

TITLE:

**The English Language Needs of Computer Science Undergraduate Students at
Putra University, Malaysia: A Focus on Reading Skills**

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ABSTRACT

The study explored needs for reading skills among undergraduate students in the field of computer science at Putra University, Malaysia. It explored the difficulties encountered by the students in reading texts for the computer science programme. The Study was based on the three fundamental components of exploring language needs: TSA (Target Situation Analysis), PSA (Present Situation Analysis) and LSA (Learning Situation Analysis). The subjects of the study were fifty undergraduate students of computer science discipline in the final semester at the university. The instrument used for data collection was a survey questionnaire. The study revealed the reading skills needed by the undergraduates of computer science for academic purposes. The study also revealed that

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a majority of the students of this specialized discipline faced difficulties and problems in reading in English for academic purposes. It is suggested that the findings of the study may be utilized for designing an English language course, namely “English for Computer Science” that suits the target needs of undergraduate students to develop their reading skills in English language for this specialized discipline at the university.

Keywords: ESP; EAP; Needs Analysis; Reading Skills

INTRODUCTION

The teaching of English for Specific Purposes (ESP) was flourished in the 1950s and 1960s. However, ESP gained popularity and became a vital and innovative activity for the teaching of English in the 1970s. This is because much of its infancy, ESP was dominated by the teaching of English for Academic Purposes (EAP); most of the materials produced, the course descriptions written and the research carried out were in the area of English for Academic Purposes (Dudley-Evans and St. John, 1998). As the main branch, English for Academic Purposes (EAP) was developed and offered for many reasons: to help international students reach their full academic potential (Dudley-Evans & St. John, 1998), to expose these students to the expectations and requirements of the faculties in terms of target situation needs and academic culture (Jordan, 1997). EAP programmes are offered in academic institutions of English-speaking countries such as USA, UK, Canada, Australia and New Zealand (Dudley-Evans & St. John, 1998). In addition, EAP programmes are also offered in academic institutions of many developing countries.

In the context of Malaysia, the universities in Malaysia offer EAP programmes to the students. According to Abdullah et al. (1993), the progress of ESP/EAP courses in higher learning institutions follows a pattern which starts from 'Common-Core' ESP courses and moves towards greater specificity. One example is the University of Malaya, a university in Malaysia, which began with Reading for Academic Study series to subject-area specification. Another higher learning institution such as Science University of Malaysia offers 28 ESP/EAP courses (Abdullah et al., 1993). There is a question of The English Language Needs of Computer Science Undergraduate Students at Putra University, Malaysia: A Focus on Reading Skills
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suitability and relevance of the courses for the students of these two Malaysian universities when students of different faculties take the same ESP/EAP courses. There is another question whether these EAP courses of these two universities adequately prepare the students to function in accordance with their specializations. It is also obvious that there are EAP courses, which are relevant to all students of different faculties. However, different faculties have their own specific English language requirements thus the English language needs of students vary. The need for developing specific EAP syllabuses and courses, therefore, cannot be overstressed.

Malaysia's universities should furnish to the English language needs of the different faculties in relation to Malaysia's progress and development in the fields of science and technology. Professionals of computer science or IT (Information Technology) specialists should be competent in English. The process of producing competent professionals of computer science or IT specialists, technical workers and other related technical vocations begin at the college and university levels. The students should be equipped with subject-specialist knowledge and specific English language of their chosen fields during their study periods at higher learning institutions.

English language needs analysis can determine the language needs of students in a specific field. According to many writers in the ESP context, needs analysis is prerequisite for designing and developing a course, and the development of syllabuses and materials (Brown, 1995, Dudley-Evans & St John, 1998; Hutchinson & Waters, 1987). The English Language Needs of Computer Science Undergraduate Students at Putra University, Malaysia: A Focus on Reading Skills
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1987, Munby, 1978; Robinson, 1991; West, 1994). This study attempts to examine the English language needs of the undergraduate students in reading skills in the field of computer science at Putra University of Malaysia, a public university of Malaysia. The study specifically looks into the difficulties encountered by the students in reading in English language for academic purposes.

