

# **ENGLISH FOR SPECIFIC PURPOSES**

**Edited by Ronald Mackay & Alan Mountford**

# English for Specific Purposes

*A Case Study Approach*

Edited by  
R. MACKAY AND A. J. MOUNTFORD



LONGMAN

LONGMAN GROUP LIMITED  
London

*Associated companies, branches and representatives  
throughout the world*

This edition © Longman Group Ltd. 1978

All rights reserved. No part of this  
publication may be reproduced, stored  
in a retrieval system, or transmitted  
in any form or by any means, electronic,  
mechanical, photocopying, recording, or  
otherwise, without the prior permission  
of the Copyright owner.

First published 1978

ISBN 0 582 55090 4

Printed in Great Britain by  
Butler & Tanner Ltd, Frome and London

## Acknowledgements

We are grateful to the contributors whose work appears in this volume: those who agreed to allow us to reprint material, which constitutes Chapters 4 and 7, and particularly to those who wrote case studies especially for this volume: John Swales, Martin Bates, R. Straker Cook, James Morrison, R. R. Jordan, and C. N. Candlin, J. M. Kirkwood and H. M. Moore.

We would also like to thank the Centre for the Teaching of Foreign Languages (CELE) of the National Autonomous University of Mexico and the Regional Language Centre, (RELC) in Singapore for allowing us to reproduce the questionnaires in Chapter 2.

The conception and subsequent development of a collection such as this is rarely solely the results of the efforts of the authors and editors who produce the final version. Our gratitude is therefore extended to Dr Larry Selinker and Dr Jaroslav Peprnik who, however unwittingly, encouraged and nurtured the process of conception during English for Special Purposes seminars in Poznan, Poland in 1971 and Olomouc, Czechoslovakia in 1971, 1972 and 1973 respectively; to Maryse Bosquet and her two assistants Nathalie and Robert Fricot, for preparing the indexes, and to Professors Esther and James Taylor for providing the opportunity for most of the ideas in this collection to be taught to interested teachers during 1975 and 1976, in the Instituto Britannia, Mexico City.

R.M. and A.M.

We are grateful to Julius Groos Verlag KG for permission to reproduce a chapter from *International Review of Applied Linguistics in Language Teaching* Vol. XII/1.

## Preface

The increasing specialisation of content in English teaching curricula since the early 1960s can be traced to a number of factors. The first is summed up in this analysis from an international meeting of specialists (held in London in December 1960) on second language learning as a factor in national development in Asia, Africa and Latin America:

the language problem in development stems from at least three communication needs which are increasingly being recognised both in the developing countries themselves and in other countries aiding in their development: internal communication, transmission of science and technology, and international communication

The analysis is significant for its concentration on the concept of 'communication need', implying a specification of purposes for the learning of language as communication. Such a need for a specification was in itself novel to ELT course planning and materials design at the time, as the textbooks of the era exemplify. Moreover the suggestion that English teaching could be bound up with the teaching of other subjects in the school or post-school curriculum offered the possibility not only of a particular role for English as a vehicle for transmitting knowledge, as a means rather than an end in itself, but also an attractive source of language data for course planners, and potentially an injection of novel methodologies for teachers.

The second factor is a happy coincidence to the first; the 1960s saw a resurgence of interest in the study of language in social contexts associated in particular with the anthropological and ethnographic work of sociolinguists like Labov, Hymes and Gumperz, concerned not only to specify the components of speech events, but in so doing to demonstrate a workable methodology. A growing concern for the

specification of particular communicative needs by commissioners of ELT programmes, supported by understandable cries for relevance by students, could thus be satisfied by applied linguistic research, able to collect data, analyse them sociolinguistically and design appropriate courses and materials.

It was, however, perhaps to be expected that early attempts to specify the 'English for Science' would go little further than fitting a general, non-subject-specific 'technical' lexis to a similar range of structure as was available in the non-technical general course. The then popular term 'register' fitted in nicely, and gradually empirical research into the structures and vocabulary of scientific and technical specialisms (cf. in particular the 1968 OSTI Report) led to materials which displayed in a most useful way the lexical and structural identity of a variety of sub-branches of science and technology. Although the differences in structure that were isolated were fewer than one might have at the outset imagined, it was clear that English for Science and Technology could not merely replace 'orange' by 'Bunsen burner' in the 'This is a ...' structure of lesson 1.

