A study at Chulalongkorn University (Thailand), in response to administrator and employer concerns about the quality of English second language instruction, investigated aspects of language program design. Concerns had been expressed about the level of English language skills among science and engineering graduates. The survey consisted of interviews with 5 deans and questionnaires distributed to 82 specialist lecturers and 91 graduate students in faculties of science, pharmaceutical sciences, dentistry, preventive and social medicine, and engineering. The deans responded unanimously that English language programs should focus on productive and communicative skills and be relevant to students' fields of study, with choice of methodology left to the university's language institute. The majority of specialists preferred that English courses be optional, but should develop productive and communicative skills. Individual student respondents differed in personal aims, based on current language proficiency level, language difficulties, and expectations about learning English. From these responses, specific recommendations emerged concerning the refinement of university language policy, restructuring of the English program at all levels (introductory, English for Special Purposes/ESP, and advanced), and the redesign of an existing ESP course. (MSE)
BUILDING UP A UNIFIED ESP PROGRAMME
OUT OF DIVERSE STAKEHOLDERS' PERSPECTIVES

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Recently a group of university administrators and employers complained that the standard of English of science and engineering graduates from Chulalongkorn University was lower than in the past, and that the majority of graduates could not communicate effectively in the real world. A research study was thus commissioned to investigate both the situational and pedagogical contexts of language use at the graduate level. The data was collected from 5 deans, 82 specialists and 91 students from the five faculties dealing with science and engineering subjects.

The result of the study indicated a disparity between the university's stated policy, especially in its aspiration to become more internationalised, and its implementation at ground level, i.e. the secondary status of English in the admission process, the optional category of the English courses, and the low level of support from the faculties and the departments. It also revealed a disagreement between respondents in their perceived needs and wants, e.g. the deans and the specialists placed an emphasis on the development of reading and writing abilities whereas the students expressed the desire to improve oral communication skills above all else. In addition, individual students differed as to their personal aims, which were based on their current language proficiency, their language difficulties, and their expectations with regard to the learning of English.

This paper describes the main findings and discusses the relevance of stakeholders' perspectives to an ESP programme design.

I. INTRODUCTION

Recently a group of university administrators and employers complained that the standard of English of science and engineering graduates form Chulalongkorn University (the first and most prestigious university in Thailand) was lower than in the past, and that the majority of graduates could not communicate effectively in the real world. It is, in fact, debatable whether the level of graduates' language proficiency has declined or the requirements/expectations of the stakeholders have changed. Instead of being satisfied with the graduates' ability to read (to keep up with technological developments in their field), which has been the main aim behind the teaching and learning of English in an EFL situation, the administrators and
employers currently require that the graduates be able to speak and write effectively as well. These interactive and productive skills are considered as critical tools for the advancement of the career in a fast growing country, and hence been used as a major determinant of success and failure with regard to the graduates' language ability.

In order to identify the stakeholders' changing needs and goals, to determine their influences on course design, as well as to explore both the situational and pedagogical contexts of language use at the graduate level, a research study was conducted at the five faculties dealing with science and engineering subjects—that is, science, pharmaceutical sciences, dentistry, preventive and social medicine, and engineering. The deans were interviewed, and then asked to distribute the questionnaires to specialist lecturers and graduate students in their faculties, of which 82 and 91 were returned respectively.

In the next sections the main findings will be reported (For a more detailed description, see Tubtimtong 1994 b.), and the relevance of stakeholders' perspectives to an ESP programme design discussed.

II. THE PERCEPTION OF THE DEANS

2.1 The deans thought that English was 'very useful' for a person working in scientific and technological fields. It was considered 'essential' in some departments, (examples of which are the Department of Chemical Engineering and the Department of Mining Engineering), which were preparing to offer graduate programmes in English to local and international students in the near future.