LANGUAGE NEEDS ANALYSIS

The term, “analysis of needs” first appeared in the 1920’s in West Bengal, a province of India when Michael West introduced the concept of “needs” to cover what learners will be required to do with the foreign language in the target situation and how learners might best master the language during the period learning (West, 1994). In 1960 the term, ‘English for Specific Purposes’ appeared at the Makerere Conference in 1961 (West, 1994).

The key stage in ESP is needs analysis. Needs analysis is the corner stone of ESP and leads to a focused course (Brown, 1995; Chambers, 1980; Dudley-Evans & St. John, 1998; Ellis & Johnson, 1994; Jordan, 1997). According to Robinson (1991, p.7), “needs analysis is generally regarded as critical to ESP, although ESP is by no means the only educational enterprise which makes use of it”. Hutchinson and Waters (1997, p.53) argue that “any language course should be based on needs analysis”. Dudley-Evans & St John (1998, p.121) state that “needs analysis is the process of establishing the *what* and *how* of a course”. They further argue that, “needs analysis is neither unique to language teaching-needs assessment, for example, is the basis of training programmes and aid-development

programmes-nor, within language training, is it unique to LSP (Language for Special Purposes) and thus to ESP”. Dudley-Evans & St John (1998) stress the following three aspects of needs analysis:

First, needs analysis aims to know learners as people, as language users and as language learners. Second, needs analysis study also aims to know how language learning and skills learning can be maximized for a given learner group. Third, needs analysis study aims to know the target situations and learning environment so that data can appropriately be interpreted. (p. 126).

West (1994) states that language needs analysis is essentially a pragmatic activity focused on specific situations, although grounded in general theories, such as the nature of language and curriculum. Therefore, in the ESP/EAP context, needs analysis is crucial in determining the aspects of language that are crucial for a particular area of teaching (West, 1994). Robinson (1991) suggests, needs analysis is not only just for determining the “*what and how of a language of teaching*”. Robinson (1991) also suggests that needs analysis study should be repeated so that it can be built into the formative process. She also suggests that this would lead to a very informative database of learners, sponsors, subject-specialists and above all, ESP practitioners’ view and opinions of English language (Robinson, 1991).

Needs analysis should be undertaken by ESP practitioners. The main sources for needs analysis are the learners, people working or studying in the field, ex-students and documents relevant to the field, clients, employers, colleagues and ESP research in the field (Dudley-Evans and St John, 1998). The main instruments for executing needs analysis study are questionnaire, analysis of authentic spoken and written texts, The English Language Needs of Computer Science Undergraduate Students at Putra University, Malaysia: A Focus on Reading Skills
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discussions, structured interviews, observations and assessments (Dudley-Evans & St John, 1998; Hutchinson & Waters, 1987; Robinson, 1991).

COMPONENTS OF LANGUAGE NEEDS ANALYSIS

In the section, I would now like to briefly describe Target Situation Analysis (TSA) and Present Situation Analysis (PSA) and Learning Situation Analysis (LSA). This is because the study is based on these three components of needs analysis.

Target Situation Analysis (TSA)

Target Situation Analysis (TSA) is a form of needs analysis, which focuses on identifying the learners' language requirements in the occupational or academic situation they are being prepared for (Ewer and Hughes-Davies, 1971, p.6, cited in West, 1994). The earliest TSA procedures were designed to determine 'how much English' was used (Ewer and Hughes-Davies, 1971, p.6, cited in West, 1994). Robinson (1991, p.8) argues, "a needs analysis, which focuses on students' needs at the end of a language course, can be called a TSA (Target Situation Analysis)". Munby (1978) formulates the best-known framework of TSA type of needs analysis. He presents a communicative needs processor, comprising a set of parameters within which information on the students' target situation can be plotted. Dudley-Evans and St. John (1998, p.124) refer to TSA as tasks and activities where learners are/will be using English for target situation". According to them, TSA generally uses questionnaire as the instrument. Dudley-Evans and St. John (1998, p.124) explain that "TSA includes objective, perceived and product-oriented needs".

