

ENGLISH FOR ENGINEERING STUDENTS: NEEDS AND ATTITUDES

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1. Introduction

Engineering students of English, as other ESP students, have special needs; they have a general knowledge of the English Language, but require specific training in English, mainly as regards specific vocabulary and functional language for special professional situations they may encounter in their future careers. However, it is sometimes very difficult for teachers of English to recognise their specific needs, as generally speaking, these teachers were not trained in technical English and find it hard to choose material and to decide on which linguistic functions and grammatical points they will have to focus on. As their teacher, we have some premises about their needs and we try to carry out a schedule which may fulfil those potential needs we guess they will have. However, there is a chance that we are wrong, that their expectations do not match our guesses. The aim of this paper is to present these students' needs and attitudes. Finding out the students' attitudes towards the language and their ideas concerning the needs they may have is a crucial starting point for the teacher to prepare the material which the class will find interesting and relevant.

In order to study the students' attitudes towards English and the needs they thought they have, a survey was carried out amongst one hundred students who studied English in their degree in the past two years as well as those who are studying this subject during the present academic year at Alcalá de Henares University (Spain). The survey was analysed to study our main concerns in this paper: student needs and attitudes. In the survey, students were asked about their general feeling about their lessons, their textbook, their lecturer, etc.

A survey was also carried out for the four lecturers who have been teaching English for Engineering students during the past two years and at present. These lecturers also teach either general English language classes or other specific purpose English. They were asked about their students' success rates, what they thought students preferred, the material used in class, etc. The purpose of asking the lecturers was to reveal if their initial premises about the lessons were accurate and if the results were positive.

By linking students perceptions and thoughts and lecturers' premises and ideas we hoped to find the key to this group of students' needs in order to improve lessons and achieve more positive results.

2. Surveys

2.1. Students

The students survey consisted of two sets of questions. The first set were 10 open questions which asked them about their general impression of their English subjects, their teachers, etc. and the second set consisted of 21 specific questions regarding the textbook, hours of class, activities, etc. The questions were all asked in the students' mother tongue, Spanish, in order to avoid confusion or misinterpretation. Following is the actual questionnaire:

CUESTIONARIO SOBRE LAS CLASES Y EL LIBRO DE INGLÉS

Centro de estudios _____

Curso en el que estudiaste Inglés _____

Especialidad _____

1. *¿Qué expectativas tenías antes de empezar tus clases de Inglés en la facultad de Ingeniería?*
2. *¿Se han cumplido /están cumpliendo esas expectativas? ¿Por qué?*

3. *¿Crees que el Inglés es una asignatura fundamental en tu carrera? ¿Por qué?*
4. *El Inglés que aprendes durante la carrera ¿se ajustará a tus necesidades en el futuro? ¿Por qué?*
5. *En tus clases pasadas o actuales de Inglés en Ingeniería, ¿qué es lo que más te gusta/ba? ¿y lo que menos?*
6. *De las clases que imparte tu profesor/a y de su método ¿qué es lo que más y lo que menos te gusta y qué cambiarías?*
7. *¿Consideras que es más importante aprender vocabulario específico o estudiar gramática? Comenta la respuesta.*
8. *¿Crees que se debería incluir gramática en las clases? ¿Por qué?*
9. *¿Qué puntos gramaticales consideras más necesarios?*
10. *Otros comentarios*

Señala en cada grupo la afirmación que se ajuste más a tu opinión

(1)

- Se debería dar más de 3 horas de clase de Inglés*
- Se debería dar 3 horas semanales de clase*
- Se debería menos de 3 horas semanales de clase*
- Me da igual*

(2)

- El desarrollo del curso depende más del libro de clase que del profesor*
- El desarrollo del curso depende más del profesor que del libro que se use en clase*
- El libro y el profesor tienen la misma influencia en el desarrollo del curso*

(3)

- Hay que hacer otras actividades que no vengan en el libro (lecturas, videos, trabajos, canciones)*
- No es necesario hacer más actividades aparte de las que trae el libro*
- Me da igual*

(4)

- El formato gráfico (fotos, dibujos, colores...) del libro es muy importante para mí*
- El formato gráfico es poco importante*
- Me da igual*

(5)

- Todas las lecciones deben tener la misma estructura (los ejercicios en el mismo orden)*
- Cada lección debe tener una estructura diferente*
- Me da igual*

(6)

- Prefiero un libro con muchas lecciones cortas que se acaben en una sesión o dos*
- Prefiero un libro con pocas lecciones largas sobre un mismo tema, para cinco o más sesiones*
- Me da igual*

(7)

- Para poder practicar más cualquier tema es necesario un libro de ejercicios aparte (workbook)*
- Para poder practicar más el libro debe incluir un apéndice de ejercicios al final del libro*
- Cada lección debe incluir todos los ejercicios necesarios de cada tema*
- Me da igual*

(8)

- Es necesaria una sección con ejercicios de auto-evaluación al final de cada lección*
- El libro debería incluir una auto-evaluación cada varias lecciones o al final*
- No es necesaria la auto-evaluación en el libro*

(9)