2.2 Concerning the students' level of language proficiency, the Dean of the Faculty of Dentistry believed that his students' language ability was at a functional level and adequate for both graduate study and for their future careers. This view was also shared by the Dean of Pharmaceutical Sciences, although he added that rating should also take into account the types of employment. Employment in the private sector, with international pharmaceutical companies, for example, required a higher than average degree of linguistic and communicative competence on the part of the work force. Graduates had to improve their linguistic skills and be better prepared for such demanding positions.

The other three interviewees ranked their students' level of language proficiency as 'adequate' and 'poor'. They shared the view that the students' language ability should be improved to such an extent that they could effectively and efficiently cope with the requirements of graduate study and their future career.
Despite the respondents' view of students' language deficiencies, the Dean of Pharmaceutical Sciences and the Dean of Science stated that a few departments in their faculties encouraged students to write their dissertations in English. The former explained that the majority of research work in his faculty was based on previous work, i.e. it was a continuation and extension of schematic knowledge. Hence, the students could adopt the organisation and presentation techniques and, to a certain extent, linguistic structures and vocabulary from previous research. Furthermore, when possible, the supervisors would help with language problems. In addition, the faculty placed a great deal of emphasis on the quality of content, and far less weight on language and presentation.

2.3 When asked to rate the skills most needed for graduate study and for future employment, the interviewees unanimously chose, (in hierarchical order of importance) reading, writing, listening and speaking as the skills most needed for academic purposes. However, they differed in their account of the skills most needed for occupational purposes. The Dean of Pharmaceutical Sciences further explained that ranking should also take into account the types of employment. He chose R W L S for employment in the public sector, but would change to W S R L for employment in the business sector. And as indicated in research studies conducted previously, it is difficult to make a generalisation regarding the skills most needed for occupational purposes, since the graduates may enter a variety of employment positions and the need for English will vary considerably from one to another.

2.4 All interviewees also unanimously stated that they would like their students to improve their writing skills most. The Dean of Engineering stressed the importance of report writing which, in his view, provided critical tools for success in both academic studies and future career. He wanted engineering undergraduate and graduate students to practise and improve this skill up to at least a functional level. The interviewer pointed out that a large number of students' linguistic competence did not reach the level at which they could express their ideas coherently or communicate information successfully. It was difficult (in fact a heavy burden) for the staff to teach students with limited linguistic proficiency to write reports. The Dean insisted that the faculty did not aim for 'accuracy'. They only wanted the students to have a chance to practise and to be familiar with the format (layout and style), the grammatical and lexical components involved, and to develop adequate writing skills/strategies which could later be built upon during their working careers. The same view was also shared by the other four participants, though not so emphatically expressed as by the Dean of Engineering. In addition to writing skills, the Dean of Pharmaceutical Sciences and the Dean of Science also wanted the students to improve their oral communication skills — conversing, interviewing and giving oral presentations etc.
2.5 Although English is accorded a great deal of importance and a relatively high status, it is not used as one of the determining factors in accepting students for post-graduate study. The Dean of the Faculty of Dentistry explained that the graduate students in his faculty were mostly former Chulalongkorn undergraduates. Academically, they were quite good or well-qualified in their own subjects. The decision whether to include English in the screening test was based on each department's policy, some employing it as a contributory factor.

The other deans reported that their faculties stressed the importance of specialist knowledge. If the students, mostly from various other universities, were well-qualified in their academic/professional subjects, they would be accepted. The faculties did not want English to be a barrier to the students' chances of continuing their studies. The Dean of the Faculty of Science added that the number of Chulalongkorn graduates who chose to study for a Master's degree was relatively low. The majority were offered good jobs after graduation or went on to further their studies abroad. The faculty had to admit graduates from other universities and some of them were not competent in English. If the faculty were to set high standards for language proficiency, they would not have enough qualified candidates. However, in certain departments, Food Science for example, where there are a large number of applicants, English can be used as a decisive factor in the admission process.

In summary, all interviewees stated that they would like the English programmes to concentrate more on productive and communicative skills and be relevant to the students' field of study. However they would leave the methodology of how to actually achieve these goals to the Language Institute. The Dean of Science expressed a desire to make the English programmes at the graduate level obligatory. However, all the interviewees refrained from stating that they would change the current policy or the status of English. It was later found out that these two important issues were decided at the departmental level, and at present most departments seem to give priority to recruiting students for their postgraduate programmes rather than to developing the standard of language proficiency.