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Present Situation Analysis (PSA)

According to Robinson (1991, p.8), “PSA (Present Situation Analysis) seeks to establish what the students are like at the start of their language course, investigating their strengths and weaknesses”. Dudley-Evans & St. John (1998) state that PSA refers to strengths and weaknesses in language, skills and learning experiences. Richterich and Chancerel (1980) formulate the most extensive range of devices for establishing the PSA. They suggest that there are three basic sources of information: the students themselves, the language-teaching establishment, and the ‘user-institution’, for example the students’ place of work. For each of these, an ESP practitioner seeks information regarding students’ respective levels of ability, resources and views on language teaching and learning. They also suggest that ESP practitioners might also study the surrounding society and culture: the attitude held towards English language and towards the learning and use of a foreign/second language (Richterich and Chancerel, 1980).

Learning Situation Analysis (LSA)

“Learning Situation Analysis (LSA) includes subjective, felt and process-oriented needs” (Dudley-Evans & St. John 1998, p.124). LSA also refers to what do learners want to learn. Dudley-Evans and St. John (1998) state that LSA refers to effective ways of learning the skills and language. According to them, LSA also refers to why do learners want to learn. They explain that subjective and felt needs are derived from insiders and correspond to cognitive and affective factors. Therefore, ‘to feel confident’ is a

subjective/felt need (Dudley-Evans & St. John, 1998). They also explain that process-oriented needs originate from the learning situation.

READING SKILLS

Reading skills are important among the four language skills. Students must have ideas about reading skills and sub-skills. Jordan (1997) suggests these reading skills and sub-skills for academic reading aspect:

1. prediction
2. skimming (reading quickly for the main idea or gist)
3. scanning (reading quickly for a specific piece of information)
4. distinguishing between factual and non-factual information
5. distinguishing between important and less important items
6. distinguishing between relevant and irrelevant information
7. drawing inferences and conclusions
8. deducing unknown words
9. understanding graphic presentation
10. understanding text organization and linguistic/semantic aspects (e.g. relationship between and within sentences –cohesion and recognizing discourse/semantic markers and their function)

Blanchard and Root (2005) suggest some important reading skills. They are as follows:

1. Identifying subject matter/topic
2. Identifying main ideas
3. Identifying supporting details

4. Distinguishing facts from opinions
5. Recognising sequence in sentences

RESEARCH METHODOLOGY

Research Design

The study, a descriptive study, was a small-scale research. The study was based on convenient sampling under the non-probability sampling strategy. The study used a questionnaire, which was designed by the researcher as a needs assessment instrument.

Subjects

The subjects, chosen for the purpose of conducting needs analysis study, were 50 students, studying at an undergraduate level in the department of computer science at the Faculty of Computer Science and Information Technology, Putra University, Malaysia in the year of 2004 (semester-1 in 2004-2005 academic session). The *N* (total) population was 250 final semester students in the specialized discipline. 50 students of the final semester were chosen for this research. The rationale was that these students of computer science had been exposed to the academic programme for two years of their academic programmes while the duration of their programmes was three years and they might identify the English language needs of their computer science discipline for academic

purposes. Therefore, they were able to provide feedback on which aspects of language they needed for their academic purposes.

Data Collection Method: Questionnaire

The method, which was employed in the research to collect data, was a survey questionnaire. The questionnaire was designed to reveal the target information based on the objectives of the study. The questionnaire consisted of five sections, each designed for a specific purpose. In section one, the questions sought to elicit information on respondents' gender, education level and English language grades/results in Malaysian SPM and STPM examinations (A and O levels equivalent). In section two (Academic Reading Needs), the questions sought to investigate learners' perceived academic reading needs, learners' present level of reading skills and the necessity of EL reading for the field of computer science. In section three, the questions sought information concerning learners' difficulties in reading skills in English language for the field of computer science. The questions in all sections were formulated on the basis of TSA (Target Situation Analysis), PSA (Present Situation Analysis) and LSA (Learning Situation Analysis).

I carried out a pilot study to determine the reliability of the instrument (the questionnaire) used. According to the result of the reliability analysis, the alpha value was more than 0.7. So, it was evident that the instrument was reliable. How did u pilot test the instrument? Explain. According to the respondents, they did not find any difficulty in responding to the questionnaire. To the respondents, the questions were clear

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and to the point. The questionnaire was later reviewed by an ESP expert at the university to further validate it. The reason was that the study was the part of my master's programme.