It is here that a third factor emerges, itself also represented in the opening analysis. Developments in linguistics itself, or more especially in associated disciplines such as sociology, social psychology and philosophy, suggested that a view of language as communication could not easily be adequately contained in the form-oriented sentence-based linguistics of the time. Understanding utterances as a pragmatic achievement compelled a view of language in discourse terms where what was needed was an examination of the concepts and values underlying sentence-meaning, and, moreover, the processes adopted by interlocutors in conveying and understanding messages. Once again this shift found a ready response in designers and writers of specialist materials. Rather than looking at the formal registers of science and technology as merely a collection of specialist lexis and structure, what was needed was accounts of the ways the reasoning and conceptual processes of 'doing science' were reflected in language choice. Aided in part by 19th century work on rhetoric, philosophical studies into speech act theory, and ethno-methodological accounts of discourse structure, it now seemed possible to suggest that there might be much more common ground than had been realised between the practice of scientific and technological subjects in the  $L_1$  and the  $L_2$ . If it could be shown that these concepts, reasoning processes and discourse structures were common to the speakers of different languages, as far as talking

about and doing science and technology was concerned, then in teaching English in such a context one might be involving specialist learners in performing in the target language communicative tasks already familiar to them from their subject work in their mother tongue. In Selinker and Trimble's terms:

'Generally, foreign language learning is considered as subject-matter, with no specific goal for using the language. We . . . cannot take that position at all . . . our students are learning a foreign language primarily in order to manipulate difficult intellectual material in it'

What, then, are the current implications of these interrelating factors for ESP course design?

1 A view of language as communication implies teaching materials which interrelate form, function and strategy, in a methodology which promotes participation by the learner in the process of interpreting meanings.

2 Given that the ESP learner sees English as a means to the pursuit of academic or vocational goals, and not as an end in itself, analysis of the specific communicative implications of these goals is a necessary point of departure.

3 These restricted objectives and the link to subject matter highlight the integrative place of English and the English teacher in the general curriculum of the institution or the processes of the job.

4 The processes of data collection, discourse analysis and didacticisation suggest a unified applied linguistic methodology for ESP course designers, despite the apparent heterogeneity of their communicative purposes.

5 The extension of 'special purpose language' beyond registerial differences of lexis and structure towards universalist ideas of concepts and reasoning processes may suggest that the much emphasised distinctions between ESP and 'general' ELT are inappropriate and counterproductive.

The value of this contribution to the *Applied Linguistics and Language Study Series* lies in the answers and relevant discussion of the above points, provided by the wide-ranging collection of papers and the coherent editorial introductions of the editors. Part One of

the collection, *The Problem Surveyed*, examines the sociological, linguistic, psychological and pedagogic design factors that ESP has to reflect, while offering a clear account of one of the ways learners' communicative needs can be assessed. Part Two, *Approaches to ESP Textbook Design*, not only gives interesting insights into the background to writing ESP materials, but in the article by Allen and Widdowson outlines that view of language as communication in ESP to which I refer earlier. Perhaps of most value to the course designer and materials writer, however, is the final Part Three, where the editors have collected a variety of Case Studies. These not only provide practical illustration of underlying principles, but can act as useful models.

Above all, however, the articles have a 'defining' and 'standard-establishing' effect. They make clear, firstly, that ESP should remain loyal to collected rather than invented data; that 'special purposes' involve not only specialisation in form and discourse but also in skills and tasks; that with a content appropriately bought in from the subject of study or work, its methodology implies an increasing general concern for learner-centredness reflected, desirably, in a closeness of work cycles and study cycles not hitherto attainable in global and general course materials. Secondly, in terms of standards, the question can reasonably be asked whether the above are not in any case desiderata for course design; why limit their applicability to *special purposes*? Ought it not to be axiomatic that in teaching 'general' conversational strategies we begin by analysing conversational structure; that in teaching 'general' writing skills we analyse written discourse, that the 'work' of understanding actual discourse be reflected in classroom interpretive procedures? Is there any case, then, for not applying the criteria we rightly apply to ESP materials, as suggested in this collection, to ELT materials at large? To do so would at very least dramatically reduce the sociolinguistic implausibility of much accepted and current language teaching material, and bring the world of representation closer to the actuality of communication.