III. THE PERCEPTION OF THE SPECIALISTS

3.1 Concerning the role of English, approximately half of the specialists (53.66%) thought that a good working knowledge of English was 'very useful', whereas the other half (26.83% and 19.51% respectively) stated that it was 'essential' or 'useful'. The result emphasises the important position that English holds in various professional fields.

3.2 About half of the respondents (51.22%) stated that the medium of instruction was both Thai and English. Presumably, the language of instruction was
Thai, but interspersed with English words. This is due to the fact that a great number of technical terms cannot be translated into Thai (or can be translated, but the learners are familiar with the technical terms in English). Hence, English words are borrowed and spread throughout the Thai context. (The situation is the same with written texts.) The rest of the respondents (=46.34%) reported that the medium of instruction was Thai, whereas a surprising 2.44% stated that English was used.

3.3 Two-thirds of the respondents (=67.07%) indicated that English was necessary for students to pass the courses in their field of specialisation. One-third (=32.93%) disagreed.

3.4 The majority of respondents (=79.75%) believed that an ESP course would be useful for students in their special field of study, whereas the rest (=20.25%) disagreed with the idea. Those who supported the course placed emphasis and amount of time (in hierarchical order of importance) on reading, writing, listening and speaking. They expressed the desire to assign to students a large number of required reading texts and to ask them to write reports on what they had read.

When asked to indicate whether an ESP course should be taught by (a) subject teachers, (b) English teachers, or (c) both (the ESP teachers working together with the subject teachers), 2.44%, 37.80% and 59.76% of the respondents chose (a), (b) and (c) respectively.

3.5 Concerning the status of ESP courses, two-thirds of the respondents (=65.85%) indicated that the courses should be optional, and a nearly equal number (=68.29%) believed that they should be non-credited. The reasons were based on the grounds that a large number of students had previously been trained and were already competent. The choice should depend on the students' own interests and needs, and on the fact that due to the heavy work-load of their academic studies, they might not have time for English. In addition, the broad approach of ESP courses might not be able to cater for the differing needs of students in the various departments.

On the other hand, one-third of the respondents indicated that the courses should be obligatory (=34.15%) and credited (=31.71%). They pointed out the unsatisfactory standard of the students' performance and in particular wanted the weak students to raise their level of competence. A few respondents stated that had the ESP courses been optional and non-credited, the students would not have paid attention to them.

In summary, despite the high status and importance of English both in terms of graduate study and future employment, the majority of specialists would
prefer the English course to be optional. This view was also shared by the deans and
the students, the latter of which accounted for 56.04%. The deans and the specialists
stated that if the students decided to take the course, it must be on its merits and their
needs, and not only because it was a requirement of the faculties. They suggested that
the Language Institute undertake more research (such as this study) to gain
information about immediate and target needs of the clients and formulate policies
which best satisfy those needs. Another of their suggestions which seemed to sum up
the whole situation was that the course should help to develop productive and
communicative skills. The specialist stated that, "The English courses given at high
schools and undergraduate levels emphasise mostly grammar. The students never
actually use English. Regrettably, these courses are not practical and are not relevant
to reality. These English courses only prepare students to pass written exams, but do
not enable them to use English (read, write, listen and speak) effectively. The
programme should encourage more practice of communicative skills and should
contain realistic task."

IV. THE PERCEPTION OF THE STUDENTS

4.1 A large majority of students (=87.91%) stated that it was necessary
for them to know English in order to pass their specialised courses (due to a high
level of required reading texts in English) and nearly the same number (89.01%)
indicated that they needed English for both academic and occupational purposes, i.e.
as an immediate means for acquiring knowledge and as a future means of becoming a
better professional.

A minority of students (=12.09%) however, disagreed with the idea
that a knowledge of English was necessary for success in their specialised subjects.
They could, presumably, depend on lectures and textbooks in Thai.

