



P-ISSN 2355-2794
E-ISSN 2461-0275

Acquisition of Academic Literacy in an Engineering Communication Course: Integration of English for Specific Purposes (ESP) and Systemic Functional Linguistics (SFL)

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Abstract

This study investigated academic literacy practices by an EFL student at an Engineering Communication course in the University of Adelaide, Australia. It focused on finding a description of engineering written communication skills designed in the specific course and investigating the student's response in the construction of a specific text type in the engineering community. A qualitative case study method was used where the data were taken from classroom observations, the student's interviews, his writings, and other supporting data, such as a course booklet and several PowerPoint slides. The findings showed that working in a group discussion at the workshop sessions was perceived as the most useful academic literacy practice in acquiring engineering communication skills. It also revealed that academic literacy practices, such as accessing MyUni, using databases for a specific discipline, recognising graphic skills and using effective reading strategies were considered by him as new and useful practices in an academic culture which helped him execute written engineering communication assignments into a cohesive and coherent argumentative text. Overall, although he had different perceptions before and after completion of the course, he viewed the course design positively. Some ideas on how the course developers or tutors could match the course design with his practical needs were offered, such as mutual collaboration with the English lecturers who were providing the course and the implementation of a program of academic English for first year students.

Keywords: Academic literacy, engineering communication course, written engineering communication skills.

1. INTRODUCTION

Nowadays, engineers are required to have good capability for communication, collaboration, teamwork and networking (Lappalainen, 2009). These capacities could

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be considered as important skills when entering the workplace apart from expertise in a particular specialization (Lappalainen, 2009; Paretti, 2008). In addition, it is common knowledge amongst engineers that the ability to communicate a technical concept concisely and clearly is an essential engineering skill (Lengsfeld et al., 2004). As a consequence, it is believed that an engineer must be able to write and speak effectively in order to be a successful engineer (Beer & McMurrey, 1997).

In this respect, university education needs to place more emphasis on equipping engineering students with communication skills by including an engineering communication course in the first year syllabus (Lappalainen, 2009). Moreover, based on the results of earlier studies, the design courses provided for engineering students at universities might not match with the expectations and communication skills that are needed in engineering communities (Kaewpet, 2009; Paretti, 2008).

Therefore, the present study aimed to investigate an ESL student's academic literacy experiences during the acquisition process for his engineering communication skills in the Engineering Communication course at an Australian university. This purpose was stimulated by Paretti (2008) who states that while there are many case studies investigating academic practices in the specific disciplines, there is little literature that focuses specifically on how engineering students develop their communication skills, i.e. on inter-disciplinary communication studies.

Secondly, the purpose of this study was to provide a valuable description of what written communication tasks about engineering should be included in an Engineering Communication course for a group of engineering students in the ESL/EFL context. This need arises since many engineers use over 40% of their work time for writing, and this percentage increases when they are in the work place (Beer & McMurrey, 1997). Lastly, this study focused on finding out these student's perceptions in order to gain an adequate understanding of communication needs that match with the engineering students' practical needs in their studies.

Hence, based on the forgoing, this study addressed the following questions:

1. What academic literacies does an ESL student encounter in a typical Engineering Communication course?
2. What kind of genre is assigned to students for written communication tasks in a typical Engineering Communication course and how do they manage these tasks?
3. What are the student's perceptions about the design of this particular Engineering Communication course for teaching-learning Engineering Communication skills?

2. LITERATURE REVIEW

2.1 Academic Literacy

Originally, the term academic literacy was viewed as the studies of reading and writing practices for an academic discourse (Lea & Street, 2006). However, nowadays, the concept of academic literacy has not only been applied to study the students' learning in relation to mastery of reading and writing, which are considered as vital factors and important knowledge for success at university, but it is also used for in-depth analysis of students' and tutors' interpretations of what is involved in writing students' assignments (Hyland & Hamp-Lyons, 2002; Lea, 2004).

The work of academic literacy has a strong relation to “The New Literacy Studies” in which skills of reading and writing in the academic discipline are viewed as cultural and social practices, and really depend on the particular academic discourse (Gee, 2000; Lea & Street, 1998 2004). The literacy practices in each academic discipline are different since the context, culture, and genre in which the literacy practices occur are different (Lea, 2004). Therefore, there is an emergence of studies in the discourse of academic literacy in the specific disciplines and outside of an English language teaching context (Hyland & Hamp-Lyons, 2002; Nisa, 2010).