- Es conveniente una sección con explicaciones de gramática al final del libro*

- Los resúmenes de gramática deberían estar incluidos dentro de la lección correspondiente*
- Con resúmenes en la lección y una explicación más extensa en el apéndice al final del libro*
- Sin explicaciones de gramática*
- (10)
- Es mejor que el libro sólo trate temas relacionados con la profesión de Ingeniería*
- Es mejor incluir también algunos temas generales (ecología, noticias, familia,...)*
- Me da igual*
- (11)
- Se deben hacer todos los ejercicios de cada lección*
- Se deben elegir y hacer sólo los ejercicios más relevantes de una lección*
- No hace falta seguir la distribución del libro, se pueden alternar ejercicios de distintas lecciones*
- Me da igual*
- (12)
- Me gusta que me expliquen para qué sirve cada ejercicio*
- No necesito que me expliquen para qué sirve cada ejercicio*
- Me da igual*
- (13)
- Prefiero que el libro tenga más ejercicios de listening que de reading*
- Prefiero que el libro tenga más ejercicios de reading que de listening*
- Necesitamos tantos ejercicios de reading como de listening*
- Me da igual*
- (14)
- Me gusta que el libro traiga las transcripciones de todos los ejercicios de listening al final*
- Me gusta que el libro traiga las transcripciones de algunos ejercicios de listening*
- No necesito las transcripciones de los ejercicios de listening*
- Me da igual*
- (15)
- El libro debe incluir muchos ejercicios de práctica oral en parejas o pequeños grupos*
- El libro debe proporcionar práctica oral para hacer en conjunto entre toda la clase*
- Me da igual*
- (16)
- Los textos para lectura incluidos en el libro deben ser reales (instrucciones, proyectos...)*
- Los textos para lectura incluidos deben estar adaptados o simplificados*
- Se deberían incluir tanto textos reales como adaptados*
- Me da igual*
- (17)
- Todas las lecciones deberían incluir algún ejercicio de redacción*
- Sólo hacen falta algunos tipos de redacción (cartas, faxes, impresos de reserva...)*
- Los ejercicios de redacción son poco importantes si sabes gramática y vocabulario*
- Me da igual*
- (18)
- Debe haber más ejercicios de vocabulario que de gramática*
- Debe haber más ejercicios de gramática que de vocabulario*
- Debe haber tantos ejercicios de gramática como de vocabulario*
- Me da igual*
- (19)
- Es conveniente una selección del vocabulario más importante al final de cada lección*
- Es mejor que cada alumno haga su propia selección del vocabulario que necesita estudiar*
- Me da igual*

(20)

- Sólo hace falta tratar vocabulario y gramática, tanto en actividades de lenguaje escrito como oral*
- Hay que incluir situaciones generales (hablar por teléfono, pedir información, disculparse) en ejercicios escritos y orales (role plays)*
- Me da igual*

(21)

- Debe incluir sólo vocabulario y expresiones específicos de lenguaje técnico y de estilo formal*
- Es necesario incluir también expresiones coloquiales y de uso cotidiano*
- Me da igual*

Puedes añadir cualquier comentario acerca de los libros de texto o sobre este cuestionario

2.2 Lecturers

The information acquired from the lecturers was taken from personal conversations which included the following questions from the interviewer:

1. Similarities and differences between teaching English for Engineering students and teaching general English.
2. Students' expectations when taking this class.
3. Teachers' expectations when teaching this class.

3. Survey results

3.1. Students

In the first set of questions most of the students answered that they had chosen to study English because they wanted to review their past knowledge of this language and other chose it because they thought it was easier than their other Engineering subjects. Most of them thought that English would be useful, but not necessary, but they thought that the English they learn in their classes will not really be of much use to them in their everyday dealings if in English. They were divided as to the use of grammar in lessons; half of them answered that they liked the classes because they weren't going over the same grammar they had been going over since they started studying English, but the other half said they would have preferred to study more grammar. A common feature was that they all wanted to learn specific vocabulary.

The second set consisted of 21 multiple choice questions:

44% thought that more than 3 hours should be taught, and 46% thought three hours (as they do) are fine.

42% thought that classes depend more on the teacher than the textbook whereas 36% thought the textbook is as important as the teacher and only 22% thought the textbook is more important.

76% believe that activities other than those in a textbook should be done whereas only 10% thought that the book on its own is enough.

The graphic format of the textbook is very important for 44% of the students and not important to 32%.

54% thought that all units should have the same structure, whereas 14% thought that each unit in the book should be different.

60% prefer short units and 12% prefer long units.

44% thought that each unit should include all necessary exercises whereas 34% thought that a workbook is needed and 14% thought that the textbook should include extra exercises at the end.

More than half of the students (52%) thought an auto-evaluation section at the end of each unit would be very helpful, 30% thought this auto-evaluation should be at the end of the book and the rest (18%) thought that an auto-evaluation is not necessary.

46% thought that a section with grammar is convenient at the end of the textbook, 34% thought grammar summaries should be included at the end of each unit, 12% believe a summary of the unit content plus a more extended explanation at the end of the book ought to be added and 8% thought that no grammar explanations are needed.

