

How Final Year Chemical Engineering Students Cope With Learning In English

Noor Abidah Mohd. Omar & Ruzaini Binti Ibrahim

Fakulti Pendidikan,
Universiti Teknologi Malaysia

Abstract : There seems to be little information found in reports regarding the final year chemical engineering students' situation of learning in English. Since the students' learning condition in English is unknown, this issue has captured the interest of the researcher and there is a need for further investigation on the topic. The focus of the research is on the existence of problems faced by final year chemical engineering students when learning in English and strategies of overcoming them. A total of 90 final year chemical engineering students and two lecturers from the Faculty of Chemical Engineering and Natural Resources Engineering were involved in the study. The data needed for the research were collected via questionnaires and interview sessions. The questionnaires used contained 38 questions and the interview sessions consisted of ten questions. The data gathered were analyzed using descriptive statistics where percentages were used to show the results of the research. The overall findings indicate that the final year chemical engineering students were able to cope well with learning in English.

Keywords : chemical engineering students, learning in English

Introduction

It is a well known fact that English is the most important language used in the area of science and technology. Therefore, university students who are majoring in the field of science and technology would have to learn in English. This situation signals that engineering students would also have to learn in English. However, this study will only focus on final year chemical engineering students. The aim of this study is to find out how final year chemical engineering students are coping with learning in English. The study will seek out possible problems faced by these students when learning in English and strategies used by them in overcoming those problems.

Statement of the Problem

The English language has long been the most dominant language for communication in the field of science and technology. This is true as numerous research, references and publications in this field are available widely in English. Besides that, many professional experts in the field of science and technology are also speakers of the English language. For this reason, professionals who desire to gain success in this field should be able to communicate and work using English. Therefore, it is also important for chemical engineering students to learn in English successfully and excel in their studies as their success will have an impact on their professional lives in the future.

Recently, the government has made an emphasis on the use of technical English in education. In response to this situation, universities and institution of higher learning in Malaysia are using English as a medium of instruction for science and mathematics subjects. This shows that there is an importance of learning in English among university students. Apart from that, another reason why it is important for university students to learn in English is because most of the main references on their course subjects are available in English. Therefore, students need to learn in English in order to understand what they are studying. Besides that, students also need to

learn in English because it is necessary for them to join the workforce. This is true, as it is mentioned before that, being able to perform competently in English is an important attribute that needs to be acquired by successful university students.

As mentioned earlier, final year chemical engineering students are learning their entire course subject in English. However, these students are not enrolled in any English language courses at the moment. Consequently, it is important to know how well the students are doing in their studies. Therefore, we need to find out how chemical engineering students cope with learning in English. In addition to that, we also need to determine whether the students face any problems in their learning and also identify the solutions used by the students to overcome the difficulties they face while learning in English.

Objectives of the Study

The Objectives of this Study are:

1. to determine whether final year chemical engineering students face problems with learning in English
2. to find out the problems faced by final year chemical engineering students when learning in English
3. to identify the strategies used by final year chemical engineering students to overcome problems when learning in English
4. to suggest possible strategies to the problems faced by final year chemical engineering students when learning in English

Significance of the Study

Since it is unknown how final year chemical engineering students cope with learning in English, the results of this study is important to help students overcome their learning difficulties and improve in their studies. Besides that, this study will also supply important information regarding the problems and possible solutions that can be adopted by chemical engineering students when learning in English. The findings could be used by chemical engineering students to help them with studying in English. They could use the strategies suggested in the findings to deal with the problems they face when learning in English. By using the information from the research, students could also adjust their learning strategies to improve their progress when learning in English.

As for the lecturers, they can use the information from the findings to adjust their teaching styles to suit the students' learning styles. Besides that, lecturers could also adapt their teaching materials and learning activities to suit the needs of the students. In addition to that, they could also give extra focus on the learning areas which students find difficult. Basically, lecturers could utilize information from the findings to improve their teaching and simultaneously improve their students' achievement when learning in English.

Furthermore, the department and the university could also use the information from the findings to find out how chemical engineering students are coping with learning in English and introduce suitable learning activities that could help the students with learning in English. In addition to that, the department could also organize a special program that could help improve the students' level of achievement. They could probably organize a support program for chemical engineering students who needs help with learning in English.

Research Design

The design of the research was in the form of a survey. The survey was conducted to investigate the experience and opinions of the respondents. The response for the survey was obtained through different sets of questions which were presented in the form of questionnaires and interviews.

In addition to that, the survey also included qualitative and quantitative data. The quantitative data were collected via questionnaires while the qualitative data were collected via interviews.

Respondents of the Study

The respondents of the study were final year chemical engineering students from The Faculty of Chemical Engineering and Natural Resources Engineering (FKKKSA) in UTM Skudai. The students that were chosen to participate in the study were final year chemical engineering students from five different courses which comprises of Bachelor of Chemical Engineering (4 SKK), Bachelor of Chemical Engineering- Bioprocess (4 SKB), Bachelor of Chemical Engineering- Petroleum (4 SKP), Bachelor of Chemical Engineering- Gas (4 SKG) and Bachelor of Chemical Engineering- Polymer (4 SKR).