Research in the field of academic literacy has been conducted in several academic disciplines from undergraduate to postgraduate levels, particularly dealing with assessment of how ESL students have encountered literacy practices in their chosen academic discipline in order to make meaningful writings in their chosen discipline (Al-Rafae, 2012; Alharti, 2012; Devira, 2012; Hewings, 2004; Nisa, 2010; Okawa, 2008). These research studies were conducted due to the great demand from international students to understand academic conventions when entering into academic discourse. In spite of fully understanding their specific subjects and disciplines, they were also required to master and be proficient in both English (EFL) and the requirements for writing in a particular genre (Lea & Street, 2006).

2.2 Engineering Communication

Many of the earlier studies in the area of engineering communication with English as an additional language were done to demonstrate the importance of communication skills for engineers when entering their workplace of engineering communities (Kaewpet, 2009; Lappalainen, 2009; Lengsfeld et al., 2004; Paretti, 2008). The orientation of these studies was to examine the design courses implemented in university education in order to equip and develop the engineering graduates with communication skills. For example, through a qualitative approach with purposive sampling conducted at University of Thailand, Kaewpet (2009) explored the communication needs that should be incorporated in an ESP course for a group of Thai civil engineering students. The results from that study showed that there were several communication activities in the Thai engineering communication course which did not match with the students’ practical needs for study. Hence, the researcher for this study has proposed four communication needs that should be included in the design for a course of engineering communication via: (i) talking about everyday tasks and duties, (ii) reading textbooks, (iii) reading manuals, and (iv) writing daily/ periodic reports.

Meanwhile, the study by Lengsfeld et al. (2004) showed that the professional engineering communication skills included in the communication course of the English Department in University of Denver included written, oral, and graphic skills. In the process of acquiring these skills, the study findings showed that the students found it difficult to complete the design course assignments due to a lack of necessary vocabulary, collocation knowledge and paraphrasing skills.

Another study employing a qualitative approach was also conducted by Paretti (2008) with an emphasis on how the instructor should interact with the engineering students concerning communication aspects of assignments. During a one year case study, project notebooks, formal reports to build the final design report, two oral presentations, and a poster summarizing the project were assigned to students as ESL engineering communication assignments.

2.3 Previous Studies in Engineering Writing Communication

While the previous explanations focused on design courses, this orientation concerns a number of studies about written communication skills for engineering. For example, the study by [Lengsfeld et al. \(2004\)](#) conducted at the Engineering Department at University of Denver showed that engineering assignments frequently provide an opportunity for students to practice their persuasive writing. Hence, inquiry and assessment cases are assigned as major assignments in the course of Engineering Communication at this university. In doing this written assignment, the students learn to write argumentatively, to persuade logically, to evaluate published academic findings and to integrate these findings within their own writings. This assignment is called a 'multi-week assignment' which combines all the objectives of other assignments such as an abstract, an outline, an annotated bibliography and several drafts into a final version of a major assignment called a research paper ([Lengsfeld et al., 2004](#)).

Furthermore, through an analysis of students' portfolios, [Plumb and Scott \(2002\)](#) investigated which writing skills were necessary for engineering. This study recommended that the technical writing course should be designed for the first year of engineering studies due to the fact that technical writing has become increasingly necessary when entering the workplace of engineering communities. The common genres which are often provided in engineering communication courses include progress report, design report, technical paper, and research paper ([Hanson & Williams, 2008](#); [Kaewpet, 2009](#); [Lengsfeld et al., 2004](#); [Paretti, 2008](#)). These genres may be appropriate for an engineering profession and provide practices of varied text types that students will encounter in their situational studies and workplace ([Hanson & Williams, 2008](#); [Plumb & Scott, 2002](#)).

2.4 Genre

As previously mentioned, there are different genres assigned to students acquiring writing communication skills for engineering. In the present study, genre is defined as a text type which comprises obligatory and additional structural elements and is constructed by choosing language which depends on its social purpose and the context in which the text will be used ([Butt, Fahey, Feez, Spinks, & Yallop, 2000](#); [Christie, 1992](#)). In a systemic perspective, genre is accepted as a particular type of text which follows a generic structure, such as beginning, middle and end ([Paltridge, 2001](#)). Hence different specific academic disciplines produce different texts and each is constructed with regard to the achievement of a communicative purpose for that particular discipline.

There have been a number of studies conducted to analyse the text types used by different disciplinary communities. For example, [Hyland \(1990\)](#) analysed 65 students' essay scripts from a Papua New Guinean High School by using genre analysis in order to help the teachers find out the obligatory structural elements for an argumentative text, which could then be used as the model for an effective writing program. Similarly, by using the rationale of genre analysis, [Holmes \(1997\)](#) examined research articles in the discipline of social sciences. Particularly, in this study, he analysed the structure of elements in the "Discussion" sections in articles from Sociology, Political Sciences, and History.

