

# THE ROLES OF ESP TEACHERS' KNOWLEDGE OF THEIR STUDENTS' ACADEMIC SUBJECTS

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## **Abstract:**

*This paper describes the roles of ESP teachers' knowledge of their students' particular academic subjects. This topic is a reflection of a small part of two surveys done along 2002-2003 and 2007 at universities: University of Indonesia, Padjadjaran University, and Andalas University, State University of Padang, Bung Hatta University, and Eka Sakti University. Both surveys involved total parties of respondents: 590 students, 23 ESP teachers, 18 heads of department, 18 senior lecturers of the departments being surveyed, and 10 TEFL specialists. The findings of the research reflected that the ESP teachers should have basic knowledge of their students' academic subject.*

**Key Words/Phrases:** *English for specific purpose, teachers' knowledge, academic subject*

## **A. INTRODUCTION**

This article aims at exploring the issue of the roles of subject content knowledge of ESP (English for Specific Purposes) teachers. How much, if any, subject content knowledge is required for the ESP teachers to successfully train their students for academic study at university level. What is the rationale for asking this question? In my own experience, in traditional belief, it has generally been thought that the EAP teacher does not require specialized academic knowledge of the students' major subject of study. This is because the EAP teaching focused on developing language skills and not on the academic subject itself. The students, it is often argued, can deal with complexities of terminology and ambiguities of subject content that may be beyond the teacher's knowledge of the specialist subject. EAP teachers were typically told to make use of belief about subject content, so as to provide opportunities for the students to develop their fluency, produce extended spoken discourse, and effectively share their knowledge of the subject, even if this knowledge goes beyond the teacher's

command of the subject. This strategy however, involves a high degree of risk for the teachers, particularly in terms of their credibility among the students.

The appearance of subject content and skill based EAP courses in the 1980s (c.f. Brinton, Snow & Wesche 1989) raises the issue of which types of skills and knowledge are necessary for EAP teachers to deliver effective and professional courses for students intending to college degree programs. Krashen (1982:172, 1985:70) identified what he calls a 'transition problem', which refers to a perceived gap in the English Language and study skills abilities of students who have passed through traditional language classes, and those required for study purposes within universities. He argues that subject content-based courses can impart both subject knowledge and language competence at the same time, and points to evidence from the Canadian immersion programs at the University of Ottawa (Edwards et al, 1984; Wesche 1984).

More recently, the work of Kasper (1997) has greatly strengthened the evidence for the effectiveness of content-

based courses. She has reported both improved language and content performance among students exposed to content-based EAP programs, higher scores on measures of reading proficiency, and higher pass rates on ESL courses. She also provides quantitative evidence that such students establish and retain a performance advantage over students exposed to non-content based EAP training. Her work also supports the views of Benesch (1988), Guyer & Peterson (1988), and Snow & Brinton (1988) that content-based programs facilitate ESL students' transition to academic mainstream college courses, increasing the likelihood that such students will gain a college degree.

The trend towards content-based EAP training presents a clear challenge to EAP instructors. How much longer will EAP training be done by instructors who may lack specific background knowledge of their students' specialist academic disciplines? How much longer will the traditional emphasis on training in language and study skills be regarded as adequate in the face of the growing body of persuasive evidence for the effectiveness of subject content-based programs? It may therefore be necessary for EAP teachers to possess a certain level of background knowledge in their students' academic subjects in order to meet this challenge.

## **B. THE SURVEY**

The first survey was done in 2003-2004 at University of Indonesia, Gadjah Mada university, Padjadjaran University, Andalas University. The main aim of the survey was to know the reality of ESP theories in designing ESP courses at those universities. There were 320 respondents involved in this survey. The second survey was done in 2007 at State university of Padang, Bung Hatta university, and Eka Sakti university. The data of this survey were collected from 270 respondents. The second research was the continuation of the first research. Both used different instruments to collect the data. However, for the sake of this article, the focus was not

to the main focus, but to some evidences to answer the question introduced in the introduction above. There were only some data gathered to support the important roles of ESP teachers' knowledge on the students' academic subject. The data to be presented below were taken from observations to ESP classes which were taught by teachers graduated from English departments who never been trained to be ESP teachers.

## **C. THE FINDINGS AND DISCUSSION**

In conducting the two surveys, the main question to answer was how the ESP programs at those universities were designed. However, some other related questions come out of the researcher's mind. One of the questions is about the roles of ESP teachers' knowledge in developing students skills. Let us now return to the central questions established in the introduction to this paper. During the observations, one of the most interesting experiences was that the students were involved in EAP and study skills working at a range of levels of difficulty on relevant academic themes selected by their teacher. The programs therefore combined both skill-based and subject content-based paradigms. The data on this issue were only found out in Padjadjaran University Bandung and Gadjah Mada University Yogyakarta.

### **1. Knowledge of Terminological Input**

The assumption that language input and subject content are separable is, of course, erroneous. While it is true that much of the input is general facilitative language (e.g. basic process verbs such as 'take', 'carry', 'pass', 'transport', 'flow'), even in this genre there are terms which are specifically biological in nature (e.g. 'diffuse', 'digest', 'dilate', 're-combine', 'mutate'). Prepositions may be used to describe biological structures (e.g. 'above', 'below', 'between', 'beside', 'along', etc.), but equally there are similar terms that are specifically biological (e.g. 'anterior to', 'posterior to', 'inferior to', 'superior to',

'medial to', etc.). The latter group has specific meanings when used to describe the structure of plants and animals.