The final year chemical engineering students were chosen for the study because these students are currently taking all of their course subjects in English. Besides that, these students would also have to complete their plant design project in English. Furthermore, these students have been studying chemical engineering subjects for over three years thus, they would have adequate experience in learning their content subjects in English. Therefore, it is appropriate to choose these students as respondents of the study.

Apart from the final year chemical engineering students, two lecturers from FKKKSA were also chosen as respondents for the study. The two lecturers that were chosen to participate in the study were lecturers who are teaching the final year chemical engineering students. Moreover, both of the lecturers are also lecturers who are currently teaching the chemical engineering content subjects in English.

The lecturers were chosen to become respondents of the study because they would have the knowledge of their students' situation of learning in English. It is appropriate to choose these lecturers to provide data for the study because they are the ones responsible for teaching the students. Therefore, they would have a good understanding of how well their students are coping with learning in English.

Research Instruments

This research utilized both quantitative and qualitative data. The instruments that were used to collect the data were questionnaires and interviews.

Questionnaires

The quantitative data needed for this research were collected via questionnaires. The questionnaires that were used contained 38 questions and it was divided into five different sections. The five sections that were included in the questionnaires were i) Background Information of Respondents, ii) Current Situation of Learning in English, iii) Problems Faced when Learning in English, iv) Strategies Used to Tackle Problems of Learning in English, and v) Possible Strategies to Help with Learning in English. The different types of questions used in the questionnaire were close-ended questions, scale questions such as, Likert- scale questions, Yes/ No questions, listing/ choice questions and open ended questions. The questionnaires were used help to gather information from the students regarding their situation when learning in English,

the types of problems they encounter when learning in English and how they deal with the difficulties they face when learning in English.

Interviews

s for the qualitative data, it was obtained through the method of interview. The type of interviews that were conducted were semi-structured interviews. A total of two interviews were conducted with the lectures from the Faculty of Chemical Engineering and Natural Resources Engineering (FKKKSA) in UTM. The interviews were conducted to obtain information from the lecturers regarding their students' situation in studying in English. The types of questions that were asked are open ended questions.

Data Analysis

The findings from the open- ended questions will be discussed. The findings in this section will be divided into three parts which are Main Problems Faced by Chemical Engineering Students when Learning in English, Reasons Why Chemical Engineering Students Face Problems when learning in English and Possible Strategies That Could Be Implemented by Lecturers or the Faculty to Help Student Learn Better in English.

Based on the responses for the open- ended question, 'What do you think is the main problem faced by chemical engineering students when learning their subjects in English?' it was discovered that, many of the students feel that the main problems faced by chemical engineering students when learning in English is the difficulties that they have when communicating in English.

[Respondent 1] Students are not able to speak in English because lack of practice

[Respondent 12] Difficult to bring language in class because they do not communicate in English

[Respondent 35] Problem with communication skills

[Respondent 80] Unable to express their knowledge in English

[Respondent 46] Not using English frequently in communication

From the information presented above, it seems that the students believe that some of them are having problems in communication skills (communicating with lecturers, involving in class discussions and performing oral presentations); the students could be having problems in communicating using English because of the lack of practice. This may be true since students who rarely interact in English may face some difficulties when they have to express themselves in the language.

From response to the open- ended question, 'Why do you think chemical engineering students face problems when learning their subjects in English?' it was found that, some of the respondents feel that, the cause of problems when learning in English is students' negative attitude towards the language.

[Respondent 1] Lack of confidence in English

[Respondent 29] Negative attitude towards English

[Respondent 31] Students refuse to use English

[Respondent 41] Refuse to accept and learn English

[Respondent 6] Do not take it seriously

[Respondent 17] Lazy to learn the language

[Respondent 26] Negative attitude towards English

[Respondent 56] Students do not want to speak in English

Another reason that may be causing problems when learning in English suggested by the students is the chemical engineering students' Poor mastery of the English language.

[Respondent 2] Not good in English

[Respondent 12] Some people are not that competent in English

[Respondent 21] Weak in English

[Respondent 25] Students do not have good basics in English

[Respondent 41] Poor level of English

[Respondent 51] They do not have good basics in English

[Respondent 54] Lack of knowledge in English

[Respondent 78] Poor command of the language

[Respondent 81] Lack of knowledge and practice

[Respondent 82] Need to improvement in their grammar and Weak basics in English

[Respondent 62] No strong basis in English

[Respondent 68] Lack of English understanding

[Respondent 83] Students do not understand English

Furthermore, some students also think that the education background of the chemical engineering students could be the cause of problems when learning in English.

