

## **CHAPTER 5: CONCLUSION AND RECOMMENDATIONS**

### **5.0 Introduction**

This chapter concludes the findings of the study in relation to the research questions and provides suitable recommendations for further research in the same area.

### **5.1 Conclusion of the Findings**

For the purpose of this study, three research questions have been put forward and all the three of them have been answered appropriately. The first research question is: ‘What are the students’ perceptions concerning the learning of English for Science and Technology?’

#### **5.1.1 The students’ perception concerning the learning of EST**

The first research question is answered when the information from the questionnaire revealed that the students enjoy learning EST. Even though sometimes they face problem in understanding and reading scientific text, the students struggle to do well in this subject with their teachers’ help. Thus, they are satisfied with their performance in EST in the school level examinations.

#### **5.1.1.1 The students' perception on the skills needed in learning EST**

The students also perceive reading and writing skills to be the most important skills that they need in order to excel in EST. They need these two skills to complete their assignments and to answer their examination questions. They also need the speaking skills in order to do presentations in class. Of course the need of listening skills cannot be put aside, but it is not a primary need of the students. Therefore, they have realized that they have to improve these two skills in order to excel in this subject. They even want the reading and writing skills to be given more attention and emphasize in the EST lessons.

Besides that, the reading and writing skills being taught in EST can also be used by the students to learn other subjects, especially to learn English. According to the students, the specific sub skills such as reading for specific information, skimming and scanning, drawing mind maps and drafting can be applied in learning English.

#### **5.1.1.2 The students' perception on the usefulness of EST**

Obviously, the students find the subject to be very useful, not only to improve their English language but also to learn other pure science subjects such as physics, chemistry and biology. The scientific knowledge that they obtain from English for science and technology is absolutely being used in their pure science

subjects mentioned earlier. Thus, EST is definitely of a helping hand for the students to apprehend the vocabulary and scientific terms.

#### **5.1.1.3 The students' learning strategies**

At the same time, these students occupy their own learning strategies that can help them to learn the subject well. The students feel that they can learn better by discussing with their friends, playing games and by reading from the book. This view is supported by their teachers' response who claim that they emphasize on group discussions and reading activities to help the students learn better. Furthermore, other classroom activities such as class presentations, role playing, writing exercises and reports writing have also helped the students to improve their language skills to an extent.

#### **5.1.1.4 The students' perception on the teachers teaching methods, materials used and the EST syllabus.**

The majority of the EST students claim that they are satisfied with their teachers' teaching methods. They do also feel that the EST subject is taught efficiently in all the areas in EST syllabus. In addition, they believe that the subject is adequate in helping them to understand the areas such as developing vocabulary knowledge, reading different types of EST texts, understanding the methods of writing reports and presenting information.

Even though they are happy with the use of the text and reference books, 100% of the students claim that there were no audio visual aids used by the teachers in the EST classroom. This is rather disappointing as it is a requirement for the teachers to use audio visual aids in the EST lesson. Thus, the students suggested that there should be more use of audio visuals and computers in the EST classroom. Perhaps, the EST lesson should be conducted in the computer laboratory or in the self-access centre. They must be allowed to access and understand information from the internet and other electronic media.

#### **5.1.2 The teachers' perception concerning the students' learning of EST**

The second research question is answered when the information showed that even though the students are satisfied with the teachers' teaching methods and the teachers are satisfied with the teaching materials available, there was still a gap, which obstructed the students from achieving excellent results for EST. McDonough (1999) have put it appropriately when they say that despite the appearance of a plethora of attractive and authentic language teaching materials, there has been a rising concern that learners have not progressed as much as might have been anticipated.

#### **5.1.2.1 The teachers' perception concerning the students' proficiency and confidence level**

Although the teachers are unsure if the students enjoy the EST lesson, they are positive that these students are quite proficient and confident in using the English language. This is an advantage for the teachers as they can experiment different teaching methods and strategies with them. However, the teachers also feel that the students still struggle to complete their assignments and exercises due to the fact that they lack scientific knowledge and vocabulary.

#### **5.1.2.2 The teachers' perception concerning the language skills needed by the students to learn EST**

Based on the information from the face-to-face interview sessions with the teachers, it was evident that the teachers perceive the reading and writing skills to be of utmost importance for the students to learn EST. Thus, the second research question is also answered here. The teachers apparently face difficulties in teaching EST due to the fact that the students are lacking in these two skills.

The teachers also think that the students must work harder to improve these two main skills. The students need the two skills to engage in the classroom activities as well as to answer their examination questions. Of course the students cannot put aside the listening and speaking skills, but they are not of the utmost

importance. Therefore, the teachers have put in efforts to overcome this problem by coming up with a few strategies tailored for the EST learners such as techniques of answering reading comprehension and using templates to write reports.

#### **5.1.2.3 The teachers' perception concerning the materials used for EST**

Obviously, the teachers are happy with the use of teaching materials for EST lessons. Despite the fact that the teachers are not happy with the teaching of EST as they have to spend a lot of time preparing for the lessons, they make use of all the materials available to help them teach efficiently. These include the textbooks and reference books. Nevertheless, they admitted that they do not use the audio visual aids or computers to teach EST as they lack of facility and time.

#### **5.1.3 The skills needed most to learn EST**

With regards to the third research question of this study, it was identified that reading and writing skills are the most important skills for EST learners to learn this subject well. Reading was seen as the most important skill as the students are expected to read for different purposes such as to understanding notes and instructions, understanding textbooks or reference books or even understanding Internet articles.