Data Collection Procedures

The data of the study were collected through the distribution of questionnaires. The students' questionnaires were administered to the undergraduate students in the field of computer science at the Faculty of Computer Science and Information Technology, Putra University, Malaysia. The questionnaires were distributed to the undergraduate students wherever they were found in their faculty premise of the university during the semester 1 (2004/2005 academic session). It took three weeks to carry out data collection.

Data Analysis Procedures

The students' responses in the questionnaires were analysed using descriptive statistics from the Statistical Package for Social Sciences (SPSS). Frequency and percentage counts were considered for data analysis.

FINDINGS AND DISCUSSIONS

This section reports the findings and discussions of the study in these following aspects:

1. the undergraduates' present level of reading skills for academic purposes,
2. the importance of reading skills in English for Academic Purposes for accomplishing reading tasks,
3. the importance of learning 'specific technical vocabulary' and
4. the difficulties encountered by the students in reading skills in English for academic purposes.

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The Undergraduates' Present Level of Reading Skills in English for Academic Purposes based on PSA (Present Situation Analysis)

The findings report that 18 students (36%) rated their reading skills in English for academic purposes as good while three (6%) students rated their skills as excellent as shown in Table 1. About half of the students (24 or 48%), on the other hand, rated their reading skills as average while five students rated their reading skills as weak. The results reveal that half of the students did not think that they were competent in reading in English.

Table 1: Levels of Reading Skills in English for Academic Purposes

Rate	Frequency	Percent (%)
Very weak	0	0
Weak	5	10
Average	24	48
Good	18	36
Excellent	3	6
Total	50	100

The Importance of Reading Skills in English for Academic Purposes for Accomplishing Reading Tasks based on TSA (Target Situation Analysis)

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Majority of the students (47 students or 94%) responded that reading skill in English for academic purposes was necessary for texts/reference books while only three students (6%) were undecided (see Table 2). majority of the students (43 students or 86%) responded that reading skills were necessary for technical journal articles while only three students (6%) responded as unnecessary. It is understood here therefore that students of computer science need to be proficient in reading to understand articles from technical journals written in English. A majority of the students (39 students or 78%) responded that reading skills were necessary for research reports while only two students responded as unnecessary. On the other hand, 9 students (18%) were undecided to respond to the necessity of reading skills for research reports.

As shown in Table 2, a vast majority of the students (94%) regarded reading skills as necessary for understanding magazine articles written in English while only four students did not regard such skills as necessary. On the other hand, seven students (14%) were undecided to respond whether reading skills were necessary for understanding magazine articles or not. The majority of the students (40 students or 80%) thought that they needed reading skills for the importance of newspaper articles written in English. Only six students (12%) did not think the same while 4 students were undecided to give their opinions. Most of the students (31 students or 62%) thought that reading skills for academic purposes were important for reading memos and short notes. Only eight students responded that reading skills were not necessary for reading memos and short notes while eleven students (22%) were undecided to respond. A majority of the students

(38 students or 76%) responded that reading skills for academic purposes were necessary for reading government bulletins written in English. Only eight students (16%) thought that reading skills for academic purposes were unnecessary for reading government bulletins written in English while four (8%) students were undecided to respond.

Table 2: Importance of Reading Skills for Accomplishing Reading Tasks

In Students' academic field, reading skills in English is considered as necessary for these reading tasks	Rate	Frequency	Percent (%)
	Very unnecessary	0	0
	Unnecessary	0	0
	Undecided	3	6
Texts/reference books	Necessary	35	70
	Very necessary	12	24
	Total	50	100
		0	0
	Very unnecessary		
Technical journal	unnecessary	3	6

articles	undecided	4	8
	necessary	37	74
	very necessary	6	12
	Total	50	100
		0	0
	Very unnecessary		
Research reports	unnecessary	2	4
	undecided	9	18
	necessary	32	64
	very necessary	7	14
	Total	50	100
	0	0	
	Very unnecessary		
Magazine articles	Unnecessary	4	8
	Undecided	7	14
	Necessary	31	62
	Very necessary	8	16
	Total	50	100
	0	0	
	Very unnecessary		
Newspaper articles	Unnecessary	6	12
	Undecided	4	8