If we accept that general facilitative language (e.g. sequencers, quantifiers, logical connectives etc.) cannot be separated from the more specifically biological terminology (e.g. adjectives for modes of nutrition; 'holozoic', 'holophytic', 'saprophytic'), then it seems that we would also have to accept that some degree of knowledge of the specific terminology is required, if the EAP teacher is going to be able to teach anything valuable to the students. The traditional approach to language content and subject content has been to treat them as separate domains, and to advise EAP teachers not to attempt to answer or handle questions arising from clarification of facts related to the students' academic discipline. The above examples all arose during sessions of EAP class.

Following from the above argument is the question of whether an EAP teacher with a non-relevant academic background can adequately prepare to deal with language points such as those cited above. Moreover, would a teacher with, for example, a degree in music have the confidence to handle such terms and therefore win and hold the respect of the students? If the teacher is working with undergraduates, it should be possible to anticipate such terminology and prepare adequately using standard biological textbooks. However, even at this level it represents a substantial investment in additional preparation time, and would require an individual with exceptional self-confidence and a willingness to risk loss of face and embarrassment in front of the class. Use of a standard pre-university biology textbook, such as 'Biology: A Functional Approach' (Roberts & King: Nelson, 1987) can significantly reduce the teacher's burden. This text has excellent summaries of the major fields of biological knowledge at the beginning of each chapter, so that even teachers without relevant background knowledge could obtain an adequate grasp of such fields as Genetics,

Evolution, Nutrition, Histology and Reproduction.

## 2. Analyzing texts

The provision of training in key skills such as selective listening and note-taking requires specific background knowledge of the subject matter, if it is to be successful. Although most of the published comprehension courses referred to previously do have answer keys to the exercises, it is difficult to see how a teacher lacking a relevant background knowledge of the subject could deal with questions arising from a biochemistry text, such as the 'Krebs Cycle', or explain to students how to take notes on the complexities of the endocrine system in mammals, without a grounding in the subject content required. In order to succeed in training scientists to take effective notes, it is necessary for the teacher to advise the student on key words and concepts and in particular to guide the student in identifying key nouns, verbs and adjectives, the content words that carry the central message in scientific discourse.

Separating key concepts from redundant language in scientific discourse requires a knowledge of which terms are key and which are not, and this comes from an in-depth study of the subject matter. Without this background knowledge the teacher may be unable to interact effectively with the students because of unfamiliarity with the discourse that is unfolding in class. This would lead to a serious loss of face for the teacher and to a loss of respect from the course participants. How would a teacher lacking relevant background check a reading or listening comprehension task, or prepare students to write laboratory reports, or research papers they might wish to publish? For training undergraduate students, some relevant knowledge of the subject content is at least desirable.

## 3. Questions on Differentiating Terms

Another interesting aspect related to the topic of this paper, in one particular class dealing with ecology in Yogyakarta,

students asked for clarification of the differences between the terms 'symbiosis', 'mutualism', 'predation', 'parasitism' and 'commensalism'. The teacher asked the students to look up the meaning of the words in dictionary. It is not really sufficient just to look up these terms in the dictionary; the teacher requires knowledge of the relevant terms. He should have answered the question by explaining the differences. He should have knowledge of the terminologies. This comes from background knowledge of the subject. Without this specific background the teacher would be in the same position as the students, reaching for the dictionary. The use of the questions above enabled the students to critically examine some specific examples and decide precisely which term was being illustrated. The students will understand well if the teacher is able to explain them well.

#### 4. Question on animal physiology: a sample

With limited skill in English, a teacher asked the students to listen to him. The students listen to the lectures, again background knowledge is invaluable. It would enable the teacher to identify likely sources of difficulty for the students and anticipate problems in understanding key words and concepts, frequently used in the classroom interaction. A particular example was from the ESP class asking students to read 'Heat Control and the Skin'. The students became confused about the precise mechanism of thermoregulation in mammals. It proved necessary to give a detailed explanation of how a bacterial infection can 'short circuit' the body's internal system of temperature control, which is normally controlled by the hypothalamus, an organ situated at the base of the brain.

The teacher's background knowledge of animal physiology did not enable a clear picture to emerge of the precise mechanism involved. Without such background, the students would have remained confused and unable to comprehend the process involved. A lecture

from Yates (1989) provided information and required students to take notes on five groups of microorganisms. While a teacher lacking background knowledge of microbiology might succeed in making clear some of the differences between bacteria and viruses, algae and protozoa would present a greater challenge. There is a risk that without such knowledge, the teacher may be rendered little more than a witness in the classroom, unable to deal with questions arising or to comprehend the discourse.

#### 5. Commenting students

In order for the teacher to comment meaningfully on the extent to which the students had effectively interpreted the results of their own learning, knowledge of the subject matter was required. In my observation, one class participated in a discussion on a topic entitled 'Two Australian Species of Dinopid Spider'. Students were divided into groups; one group presented certain aspect from some other groups. In the discussion, the teacher required a detailed understanding of ecology, of such phenomena as habitat, range, distribution, feeding behavior, competition, adaptation and the like. A lack of background in ecology would have made it almost impossible for the teacher to offer anything more than an opportunity for the students to gain further oral fluency practice. When the teacher tried to give his comments to the results of the discussion, he was unable to explain them in an acceptable comment since he had no enough knowledge on the field

#### D. CONCLUSION

It is obviously not possible for the teacher to have an academic background that is relevant to all the students' fields of study. However, in cases like those described in this article, where one academic field is common to all the students, the ESP teacher really does require background knowledge of the subjects. My answer to the first question in the introduction is that teachers without a

relevant background knowledge of the students' majors should encourage himself to develop his understanding on the students' academic subject. The ESP teachers' knowledge of the students' academic subject has important roles.

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