Christopher N. Candlin, August 1977  
General Editor



# Contents

## PART ONE THE PROBLEM SURVEYED

	<i>page</i>
<b>1 The Teaching of English for Special Purposes: Theory and Practice</b>	<b>2</b>
R. MACKAY AND A. J. MOUNTFORD	
<b>2 Identifying the Nature of the Learner's Needs</b>	<b>21</b>
R. MACKAY	

## PART TWO APPROACHES TO ESP TEXTBOOK DESIGN

<b>3 Writing 'Writing Scientific English'</b>	<b>43</b>
J. SWALES	
<b>4 Teaching the Communicative Use of English</b>	<b>56</b>
J. P. B. ALLEN AND H. G. WIDDOWSON	
<b>5 Writing 'Nucleus'</b>	<b>78</b>
M. BATES	

## PART THREE CASE STUDIES: SYLLABI AND MATERIALS

<b>6 A 'Social Survival' Syllabus</b>	<b>99</b>
R. STRAKER COOK	
<b>7 A Programme for Post-graduate Soil Scientists at the University of Newcastle</b>	<b>127</b>
R. MACKAY AND A. J. MOUNTFORD	

<b>8 Designing a Course in Advanced Listening Comprehension</b>	<b>161</b>
J. MORRISON	
<b>9 Language Practice Materials for Economists</b>	<b>179</b>
R. R. JORDAN	
<b>10 Study Skills in English: Theoretical Issues and Practical Problems</b>	<b>190</b>
C. N. CANDLIN, J. M. KIRKWOOD AND H. M. MOORE	
<b>Proper Name Index</b>	<b>220</b>
<b>Index</b>	<b>222</b>

## PART ONE

### The Problem Surveyed

The two chapters in this part are introductory in two ways. Firstly, they introduce the reader to the theme of the book – the teaching of English for Special Purposes – by distinguishing those features that make it different from the teaching of General English. Secondly, they introduce the reader to particular theoretical and practical issues that are taken up in other papers in the book, particularly Chapters 3 and 10. The particular requirements of learners that have led to the need for a different response by teachers and materials designers are discussed, together with the notions that lie behind such responses – the renewed interest in language as communication, and the movement away from structural/behaviourist methodological models, for example. In addition, the importance of being clear about the nature of the learners' needs is stressed, through a questionnaire and by structured interview. It will be seen that ESP does not represent any new body of dogma as such, but is essentially a pragmatic response to a developing situation in which the many reasons that learners have for learning English are made amenable to more systematic description so that relevant and more effective materials can be prepared for teachers to use. In this sense, then, *special* should be construed as *more specific*, with a shift of emphasis in ELT syllabus planning towards the learner's *purpose*, allied to a growing awareness of the importance of the relationship between language and other areas of the learners' curriculum and/or activities.

# The Teaching of English for Special Purposes: Theory and Practice

R. MACKAY AND A. J. MOUNTFORD

## 1 English Language Teaching and English for Special Purposes

Over the last ten years or so the term 'languages for special purposes' has appeared frequently in the literature relating to English language teaching. It is generally used to refer to the teaching of English for a clearly utilitarian purpose. This purpose is usually defined with reference to some occupational requirement, e.g. for international telephone operators, civil airline pilots etc., or vocational training programmes, e.g. for hotel and catering staff, technical trades etc., or some academic or professional study e.g. engineering, medicine, law etc. This 'field' of English language teaching possesses two important characteristics which influence profoundly the methodology not only of materials production but of classroom activity: firstly, the close association of special purpose language teaching with adult learners or, at least, learners at the post-secondary level of general education and secondly, the important auxiliary role that the English language is called upon to play in such cases. Language learners require English as a means of furthering their specialist education or as a means of performing a social or working role, that is, a working role as a scientist, technologist, technician, etc. efficiently.

### 1.1 *Aims of Foreign Language Learning*

When English as a Foreign Language is taught to children at the primary and early secondary levels of education, it is generally taught with a general educational aim in mind – that is, it is regarded as a 'good thing' for them to learn a foreign language as a part of a broad education. There is usually, however, no immediate and specific requirement for such children to make use of the language in any communicative situation. The purpose of learning the language is essentially a 'deferred' purpose, deferred till the tertiary level of education, normally at University, where, it is agreed, a knowledge of

English would be helpful in their academic studies. Immediate aims of learning English are defined by the requirements of examinations. Inevitably what is taught to primary and secondary level children is not a communicative knowledge of English language use, but a knowledge of how the syntactic and lexical rules of English operate. The language system is taught, suitably contextualised, by means of systematic audio-lingual drill and exercise techniques based on habit formation theory of learning and a structuralist description of English. This may be an effective manner of teaching English usage – the rules of syntactic arrangement in sentences – but it is less certain that an understanding of how these rules are related to language in use for communicative purposes is an automatic result of this instruction.

