. Furthermore, they require less understanding of contextual and pragmatic meaning, and thus less need for top-down skills and schemata.

At the summer retreat in 2005, I promoted the study habits which proved effective for increasing scores on the TOEIC, and cautioned against the following false study beliefs. I contrasted these beliefs against suggested practice, which introduced the learning objectives of strategy training and skill building.

False belief 1: I can do well on the TOEIC by focusing on the test itself.

Some students primarily used study guides specifically for the TOEIC. They did exercises on TOEIC target grammar and TOEIC target vocabulary. They learned TOEIC test taking strategies, and took numerous practice tests. Although their motivation was strong, and many had spent much time studying, they did not improve. Their motivational orientation was instrumental, aiming for a higher score to get a job.

In contrast, the students who improved were also motivated by an integrative orientation. That is, they were interested in foreign language and culture, and wanted to live abroad. They were naturally drawn to authentic materials, foreign movies or TV programs, and Internet news. Their interest led them to building a general knowledge of English, and it also led them to studying a little bit almost every day. Such time accumulates, and in the long run these students completed more hours of study than those motivated by only instrumental orientation. Thus the former group exposed themselves to more lexical items and language functions, plus they experienced these in a variety of authentic contexts.

False belief 2: Memorizing words by rote is the best way to improve my vocabulary.

Some learners relied heavily on word lists. They learned by rote, with some doing the accompanying exercises, and some writing the same words repeatedly. Despite their efforts, they did not improve on the TOEIC.

Folse (2004) notes that learners are motivated by words lists, but he asserts the use of lists should be moderated, and augmented with complementary materials and methods, not relied upon. Nation (2001) also believes learners need more than memorize the meaning of words; to acquire the language they need to notice the words as items and functions within the language system.

False belief 3: Reading skill improves if I study grammar in discrete points.

Some students studied the finest points of English grammar through large amounts of reading in Japanese. Those who deepened their knowledge of grammar did not improve on the TOEIC. These students also reported not having enough time for the reading section of the TOEIC.

Instead of increasing their declarative knowledge—the explicit knowledge of the rules—they should have developed their procedural knowledge—the automatic processing of the rules, or knowing how to perform them. With procedural knowledge, language learners attend to meaning in real time and more accurately (Ellis, 2003; Skehan, 1998). If their skills remain as declarative knowledge, test-takers will be too busy recalling each linguistic rule to attend to the meaning of the message (Ellis, 2003).

In one study (Hirai, 2005), the most important factors that predicted both listening and reading fluency for second language (L2) learners included opportunities to use English in real life, and time spent in out-of-class study. Classroom instruction with grammar did not correlate.

False belief 4: I'm not improving because I don't know basic grammar well.

Many students kept going back to the English textbooks they had used in high school and even junior high school. Each student reasoned, “Because I don’t know basic grammar well.” Their pre-college English knowledge accumulated declaratively. It is time to activate this knowledge, to proceduralize it through extensive application.

College students have enough basic grammar knowledge. Yet grammar explanations and drills center so many Japanese TOEIC study texts, such as those reviewing the five basic sentence patterns that every student has been learning since junior high school. Learners who wish to improve on the TOEIC need to go beyond these basics. For readers of text larger than a sentence, it is not just sentence-level grammar that is needed for understanding, but the ability to interpret how the sentences relate to one another, to understand textual connectivity (Nunan, 1999).

False belief 5: I am poor at listening.

Many students believed their reading skills were better than their listening skills. Consequently, students neglected reading skills as they strove to improve listening. Yet their TOEIC scores proved opposite—in every averaged test session, listening scored higher than reading. In an item facility analysis from another TOEIC study (Yamaga, 2005), the reading section is more challenging to college students than listening.

In every category of test takers in Japan—across different levels of education, and across different professional

fields—the average listening score is higher than reading (ETS, 2005). Most countries have this gap where listening scores are higher than reading, but Japan has a bigger gap. Using data from the official TOEIC website (ETS, 2004), the difference for several world regions were calculated (see Figure 2). For Japan, the listening scores average 51 points over the reading scores, a figure consistent with test sessions from this study. A higher point difference can be seen in other regions, but Japan has the highest percentage difference (see Figure 3).

Japanese test takers should not shy away from improving their reading skills. One study (Storey, Gibson, & Williamson, 2006, this proceedings) shows that students who read extensively for eight weeks, on average 52 minutes per week, increased their overall TOEIC scores by 42.4 points on practice tests (from Arbogast et al., 2001).