	Necessary	28	56
	Very necessary	12	24
	Total	50	100
		0	0
	Very unnecessary		
	Unnecessary	8	16
Memos and short notes	Undecided	11	22
	Necessary	26	52
	Very necessary	5	10
	Total	50	100
		0	0
	Very unnecessary		
Government bulletins	Unnecessary	8	16
	Undecided	4	8
	Necessary	34	68
	Very necessary	4	8
	Total	50	100

The Importance of Learning ‘Specific Technical Vocabulary’ for Academic Purposes based on LSA (Learning Situation Analysis)

In Table 3, a majority of the students (47 students or 94%) responded that they needed to learn ‘specific technical vocabulary’ to improve reading skills in the field of computer science. Only two students (4%) responded that they did not need to learn ‘specific technical vocabulary’, while only one student (2%) was undecided to respond.

Table 3: Importance of Learning ‘Specific Technical Vocabulary’

Rate	Frequency	Percent (%)
Strongly disagree	0	0
Disagree	2	4
Undecided	1	2
Agree	29	58
Strongly Agree	18	36
Total	50	100

Discussions of Findings

From the findings, it is apparent that reading skills for academic purposes were important for most of the students to master the readings of text books/reference books, technical journal articles, research reports, magazine articles, newspaper articles, memos and short notes, and government bulletins written in English. It is unequivocal that reading skills for academic purposes are much needed skills for these reading tasks. A study by Gillett

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(1989) also partially supports this finding. His study revealed that scanning and skimming were two important reading skills for academic purposes for the undergraduates at Coventry Polytechnic in UK. Finally, the findings report that a majority of the students decided to learn ‘specific technical vocabulary’ to improve their academic reading skills in the field of computer science. It is suggested that specific technical vocabulary is important to improve reading skills in English language in the field of computer science

Students’ Difficulties in Reading Skills in English for Academic Purposes based on PSA (Present Situation Analysis)

Table 4 illustrates that nearly half of the students (22 students) out of 50 students agreed that they found difficulties in understanding the central ideas of the subject matter written in English while a majority of the students (26 students or 52%) disagreed and two students were undecided to respond. majority of the students (26 students or 52%) found difficulties in skimming for the gist of the subject matter written in English while 19 students (38%) did not find any difficulties in the same. On the other hand, only five (10%) students were undecided to respond whether they found difficulties in skimming for the gist of the subject matter written in English

As shown in Table 4, majority of the respondents (27 students or 54%) found difficulties in scanning to extract specific information of subject matter written in English while 15 students (30%) did not find difficulties and eight students (16%) were undecided to respond whether they found difficulties in scanning to extract specific

information of subject matters or not. Most of the students (29 students or 58%) agreed that they found difficulties in decoding meaning of the subject matter written in English within reasonable time while 18 students (36%) disagreed and three students were undecided to give their opinions. The majority of the students (29 students or 58%) found difficulties in interpreting texts written in English in terms of specific register.

Table 4: Students' Difficulties in Reading Skills

Situation	Rate	Frequency	Percent (%)
In my field of specialization, it is difficult for me to understand the central ideas of subject matters written in English.	Strongly disagree	2	4
	Disagree	24	48
	Undecided	2	4
	Agree	15	30
	Strongly agree	7	14
	Total	50	100
In my field of specialization, it is difficult for me to skim for the gist of the subject matters written in English.	Strongly disagree	2	4
	Disagree	17	34
	Undecided	5	10
	Agree	25	50
	Strongly agree	1	2
	Total	50	100

In my field of specialization,	Strongly disagree	2	4
it is difficult for me to scan	Disagree	13	26
to extract specific information	Undecided	8	16
of subject matters written in	Agree	26	52
English.	Strongly agree	1	2
	Total	50	100

In my field of specialization,	Strongly disagree	2	4
it is difficult for me to decode	Disagree	16	32
meaning of the subject	Undecided	3	6
matters written in English	Agree	28	56
within reasonable time.	Strongly agree	1	2
	Total	50	100