Meanwhile, Nisa (2010) conducted a study which focused on genre identification of an Indonesian student's essays in the discipline of Nursing. The findings showed that the student used a combination of text types in her research papers including an "Exposition" as a macro-genre and two other sub-genres which were embedded via "Procedures and Discussions", and "Procedures and Narratives". Hence the findings of this research accorded with the ideas by Butt et al. (2000) that some texts are constructed by a combination of different genres.

2.5 Theme as a Tool for Identifying the Cohesion of Text

Unlike the aforementioned studies that examined the stages in different text types, these studies concentrate on one of the parts of the textual meta-function in the SFL (Systemic Functional Linguistics) framework, which is called Theme/Rheme (Halliday, 1967). According to Eggins (1994), theme is defined as the point of the departure for the clause considered as the key point to determine the next organisation. This has a significant role in expressing the meaning of the message to the readers. To analyse and discuss how writers/speakers organise their message into a coherent and cohesive genre, it needs to have a simple metalanguage, which is defined as Theme (the first position in a clause) and Rheme (the rest of the clause).

At the level of clause, thematic movement from Theme to Rheme or from Theme to Theme can be used by writers to provide a cohesive structural expression for their writings (Butt et al., 2000). An extended framework of thematic movement in a text, called a Hyper-Theme, can also be used by a writer to provide cohesion at the level of a wider discourse like a paragraph. While Theme examines the textual patterns of a sentence, Hyper-Theme focuses on thematic progression in paragraphs (Martin, 1993). Hyper Theme and Hyper-New have a similar function in a predictive textual pattern. Similarly to the first element in a clause, Theme and Hyper-Theme are concerned with a small constituent of meaning as a starting point, whereas Hyper-New coincides with the model of Rheme, which continues from a starting point to a larger constituent of meaning (Martin, 1993). In this respect, it could be conceived that those metalanguage elements are rigorous and significant in analysing how the writers manage their messages into a cohesive pattern amongst the paragraphs in their texts.

3. METHOD

3.1 Research Subject

This case study employed a combination of instruments for qualitative research, including recorded interviews, classroom observations, and writings by the student (Patton, 2002; Silverman, 2006). It was done in the Faculty of Engineering, Computer & Mathematical Sciences at the University of Adelaide, particularly in the course of Engineering Communication EAL (English as an Additional Language) 3003. The course focused on formal written and oral presentation skills which aimed to prepare students to communicate effectively with engineers, other professionals, and the community in general. The scope of the study focused on written communication skills and covered the features of English language and strategies used in academic and professional contexts that fit nicely the students' needs for written communication skills

for engineering; this is as posed by the scope in the course of Engineering Communication EAL 3003.

A first year undergraduate student from Vanuatu was the participant in this study. He was a newly arrived international student studying in the Electrical Engineering Department at the University of Adelaide. In his first semester, one of the courses that he undertook was Engineering Communication 3003. Although in his country, he had studied engineering for one year, an Engineering Communication course was not provided in his prior university. Before his semester began, he had a number of experiences that helped him acquire adequate English language proficiency, including his participation in the Professional English Program (PEP) and the Introductory Academic Program (IAP) at the University of Adelaide.

3.2 Instruments and Data Analysis

Using qualitative case study methods, I reviewed all of the data to make sense of it and organized it into categories that cut across all of the data sources ([Creswell, 2009](#)). I collected data for one semester (five months) by examining comments from the subject, notes from classroom observations, course materials, and the text written for an assignment.

3.2.1 Interviews

One of the key sources of data for this study was two scheduled on-campus interviews with the subject which were recorded and transcribed. The goal of those interviews was to elicit information of what he was experiencing and thinking during his participations in the course. The interview at the beginning of the course was focussed on his initial expectations for attending the course. Further, the content of the interview focused on gaining information regarding the multiple tasks designed by a tutor for him including the purpose of each task and the procedures for how to write a research paper as a major assignment.

In the middle of the course, several spontaneous conversations also took place. These conversations developed more naturally, as the student explained and described the processes he went through to complete the tasks. This option was useful since I could not observe him when he was in the process of accomplishing the tasks. Finally, the focus of the interview at the end of the course was related to his perceptions of whether the course design was able to fulfil his practical needs to his study context.