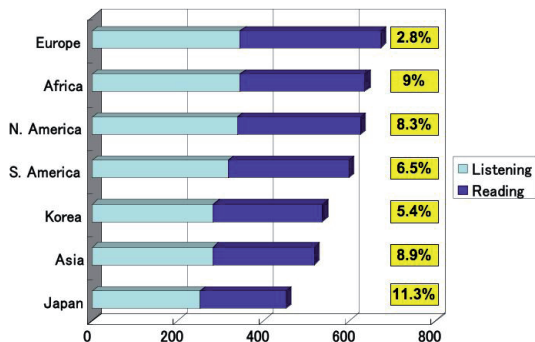


Figure 2. Point differences of listening over reading sections, by world region, 2003 and 2004.

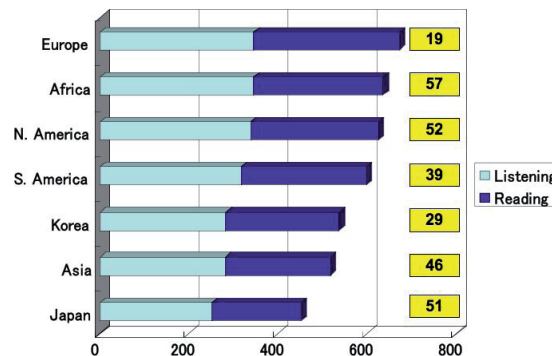


Figure 3. Percentage differences of listening over reading sections, by world region, 2003 and 2004.

False belief 6: Listening skill improves if I play English in the background all the time.

Some students played audio materials for learning English or music CDs as they focused on something else, like writing emails or doing homework. They thought playing English in the background would help them develop the listening skills for recognizing the phonemes and rhythms of spoken English.

Moderate assumptions hold that noticing is required for input to be processed for working memory, long term memory, and retrieval (Ellis, 1994; Rost, 2002; Schmidt, 2001; Skehan, 1998). In short, learners need to pay attention to the words and their meaning, or else the audio remains background noise.

False belief 7: I have to understand every word that is spoken.

Some students believed they had to hear and understand every word in each sentence, overwhelming themselves by trying to differentiate hearing “a” and “the.” Their active memories can process only so much information before overloading (Rost, 2002; Schmidt, 2001), and attempting to notice more than what is possible could produce anxiety (MacIntyre & Gradner, 1991), further inhibiting their intake. Besides, words like “a” and “the” are only function words, which carry little meaning in a message. Learners should be listening for the meaning-bearers, the content words.

In the connected sounds in a stream of speech, learners can pick out the content words by listening for stressed sounds because most content words are spoken with a stress on the first syllable (Cutler & Butterfield, 1992; Rost, 2002). Called metrical segmentation, it proved to be one of the more effective listening strategies for Japanese learners, according to Hagino (2003), who teaches the idea as “catching the big fish.”

False belief 8: Listening skill improves if I listen to a sentence over and over.

Some students practiced listening regularly, but made no advancements on the TOEIC, and reported frustration. They listened to only a small set of sentences, and to each sentence repeatedly. This practice shows they do not know what to focus on—which should be, again, the content words. These learners could be raising their awareness with a noticing strategy, such as metrical segmentation, and practicing

extensive listening to grasp the main idea (Rost, 2002) in a variety of contexts.

Conclusions

These college science students were highly motivated to prepare for the TOEIC. Although they could be inventive in incorporating English study into their daily schedule, they were not all making the progress on the TOEIC that they could. And while autonomous group study became a habit for some, more intervention than a once-a-year retreat would have benefited their language development. Working against them were beliefs about how to study, beliefs from secondary education that had led them to successful practice for the college entrance exams of English, but were not leading them to achieve their English acquisition goals later.

Progressing on the TOEIC requires a different type of study, one that is not fulfilled by many of the current materials or conventional classroom practices in Japan for preparing for the TOEIC—namely passive classrooms with mock tests followed by discrete point grammar explanations about correct answers. The type of practice that proved well in this study coincides with mainstream recommendations for acquiring an L2.

A TOEIC curriculum for Japanese learners should hold language learning strategies for higher-level language processing as main objectives. For many learners, such a program would entail corrective training, with explicit instruction about false learning beliefs.

A TOEIC curriculum should promote effective language learning habits by explicit instruction, interactive group

practice, access to a wide variety of graded and authentic materials, and periodic consultation. It should not belabor learners with practice tests, but encourage them to practice output, pragmatic awareness, extensive listening, extensive reading—the current methodologies for teaching L2 acquisition.