4.2 Concerning the level of proficiency, most students rated their
performance as 'fair', 'acceptable', and 'poor', whereas only a minority ranked their
ability as 'good'. In terms of percentages, 54.95% considered their reading ability to
be 'fair', 42.86% considered their writing ability to be 'acceptable', and 42.86% and
37.36% reported their listening and speaking abilities respectively as being 'poor'.

4.3 When asked to rate the skills most important for graduate study and
for future employment, the students gave weight to written communication skills--
reading and writing--for the former, and to oral communication skills--listening and
speaking--for the latter.

The students also indicated that the skills they wanted to improve
most were speaking and listening (corresponding to the skills they reported, in the
foregoing item, that they lacked) followed by writing. *Reading* was considered important, but long years of training at the secondary and tertiary levels, together with a schematic knowledge of the subject matter, enabled them to tackle rather successfully the conceptual and communicative intents of the texts.

4.4 Concerning the types of materials/activities required for graduate study and prospective employment, the students reported that they listened to *lectures/seminars* and *audio-video recordings* most frequently. They also listened to *fellow students' discussions* and *news*. For speaking, they took part in *conversational exchanges* most frequently, then came the *presentation of specialised subjects* and *discussions*, as well as *reporting activities* and *events*. The students reported that the number of listening-speaking activities should be increased and speaking performance improved to a functional level.

Concerning reading activities, the students reported that they read *journals* and *texts* to update their knowledge. They also read *project reports* and *theses* to prepare for their own investigation and research work. A few stated that they read *newspapers*. Regarding writing tasks, the students (in total agreement with the specialists) placed emphasis on and attached importance to *reports*.

4.5 When asked to rate the subjects 'most needed' for careers in their chosen field of study, the selected top four (in hierarchical order of importance) were *technical writing*, *talking with people*, *specialised subjects*, and *management practices*. It is interesting to compare the students' view with those of the specialists, who identified *specialised subjects*, *technical writing*, *speed reading* and *talking with people* as being those most needed. The difference in the opinions can be accounted for by the fact that some of the students are working or planning to work in the private sector, thereby placing emphasis on subjects such as management practices. It is remarkable that *technical writing* is accorded importance by all three groups in this survey.

The students were also asked to give suggestions for making the English course more effective and more useful to them in their field of study. The answers varied. For example, some students suggested that English courses should be obligatory. This would motivate the students' interest and increase their effort to achieve a higher level of proficiency. Other students disagreed. They would like to have a chance to decide for themselves whether to attend the English courses. They also believed that if the courses were optional and specially organised for those who were interested, they would give better results. A large number of students suggested that the Language Institute offer a variety of courses to cater for the diverse needs of the students. Some wanted to improve written communication skills whereas others preferred to develop oral communication skills.
In a detailed analysis, the data revealed that individual students differed in their personal aims, which were based on their current level of language proficiency, their language difficulties, and their expectations with regard to the learning of English. For the programme to be successful, these subjective needs will also have to be accounted for and reconciled with the needs of the class and the institution as a whole.

V. BUILDING UP A UNIFIED LANGUAGE PROGRAMME

After obtaining information from the analysis of various stakeholders' perspectives, three main recommendations have been made: the refinement of university language policy, the restructuring of the overall graduate English programme, and the redesigning of an existing ESP course. The three issues will be briefly discussed below.

5.1 The Refinement of University Language Policy

To reconcile the conflicting demands of quantitative and qualitative factors, i.e. the required number of students which fill the graduate programmes vs the high standard of conceptual and linguistic competence which enables the university to achieve its goal of becoming more internationalised, it is proposed that linguistic ability may or may not be the decisive factor in the screening process. But once accepted into the postgraduate programmes, the students should take an English test, that is the 'achievement test' of a particular graduate English course which the department considers appropriate for their students. If their performance is above the required standard (=above 60%) on the assessment scale, the students would get an 'S' (which means 'satisfactory'), and could then choose whether to attend an English course or not. If their performance falls below the accepted standard, they would be required to attend an English course. By lending weight and importance to English, this will stimulate the students' interest, strengthen their attempt to improve language proficiency, and maintain the high standard of academic excellence expected of graduates from Chulalongkorn University.