In my field of specialization,	Strongly disagree	2	4
it is difficult for me to	Disagree	19	38
interpret texts written in	Undecided	0	0
English in term of specific	Agree	27	54
register.	Strongly agree	2	4

Total

50

100

Discussions of Findings

The findings reveal that the majority of the students faced difficulties in skimming for the gist of the subject matter written in English. Many of the respondents found difficulties in scanning to extract specific information of subject matters written in English. Most of the students agreed that they found difficulties in decoding meaning of the subject matters written in English. This finding is partly similar to the findings of Margaret. (2000). In her study, she revealed that international students at an Australian university had poor critical thinking skills. Finally, many students found difficulties in interpreting texts written in English in terms of specific register. This finding is similar to Grundy's findings. Grundy (1993) found that most overseas postgraduate students of science disciplines in a university in UK encountered difficulty in understanding scientific texts due to lack of scientific vocabulary.

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CONCLUSION AND IMPLICATIONS OF THE STUDY

In conclusion, the study revealed the specific reading needs of English language for the undergraduate students of computer science discipline at Putra University of Malaysia based on the three components of exploring reading needs: TSA (Target Situation Analysis), PSA (Present Situation Analysis) and LSA (Learning Situation Analysis). The English Language Needs of Computer Science Undergraduate Students at Putra University, Malaysia: A Focus on Reading Skills
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study also revealed that a majority of the undergraduate students of computer science discipline found difficulties in reading skills in English language for academic purposes.

The findings of the study may help the ESP practitioners/researchers design an English language course for the undergraduates in the context of reading skills for academic purposes, namely, “English for Computer Science” which can be confined and specific to the field of computer science of the university. The findings of the study may enable the ESP practitioners to make informed decision on the students’ English needs of computer science discipline in the development of syllabuses and materials. The research may also be beneficial to the students that they can know their strengths and weaknesses in English language skills, particularly in reading skills. The findings of the study may help identify students’ weaknesses in reading in English for academic purposes. The English language instructors, who teach general English courses designed for the undergraduate students of all disciplines of the university or other universities in Malaysia, may benefit from the research as they may be better informed of the reading tasks and skills in specific English language to teach and focus on the undergraduate students in the field of computer science of the university or other universities in the country.

REFERENCES

Abdullah, K. I. et al. (1993). ESP in Malaysia: An Overview. *ESP Malaysia*, 1, 61-72.

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Blanchard, K., & Root, C. (2005). *Ready to read now: A skills-based reader*. New York: Pearson Education, Inc.

Brown, J. D. (1995). *The elements of language curriculum: A systematic approach to program development*. Boston: Heinle and Heinle.

Dudley-Evans, T., & St John, M.J. (1998). *Developments in English for specific purposes*. Cambridge: Cambridge University Press.

Ellis, M., & Johnson, C. (1994). *Teaching business English*. Oxford: Oxford University Press.

Grundy, P. (1993). Students' and supervisors' perception of the role of English in academic success. In B.M Blue (Ed.). *Language, learning and success: studying through English*. Hemel Hempstead: Phoenix.

Hutchinson, T., & Waters, A. (1987). *English for specific purposes: A learning-centred approach*. Cambridge: Cambridge University Press.

Hamp-Lyons. (2001). English for academic purposes'. In R. Carter and D. Nunan, (Eds.). *The Cambridge guide to teaching English to speakers of other languages*. Cambridge University Press: Cambridge.

Jordan, R. R. (1997). *English for academic purposes: A guide and resources book for teachers*. London: Cambridge University Press.

Margaret, R. (2000). International students, learning environments and perceptions: A case study using the Delphi Technique. *Journal of Higher Education Research & Development, 19*, pp. 89-102.

Robinson, P. (1991). *ESP today: A practitioner's guide*. New York: Prentice Hall.

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Richterich, R., & Chancerel, J. (1980). *Identifying the needs of adults learning a foreign language*. Oxford: Pergamon Press.

Stevens, P. (1977). *New orientations in the teaching of English*. London: Oxford University Press.

West, R. (1994). Needs analysis in language teaching. *Language Teaching*, 27, p. 19.