Finally, educators need to convey the meaning of TOEIC scores, not the uses. College students need to recognize that a good TOEIC score is not simply a goal to be reported on a job application, but a reflection of ability to use English.

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Joseph Falout is an assistant professor at Nihon University. He started teaching ESL and English composition in Chicago area colleges in 1991.

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Appendix 1

Student	English needs	Study habits	Improvement TOEIC IP 2003 to TOEIC IP 2004	Improvement TOEIC IP 2004 to TOEIC IP 2005
A	To get a job.	Read TOEIC study guide. Vocabulary book. Study occasionally.	20	—
B	To get a job.	Read high school textbooks again and again. Listen to same sentence repeatedly until I understand what is spoken. Study occasionally.	-25	—
C	To read technical reports. Want to live and work overseas.	Study by self and in group, 30 to 60 minutes every day, in a variety of places with variety of strategies—songs, movies (use subtitles), TV interviews, study texts and CDs.	30	—
D	For career. Enjoy foreign entertainment.	With no strategy, watch movies and TV shows; memorize words and idioms; study basic sentence patterns. Weeks before test, study 1 to 2.5 hours daily from TOEIC workbook.	-30	—
E	For work, to communicate in groups, face to face, by telephone and e-mail.	Study only by self, about 15 minutes a day. Use radio and TV study programs, basic grammar textbooks, and listen to foreign music.	15	—

F	For work. Want to communicate with foreigners.	20 minutes after dinner every day; focus on shadowing. 4 pages of a study guide every day.	70	—
G	To research—especially read and write academic papers.	Study regularly, mostly by self; in group 1 hour every week. Read and translate academic papers; present in English; English radio program, practice with study guide and CD; listen to foreign music.	275	—
H	Want to speak English.	Spend 60% of English study in listening though shadowing and catching the gist, and 20% of English study on grammar from study guide.	25	—
I	To get a job.	Study 1 page of grammar from study guide every day. Listen to foreign music while looking at lyrics.	0	20
J	Want to live abroad. Intensely interested in English speaking cultures.	Study almost every day, both by self and in groups. Always using a variety of materials and strategies. About 90% of English study is on listening. Make English a part of daily life. Been abroad often.	100	30
K	For career, need to write and read in English. Interested in English countries and other foreign countries. Want to travel.	Study by self and in groups; 5 times a week, 20 minutes minimum. 70% spent on listening practice, starting with top-down strategies, and ending with toward bottom-up strategies. Enjoyed studying abroad.	40	50
L	For career, living abroad, and meeting foreigners.	Study by self and in groups, at least 1 day a week. Read research papers; listen to English radio programs. Do workbooks. Without strategies, watch movies and listen to music.	-15	85
M	For career. Want to live abroad for at least a few years; want to live in many countries.	Study both in groups and by self, 3 times a week, 20 minutes every day. Listening strategies with TOEIC materials. Use study guide. Without strategies, watch movies and listen to music.	25	15
N	For job search.	Take mock TOEIC tests by self almost every day. Without strategy, watch one TV program in English.	-85	—
O	To get a job.	Without strategy, listen to study guide CD for 25 minutes, 5 times a week. From another study guide, memorize word list 2 times a week for 30 minutes. Sometimes study basic grammar.	30	-130
P	For career. Want to communicate with foreigners.	At least 15 minutes, 3 times a week, study in group and by self; shadowing.	—	70
Q	For career. Want to communicate with foreigners.	15 to 30 minutes, 3 to 5 times a week, study by self and in groups. 70% listening; shadowing. Also word lists and TOEIC mock tests. In daily life, check words in electronic dictionary whenever words pop into head.	—	100

R	For business.	60 minutes, 2 times a week, memorize vocabulary from list in study guide, and listening to CD from study guide while reading along.	—	30
S	For career. To make friends with foreigners, and interested in foreign cultures.	15 minutes, 6 times a week, memorize words from word list and listen to podcasts on the train. Group shadowing at lunchtime.	—	15
T	To get a job.	20 minutes, 4 times a week, group shadowing at lunchtime. Memorize 3 words a day. Without strategy, listen to songs.	—	15
U	For career.	15 minutes, 3 times a week, both in groups and by self. 40 % of study is memorizing vocabulary from list in a study guide; 30 % is shadowing with another study guide CD; 20% is reviewing grammar.	—	25
V	To get a job.	3 times a week for a total of 3 hours. 80% is vocabulary study, memorizing by rote for 10 minutes before going to bed. Group shadowing 5 times a week. 2 times a month study TOEIC study guide.	—	-15