5.2 The Restructuring of the Graduate English Programme

Instead of the five courses currently being offered by the Language Institute, a wider variety of courses should be provided to cater for the changing and more demanding needs of the various stakeholders. The proposed programme is structured into three levels: elementary, intermediate and advanced. The first level is non-domain specific, and is for the most part cognitively undemanding. It has the function of acculturation and academic support, and a focus on reading and writing skills. Its main aim is to upgrade the English proficiency of the students to an
acceptable (functional) standard. The second level involves ESP courses, which are designed to suit the differing needs of students in various faculties. It is skills-driven and cognitively demanding. The aim is to develop in students an ability to handle the kind of spoken and written English that they will be concerned with as an integral part of their specialised subjects. The third level deals with specific skills for advanced learners. The main objective is to develop greater efficiency in communication skills or professional skills, so the courses will focus on subjects like the techniques and structures of technical writing, as well as on the techniques of effective oral presentation.

**ADVANCED LEVEL (SPECIFIC SKILLS)**

| Report Writing | Listening & Note-taking | Oral Communication & Presentation | Business Writing |

**INTERMEDIATE LEVEL (INTEGRATED SKILLS)**

| Scientific/Technical English | Social English | Business English |

**ELEMENTARY LEVEL (INTEGRATED SKILLS)**

| Basic Communication & Study Skills |

In this framework, the students will be asked to take a proficiency test and will be placed according to their language ability. Based on past record and experience, it can be expected that two-thirds of the students will be assigned to the elementary level, and one-third to the intermediate level. The students who successfully complete each level can move on to a higher level in this hierarchical framework. From the bottom end of the scheme, the elementary level deals with basic communication and study skills; the intermediate level with broad angle English for specific purposes; and the advanced level with specific skills for occupational purposes. At the top end, additional skills such as translation can be included as the need arises.

**5.3 The Redesigning of an Existing ESP Course**

The advantage of a needs analysis, which attempts to obtain information from a range of sources and viewpoints, is that it helps to build up a comprehensive and balanced picture of the situation. The disadvantage is that there
may be disagreement between respondents in their perceived needs and wants, some of which may prove difficult to reconcile or satisfy. In this survey, the deans and the specialists placed the greatest emphasis on the development of reading and writing abilities, the immediate requirements of academic purposes. The students themselves acknowledge the importance of these two skills for their studies, but expressed the desire to improve oral communication skills most (followed by writing skills). The programme designer would thereby have to perform a balancing act and establish priorities for these widely divergent objectives and requirements.

In consequence, the raw data must be interpreted, in the light of a theoretical and methodological framework, in order to produce an integrated series of teaching-learning experiences which aim to guide the learners forward to a particular state of knowledge. Based on the belief that all linguistic behaviour is related to the underlying activity of interpreting, and that even though a particular exercise may focus on a particular skill or ability, its effectiveness will often require the learner to make reference to other aspects of his communicative competence (Widdowson 1978), an integrated approach was adopted in the redesigning of the course. In this framework, reading activities provide inputs for writing tasks, opportunities for exploring discourse structure of the target communication (thereby equipping the learners with the model for both constructing and assessing their own writing), and they also stimulate and extend the interpretative ability (which the learners bring to bear when they read) to the useable skill of writing. In this approach, reading and writing, as well as listening and speaking, can thus be viewed as two sides of a coin, the activities of the one complementing the activities of the other in the interactive and negotiative process of communication.