What the thousands of children succeed in learning in this way is what is necessary in order to pass examinations. Whether such examinations accurately reflect the uses to which English will be put at the tertiary level is another matter altogether. Adults, on the other hand, unless they are learning a foreign language for 'pleasure' at evening institutes, as a 'cultural' and social experience, are generally highly conscious of the use to which they intend to put it. That use is frequently associated with an occupational, vocational, academic or professional requirement; without a knowledge of the foreign language, their development in their chosen sphere of work could be restricted or at least adversely affected.

When needs are clear, learning aims can be defined in terms of these specific purposes to which the language will be put, whether it be reading scientific papers or communicating with technicians on an oil rig. The result is that almost immediately, teaching can be seen to be effective in that the learner begins to demonstrate communicative ability in the required area. Thus, it is the essential auxiliary role that English is called upon to play, particularly at the tertiary level of education, that is a prime motivating factor. Where such a requirement for a communicative ability is matched with specially designed materials relevant to the needs of particular students the results can be impressive. But where the language courses at the tertiary level merely repeat the content and techniques of those at the secondary level – with emphasis on the teaching of grammatical structure and lexical items in exercises that do little more than manipulate linguistic forms – the results are unlikely to be any more effective than they were before. Moreover students become disillusioned with the value of such instruction and increasingly

sceptical of their capacity to learn the language. This latter situation is, unfortunately, all too prevalent. On the one hand, little adjustment is made to the nature of the learning materials or the teaching method to accommodate the particular cognitive skills and learning ability of adults; on the other hand, little attempt is made to relate the teaching materials to either the communicative requirement or the learners' subject specialisations. Thus, the ELT courses offered are neither cognisant of the learners maturity nor relevant to their social role. More of the same as before is likely to be no more effective than it was before. A difference in approach from the current 'start at the beginning again', or remedial 'solutions' is needed when English ceases to be an examination subject and assumes the role of instrument of communication.

To meet this situation acronymic variants of general ELT have arisen: ESP (English for Special Purposes) and EST (English for Science and Technology). But even such terms are indeed now too general. We now talk in terms of 'English in Workshop Practice' or 'English in Agricultural Science', indicating the field of study being dealt with; or we can talk of 'English for Academic Purposes' (EAP) and 'English for vocational or occupational purposes' (EOP) indicating generally the nature of the purpose involved.

### 1.2 *Special Purposes and Special Languages*

At this point an important distinction needs to be made: English for Special Purposes implies a special *aim*. This aim may determine the precise area of language required, skills needed and the range of functions to which language is to be put. But it need not imply a special *language*. 'It is easy to confuse the idea of a special language (or segment of a language) with that of specialised aim.' (Perren, 1974). Clearly the two notions interlock, but they need to be discussed separately.

The only practical way in which we can understand the notion of 'special language' is as a restricted repertoire of words and expressions selected from the whole language because that restricted repertoire covers every requirement within a well-defined context, task or vocation. Thus, for example, the language of international air-traffic control could be regarded as 'special', in the sense that the repertoire required by the controller is strictly limited and can be accurately determined situationally, as might be the linguistic needs of a dining-room waiter or air-hostess. However, such restricted

repertoires are not languages, just as a tourist phrase book is not a grammar. Knowing a restricted 'language' would not allow the speaker to communicate effectively in novel situations, or in contexts outside the vocational environment. Indeed there are very few contexts for which a restricted repertoire is entirely satisfactory. The 'language' used in banking or veterinary medicine or naval architecture have occasionally been talked about as 'special languages'. However this is misleading. They are in no way analogous to restricted repertoires. Certainly they demonstrate certain vocabulary items which do not occur in other fields, but their syntax is not restricted in any way. An exponent in any of these fields requires as much of resources of the English language as is being used in this book, for example. It is misleading therefore to regard such particular usages or particular uses 'special language'. This would imply a discreteness for these fields separating one off from another, and isolating all of them from some equally discrete entity known as General English. This is manifestly not the case. What we have is the same language employed for similar and different uses employing similar and different usages.