This notion is supported by Smithies (1972). He claims that from the time the individual has learned to read in his first language, his entire educational formation has been oriented to and largely depended on the printed word. As students progress through our educational system, they are taught progressively from and through books. Thus, they need to see things in print.

Smithies (1972) also states that if students of Science and Technology are studying English as a tool to help them acquire professional information in their fields, then they have no need for the productive skills: spoken or written, and no need for listening comprehension as competence in reading comprehension will still be of paramount importance. He claims that oral production skills will never normally be needed in an EST programme except in the unusual circumstances or for response in the classroom situation.

On the other hand, Wallace (1992:152) is of the opinion that even though reading is perceived as an important skill in learning a foreign language, the importance of other skills cannot be ignored. This is because language skills are hardly ever practiced in total isolation. There would definitely be an integration of language skills though the focus is only on certain particular skill. Thus, the teachers have to emphasize on the most vital skill so that the students can improve further.

## **5.2 Limitations of Study**

The subjects involved in this study were only 50 students from a local school. As only 50 students were involved, the findings of this research may not reflect the needs of all students learning English for Science and Technology in Malaysia. The results obtained through this study are only valid to the subjects involved in this study and should not be extended to other schools in Malaysia. Therefore, there is no guarantee for the reliability of this study. Perhaps, more research should be done with EST learners from other schools so that the results are irrefutable.

Another constraint of this study was whether the subjects would answer the questionnaires honestly. This is because the questions were related to the perceptions of the students and teachers. Thus, there might be a disparity between their perceptions and the reality. It is hoped that precise information on the specific language needs of the students were obtained.

## **5.3 Recommendations**

Based on the results of this study, recommendations can be of great assistance for 2 important parties namely, the teachers and the school administration. In addition, recommendations can also be forwarded to the Curriculum Development Centre.



As English has become an indispensable resource for socioeconomic contexts, it is vital for the students of EST to develop interactive or productive competencies. These are required for the new generations of workforce, which is infused with the aspiration for development, modernity and successful involvement in the global economy. Thus these students must be taught to cope with the challenges of the fast modern world.

It is strongly recommended that the potential EST teachers are made aware of the needs of these students. From the findings, it is identified that reading and writing are the two most required skills for EST students. Consequently, teachers should emphasize on these two skills in the classroom situation. Besides that, the teachers must use a variety of strategies and teaching methods in order to make their lessons more interesting as well as to arouse the students' interest in the subject.

This coincides with the idea of Jones and Roe (1976) who state that strategy is an attempt to cope with the discrepancy between the initial information state of the learner and the envisaged information state at the end of the programme. It attempts to survive by measuring the amount of the discrepancy and designing varieties of learning experiences that will conquer the discrepancy. They do also claim that teachers must use their organizational and imaginative abilities upon the learning resources available in his institution to engage and sustain the learners' interest.

Furthermore, in subjects such as EST, the concept and content change rapidly over a period of time (Strevens, 1988). As a result, the solution to pedagogical problems cannot be expected to work in the classrooms without introducing some changes in the classroom conditions. The teachers must dare to try new strategies or methods deemed appropriate for the students in the classroom situation.

McDonough (1999) admits that in the current state of language learning situation, it is not easy to predict what will be the good or bad strategies to use or to recommend. So, the teachers should respect the learning habit of their students which have been cultivated over time and introduce the variety of strategies unknown to the students and let them experience or experiment with different types of strategies. Later, the students can judge for themselves whether a particular strategy or a combination of strategies will be effective for their language learning.

According to Strevens (1988), many do not see Scientific English to be different from General English except for its esoteric vocabulary and its complicated and passive way of saying simple things. Hence, the strategies of language instruction have become the mundane concerns of most language teachers. He affirms that they kept to their traditional way of explaining grammar and interpreting the reading texts. In this process, they fail to come out with clear-cut strategies regarding the teaching of EST.

Thus, for this apparent reason, the school administration, especially the head of the English department should plan and assure that the EST teachers use different strategies to help the students achieve better results in the examinations. Here, it is strongly suggested that the teachers use computers and audiovisuals to teach EST. They must also make sure that the teachers are provided with ample of facilities that will help them to carry out the strategies planned accordingly.

Besides that, the planning of the EST syllabus does not only involve the academicians but also somebody from the field of Science and technology. Thus, the Curriculum Development Centre should be made aware of the not only the students' needs, but also the teachers' and teaching institutions' needs in order for them to come up with the best syllabus to cater the needs of the students.

#### **5.4 Conclusion**

According to Richterich and Chancerel (1980), the concept of 'need' has extended to cover other aspects of the personal and social progress of the individual, as well as the development of study skills and independence as a learner. Therefore, course planning must be based not only on the individual learners' needs, but also the social group he belongs to and the institutions providing the educational framework.

They do also state that needs are not ready made things. So, it would be very difficult to analyze them. The identification of the needs will definitely shed some light on the learners' problems in learning a subject such as EST. Thus, depending on the circumstances, learner and the institution will organize their own strategies on the basis of information deemed important to them. A good programme must have the flexibility to respond to changes in the learners, the teachers and the circumstances in which they are learning

In conclusion, this study indicated that reading, writing and speaking are the three important skills that the EST learners need in order to learn the subject well. Among the skills, reading and writing are seen as the most needed skills and the others are rated as less important. This information is obtained from the respondents and supported by the teachers of EST.

Therefore, it can be safely concluded that EST brings many benefits to the students who are going to face the scientific world out there. These students are the future doctors, nurses and engineers who are going to survive in the era of globalization. In short, EST does not only prepare the students to further their studies at the tertiary level, but it is also going to produce communicative scientists in the near future.