Given the awareness that the students need to improve their productive abilities, English is thus used as a medium of instruction to provide linguistic and conceptual inputs for developing the students's receptive skills and stimulating a response in the target language. The students are given every opportunity to practise the four skills in a real communicative context, and their performance is assessed in terms of communicative effectiveness rather than grammatical flawlessness or accuracy. This promotion of practice and use in an integrated framework serves, according to Strevens, two particular ends, "they assist the learner to make the leap from receptive to productive learning, and they enable him to gradually improve the accuracy, fluency and quality of his command of English." (Strevens 1988:11)

Concerning the structure of the course, the first half concentrates on developing reading and writing skills. However, listening and speaking are, from the beginning, integrated into each lesson and subsequently form a major component of the course, preparing students for taking part in academic discussions and
presentations. In the last unit of the course, the four language skills are combined in
task-based activities which are built on topics selected from the students' specialised
subjects. This is the culmination of an entire semester's work. The students research
and prepare the text (to suit the audience, their classmates, who come from various
departments) in advance, give the presentation (read from notes), and respond to their
classmates' questions or requests for further information. The audience takes notes of
the presentation, discusses interesting or debatable points which might arise, and,
subsequently, gives an assessment of the presenter's performance.

The communicative and interactive exchange at the end of each
presentation is a challenging task for all participants due to its impromptu nature.
Both the presenter and the audience have to draw on and employ all the language they
have at their disposal, which will extend far beyond what they have been taught in
this course alone. Although the linguistic level of some of the students may not be a
great deal higher than when they first entered the course, they learn to use their
English and have more confidence in expressing themselves in the target language.
(For a more detailed discussion of the design of an ESP course, see Tubtimtong 1994
a. and b.)

CONCLUDING REMARKS

As the objectives and goals of stakeholders vary with the changing
socio-economic conditions, needs analysis will continue to play an essential
role in forming an in-depth knowledge and insightful understanding of
contextual situations, in bridging the gap between what is expected and what is
offered, in providing continuous revision and upgrading of teaching materials,
and ultimately, in ensuring quality and cost effectiveness in all teaching
programmes. In certain circumstances, it also assists in the refinement of
language policy at the university level, as is hoped will be the case with the
findings of this research.
REFERENCES


CONSOLIDATING SKILLS
FOR ENGINEERING AND SCIENCE GRADUATES
(G.E. 092-520)

COURSE DESCRIPTION

This course is designed for engineering and science students who have a fairly good command of English.

The aim is to develop in students an ability to handle the kind of spoken and written English that they will be concerned with as an integral part of their specialist subject.

The approach is based on the belief that learning a language is not merely a matter of learning sentence patterns and vocabulary but must also involve an understanding of how people use these linguistic forms to communicate. The course is thus structured in such a way that students will be aware of the way English is used in written communication, thereby helping them develop techniques of reading and providing them with a guide for their own writing. The skills of listening and speaking are, from the beginning, integrated into each lesson and subsequently form a major component of the course, preparing students for taking part in academic discussion and presentation.

An important feature of the course is that it is not designed to teach the subject-matter, but to develop in students an understanding of how their specialist subject is expressed through English. The students are encouraged to exploit their background knowledge to gain new information. The course thus combines the use of language and subject-matter in a meaningful context.

OBJECTIVES

It is hoped that by the end of the course students will be able to:
1. read, interpret and analyze their scientific and technical material efficiently;
2. write a summary of what is read;
3. express ideas and views through argumentative discourse;
4. understand statements and short lectures in English;
5. give a short presentation on scientific and technical matters in English.
COURSE ORGANIZATION

This course consists of 10 units as follows:

First Half
Unit I: Exploring Text Structures
Unit II: Establishing Textual Cohesion
Unit III: Vocabulary Building
Unit IV: Interpreting and Constructing Precise Statements
Unit V: Summary Writing

Second Half
Unit VI: Processing and Producing Complex Structures
Unit VII: Discovering Communicative Functions
Unit VIII: Developing Basic Types and Patterns of Arguments
Unit IX: Listening and Note-taking
Unit X: Oral Presentation

EVALUATION CRITERIA
Mid-Tern (Units I-V) 30%
Final (Units VI-X) 30%
Classwork 30%
Attendance 10%
Total 100%

50% and above will be considered satisfactory (S)