Thus, the notion of 'special language' should best be interpreted as 'restricted repertoire'. Unfortunately, the notion has been more widely interpreted in the sense of English for Special Purposes being concerned with the teaching of a special language as a statistically quantifiable 'register' defined in terms of formal linguistic properties, lexical items, collocations and sentence structures. The result has been that conventional structural approaches to syllabus design have been applied to a more restricted sample of language data. ESP and EST are regarded as different from general ELT *only* in terms of the former being associated with samples of language taken from subject-specific sources. Thus, the approach is the same to data that is conceived as different in statistically identified ways through word counts and structure counts. We would maintain, however, that what is needed for ESP is a difference in approach to data that is conceived not as fundamentally different in terms of linguistic usages – though clearly particular items and patterns can be identified as specific to particular subject specialisations or vocational/occupational roles – but which represents particular modes of language use that characterise science in general or occupational/vocational uses of language in particular.

The emphasis of the word 'special' then, in English for Special Purposes should be firmly placed upon the *purpose* of the learner for

learning the language, not on the language he is learning. What constitutes language variation is the use to which language is put in particular circumstances by particular users. Hence, identifying homogeneous groups of language users and characterising their uses of language in particular circumstances together with a representative selection of linguistic usages habitually employed, would be a productive procedure to adopt. This is preferable to starting out with a study of the language system characteristic of an *ad hoc* selection of physics texts or banking texts, etc., and trusting that through the teaching of such usage in conventional exercises particular groups of learners will infer how to use language communicatively in situations where they have to 'do' physics or banking as physicists or bankers.

## 2 Teaching English to Scientists and Technologists (EST)

We have identified English for Science and Technology (EST) as a major sub-division of the 'field of teaching English for Special Purposes' (ESP). We can now consider the principal factors involved in designing course materials relevant to learners in the fields of science or technology. First, we shall consider the role of English for non-native speaking scientists and technologists, and having done that we will specify the factors involved in the design and planning of courses. The first major step is to identify the needs of the specific group of learners and the educational and curriculum setting into which teaching of English must fit. Such information is essential as a background to the more directly linguistic considerations affecting course content. That is, we cannot decide what we are going to teach until we know to whom and why teaching is required.

### 2.1 *The Role of English*

There can be no disputing the need for English by students of scientific disciplines. English is now established as the principal international language of science. As long ago as 1957 UNESCO reported that nearly two-thirds of engineering literature appears in English but more than two-thirds of the world's professional engineers cannot read English. This has meant that not only are undergraduates all over the world obliged to read an increasing proportion of textbooks in English but also that 'success in graduate work is becoming more and more related to the ability to read the appropriate literature in English and to take part in international



conferences where the greater part of the contacts take place through the medium of English' (Ewer and Latorre, 1967).

A basic distinction needs to be made between English as a main study language, i.e. as a medium for science instruction, and English as an additional study language, i.e. in an auxiliary but necessary support role. Clearly where all science is taught in English, e.g. that situation facing foreign students studying in an English speaking country, a considerably higher standard of language proficiency is needed in order for students to comprehend and manipulate difficult intellectual material. In such situations success or failure in science is in large measure a consequence of success or failure in English. On the other hand, where English has an auxiliary role the motivation to learn the language is nowhere near as strong, particularly where the efforts of up to six years of learning English at the secondary level have resulted in only a minimal ability to use and understand the language. Frequently, also, in this situation it is common to find the aims and methods of the English language department at variance with the requirements of science and technology departments, the former still concerned with drilling conversational English and manipulating structural patterns while the latter require swift and effective reading skills. But in both these situations, there is a need to see the role of English basically in terms of its providing accessibility to knowledge contained in textbooks, periodicals and journals, reports and abstracts. That is to say that the role of English is associated with particular uses of English to extract information, interpret data and theories, report on latest advances, etc. in particular areas of specialist knowledge. Such uses of language in science can be associated with particular scientific concepts and methods of enquiry. Thus, there is obvious common sense in seeing the role of English at the tertiary level in association with particular specialist subject areas. The teaching and learning of English can, and should ideally, be seen as a set of integrated activities in both mediums and auxiliary language situations.

## 2.2 *Design Factors in EST Courses*

The factors involved in designing EST courses can be classified under four headings: sociological, linguistic, psychological and pedagogic.

### 2.2.1 SOCIOLOGICAL FACTORS

The initial step is to acquire information about the kind of learner for