[Respondent 4] Malay language based education background

[Respondent 10] Education background

[Respondent 13] In secondary school science subjects were taught in Malay

[Respondent 20] No training in English (academic background)

[Respondent 26] They have not learned in English since they were small

Based on the previous responses, it could be said that the final year chemical engineering students think that there are many possible reason that are causing some of them to encounter problems when learning in English. According to some of the students, the main reason behind the problems that they face when learning in English is the students' attitude towards the language. The findings reveal that some of the students have negative attitudes towards the English language. Consequently, these students may not be interested to learn in the language, thus this will result in problems when learning in English. in addition to that some students also think that problems arise when learning in English because of the some students' weakness in the language. Based on the findings it is thought that some students may encounter problems when learning in English if they are weak in the language. Furthermore, a few students also mentioned that the chemical engineering students' education background may also be a cause of problems when learning in English. this is because, according to them, the students were taught in Science and mathematics, Bahasa Malaysia when they were in school. Therefore, they do not have basics of science in English. Consequently, this factor may lead to problems when they need to learn advanced science subjects in English.

Discussion

In addition to that, it was also discovered that many final year chemical engineering students seldom face problems when performing academic activities in English. Nevertheless, there is still a small portion of students who encounter some problems when learning in English. However, many of the students do not appear to have difficulties in performing most of their learning activities. Even so, there are certain areas which are causing some trouble to the students such as doing oral presentations, writing their bachelor degree project and some even

have minor problems in understanding lectures conducted in English. Besides that, some students also think that the students face problems such as understanding difficult scientific concepts as well as scientific terminologies. A few students also think that the final year chemical engineering students face some problems when communicating in English.

Besides that, the findings reveal that the final year chemical engineering students employ many different strategies to help them tackle problems when learning in English. Nonetheless, it looks like the students prefer to use strategies which are simple and easy to perform. Basically, they like to use strategies that require little effort on their part. In addition to that, the students also favour strategies which are time- saving because through this method they would be able to overcome their learning difficulties in a short period of time.

Furthermore, the findings of the research also show that the final year chemical engineering students believe that there are some other possible strategies that could be adopted to help them with studying in English. However, the possible strategies chosen by the students have similar characteristics to the type of strategies they have implemented in their studies. Consequently, they think that the possible strategies that could assist them with learning in English are the strategies which are convenient and time- saving. Furthermore, they also preferred strategies that can give them more exposure to English and help them improve their performance in the language.

On the other hand, it was discovered that the lecturers have a different opinions on the possible strategies that could be adopted by the students to help them learn better in English. According to the lecturers, some possible strategies that could assist students with learning in English are consultation sessions with lecturers, questions and answer and group discussions sessions in English. It appears that the strategies suggested by the lecturers can assist students with learning in English through communicating with their classmates and also the lecturers.

In addition to that, the findings also showed that, the students think that they are multiple reasons why some of them have problems when learning in English. According to the findings, it was discovered that some students feel that some of the chemical engineering students are having problems in their studies because of the complexity of the subjects which they have to learn. Besides that some also think that the problems arise when learning in English because of the lack of exposure and practice in using English. Moreover, there are other students think that the unsuitable learning environment are causing problems to the students when they are learning in English. However, there are also many students who feel that the problems occurs when the students are learning in English result from their own weaknesses such as their negative attitude towards English, their poor mastery of English and their lack of vocabulary. However, a few students also think that the final year chemical engineering students' education background could also be the reason why some of them face difficulties when learning in English.

References

- Amer, A. A. The Effect of Knowledge- Map and Underlining Training on the Reading Comprehension of Scientific Texts. *English for Specific Purposes: An International Journal*. 1994. 13(1): 34-43.
- Brookes, H.F. and Ross, H. (1967). *English as a foreign language for science students Volume one: Teachers' book*. London: Heinemann Educational Books Ltd.
- Dudley- Evans, T. and St. John, M.J. (1998). *Developments in English for Specific Purposes*. Cambridge: Cambridge University Press.
- Herbert, A.J. (1965). *The structure of technical English*. London: Longman Group

Limited.

- Johns, F.T. and Dudley- Evans, A. 'An experiment in Team- teaching of Overseas postgraduate Students of Transportation and Plant Biology'. In Swales, J. (ed.). (1985). *Episodes in ESP*. Oxford: Pergamon Press Ltd.
- Khairi Izwan Abdullah. (2007). *Handbook on Teaching in English*. Johor, Malaysia: Centre for Teaching and Learning, Universiti Teaknologi Malaysia.
- Mackay, R. and Mountford, A.J. The Teaching of English for Special Purposes: Theory and Practice. In Mackay, R. and Mountford, A.J. (eds.). (1978). *English for Specific Purposes*. London: Longman.
- Robinson, B. 'The helpful EST Teacher'. In McDonough, J and French, T. (eds.), (1981). *ELT Documents 112- The ESP Teacher: role, developments and prospects*. London: The British Council.
- Salbiah Seliman, et. al. (2004). *English communication for learners in Engineering*. Malaysia: Prentice Hall.
- Thonis, E.W. (1970). *Teaching Reading to Non- English Speakers*. New York: Collier-Macmillan Teacher's Library.
- Zainal Abidin Mohd. Noor and Abdul Rahim Che The. ESP- An Approach to Meet Technical Students' Special Needs. *National Seminar, English for Specific Purposes: Prospects and Challenges*. 16-18 December 1991. Skudai, Johor: Universiti Teknologi Malaysia. 1991.