10% would prefer specific contents to be studied in the lessons whereas 62% would prefer general topics.

32% thought that not all activities in the book should be carried out whereas 22% believe that all of them should be done.

60% would prefer to be given an explanation concerning why they are doing each activity, whereas 16% don't need any explanations and 24% don't care!

52% thought the textbook should have as many reading as listening activities.

44% like having transcripts of the listening comprehension activities at the end of the book, whereas 30% would rather only have some transcripts.

32% thought a good way of learning a language is doing pair work, whereas 28% thought that whole class oral activities are more effective.

36% of students thought that authentic material should be used, whereas only 16% believe they should be adapted and 34% thought that there should be both.

Half of the students thought writing activities should be included in the textbook, 30% thought only some types of writing activities (letters, faxes, application forms, etc.) and only 6% thought that writing activities are not very important if you know enough grammar and vocabulary.

34% thought that more vocabulary as opposed to grammar activities should be carried out, and 17% thought the opposite (more grammar exercises than vocabulary ones), 38% thought that there should be more or less the same amount.

68% would like to have a vocabulary selection at the end of each unit, 22% thought it would be better if students built their own selection of vocabulary.

78% thought that activities which include general situations should be included such as telephoning, complaining, etc.

Only 18% thought that only specific vocabulary and expressions should be taught whereas 70% thought that everyday and colloquial expressions should also be taught.

3.2. Lecturers

Lecturers found quite a few differences between teaching English for Engineering students and teaching general English regarding their lesson preparing and the materials that could be used. Textbooks for Engineering English were too specific for these particular classes, as different Engineering specialities were in the same class and it was difficult to find a textbook which was adequate for all students (i.e. there are Electronics, Computing, etc. books but not many general Engineering ones). The level of the textbooks was generally too high for students, as an upper intermediate level is expected in the textbook whereas the classes had many levels ranging from lower intermediate to advanced with each level having different expectations. When asked whether it would be possible to not have a textbook, all lecturers commented on the high number of students in their classes, therefore thought that a textbook would be a practical way of having all students follow the classes.

Lecturers started teaching this class believing that students would prefer specific English classes and prepared them accordingly; yet, this was difficult to accomplish as students with lower levels of English found it hard to follow and their success rate was not too high. Those lecturers who tried to adapt to these lower level students found that the advanced ones got bored and thought the class was useless. They had thought students would not want traditional grammar oriented classes and so they prepared authentic and communicative activities although they were difficult to carry out as classes consisted of an average of 75 students.

Lecturers expected students taking this class to be highly motivated and interested in learning specific vocabulary and language functions, but in practice, only some students were really interested, most took the class because they thought it would be easier to pass than their

average Engineering ones and almost half of the class simply wanted to revise their forgotten English. Lecturers got asked to revise basic grammar points by many students, yet a majority did not want to repeat the same grammar oriented lessons they had been in throughout high school.

3. Conclusions

A previous study carried out with Tourism students revealed that most thought grammar was the key to achieve good results in the acquisition of a second language and when beginning the present research the same was expected, yet according to the survey, Engineering students thought oral, reading and writing activities lessons were more important than grammar oriented ones, yet they still want to revise basic grammar concepts and find it hard to accept all the exceptions regarding grammar rules. In lessons they ask for these rules which they think will give them the key to speaking English.

They are aware that their speaking skills are very weak but do not participate actively in speaking activities in classes and yet complain that they haven't had enough oral practice. Students seem to know their needs but not how to satisfy them. There are many answers which consistently lack congruency, they would like more activities other than those in the book, class, etc., yet also prefer to only work on the minimum necessary activities.

Students think the weight of their learning process lies on the teacher and that is why they all make positive comments about the book, they do not regard it as too important, whereas they extend their comments about what they like and dislike in their teachers' way of teaching and how much they would prefer them to correct all the exercises and to explain any grammar item. However, after analysing the data and looking at the results it could be thought that they need more independence and less control and only a guided learning process.

Students seem to actually prefer a little bit of everything: short activities so that they don't get bored, fun and easy classes, interesting material, no major work on their part and, specially, a pass at the end of the course. The general feeling from the lecturers was that they are not too aware that most of them will most definitely need English in their future jobs.

As found out in the previously mentioned study carried out on Tourism students, teachers need to be innovative and have to explain to students the purpose of new activities. After so many years of "school English" students do not trust other ways of learning, but they do want to know the purpose of the activities they are told to carry out, so preparing the students for innovations could be a positive technique. It is not a question of asking them what they would like to do, because they say they would rather do what they have been doing up to now, but to ask them what they want to achieve and explain why the planned activities are the ideal for achieving those aims.

Their lessons should only deal with grammar to explain mistakes, as they have already studied every grammar point they need in each previous school year. Grammar should not be taught per se, to fill in gaps or as revision, as this takes up most of the teacher's lesson time and does not introduce new concepts. Although they have spent years learning and practising grammar, they cannot use it in a meaningful context other than in fill-in-the-gaps type of activities and will carry on that way until they begin speaking and constantly use the new vocabulary and functions which they will need in their future careers.