Analysis of interview transcripts focused on finding academic literacy practices that the student encountered during the process of acquiring communication skills for engineering and his perceptions about the course. Meanwhile, on one occasion, the tutor provided information about the course, specifically focusing on the objective of each multi-week assignment. Analysis of the notes from this interview became additional information to expand on the comments from the student's expectation for each task.

3.2.2 Observations

With reference to [Barton and Hamilton \(2000\)](#) on the steps in researching literacy practices, several observations were conducted in the student's classes consisting of three sessions during lectures and another one during a tutorial. The aim of these

observations was to document literacy practices of the student during his participations in these classes. Moreover, according to the student, he felt more comfortable and had more opportunities for asking questions in the tutorial so that it was important to identify activities in the tutorial as well. The observed situations documented in the descriptive text were analysed through an identification of literacy events, texts, and practices around texts (Barton & Hamilton, 2000).

3.2.3 The Student's Writing

There was one essay written by the subject during the course. The essay was called a research paper in the course booklet of Engineering Communication EAL 3003. This essay was the major and the final assignment which was prepared from six other previous assignments. This assignment required the student to compare the published academic findings about the valued characteristics of a graduate engineer in the workplace with specific characteristics sought by employers in current job advertisements. Specifically, in this major assignment, the student examined and analysed at least 10 current advertisements for graduate engineering positions from newspapers or appropriate online websites. Also, the student had to use a minimum of four academically appropriate sources in support of his findings and viewpoints in his writings.

Analysis of this writing focused on the structure and cohesion of the essay. Firstly, SFL genre theory was used to analyse the stages of the essay, in particular by referring to the elements of the argumentative text structure presented by Hyland (1990). Table 1 below shows the stages, the names, and the functions of structural units in an argumentative text developed by (Hyland, 1990).

Table 1. The elements of structure of the argumentative essay (Hyland, 1990).

Stage	Move
1. Thesis. Introduce the preposition to be argued.	(Gambit) Attention Grabber – controversial statement or dramatic illustration. (Information) Presents background material for topic contextualization. (Evaluation) Positive gloss – brief support of preposition. (Marker) Introduce and/or identifies a list.
2. Argument. Discusses grounds for thesis. (Four move argument sequence can be repeated indefinitely)	Marker Signals the introduction of a claim and relates it to the text. (Restatement) Rephrasing or repetition of proposition. Claim States reason for acceptance of the proposition. Typically based on: a. Strength of perceived shared assumptions. b. A generalization based on data or evidence. c. Force of conviction.

Table 1 continued...

	Support States the grounds which underpin the claim. Typically: a. Explicating assumptions used to make claim. b. Providing data or citing references.
3. Conclusion. Synthesizes discussion and affirms the validity of the thesis.	(Marker) Signals conclusion boundary. Consolidation Presents the significance of the argument stage to the proposition. (Affirmation) Restates proposition. (Close) Widens context or perspective of proposition.

The framework in Table 1 was used based on the tutor's comment that the student's essay had the genre of an argumentative text. Also, according to the student, the stages of the text that had been constructed in the last assignment seemed to coincide with the moves of an argumentative text. Therefore, this framework would open a path for the readers to look at how the student constructed his writing with the communicative purpose of an argumentative essay, as expected in the course design.

Secondly, the cohesion of the essay was analysed through Hyper-Theme and Hyper-New in SFL. This analysis was conducted in order to know how the student managed the structure of his writing into a cohesive essay. According to [Ravelli and Ellis \(2004\)](#) and [Simon-Vandenberg, Taverniers, and Ravelli \(2003\)](#), the use of Hyper-Theme will allow the readers to understand how essays are organized and to find the relationship (cohesion) among paragraphs in the writing. In addition, according to the tutor, the cohesion of the student's writing was one of the indicators showing his progress in understanding written engineering communication skills.

3.2.4 Other Data

Other data that I collected while conducting this study included a course booklet and several PowerPoint slides from lectures and workshops. These materials were useful in providing information about what was expected in each assignment and about the course description. Analysis of this data was done to compare what the student said in the interviews regarding the course outlines and the procedures of a multi-week assignment with both the observation notes and the tutor's comments.

4. FINDINGS

4.1 Academic Literacy Practices in Engineering Communication Course

The course combined sessions of lectures and workshops providing information about the concepts and procedures of academic writing and oral presentation skills. The analysis of the observations and interviews showed that the student encountered different practices in the lectures and the tutorials which were aimed at teaching-learning engineering communication skills. In the lectures, the lecturer just explained

the topic of each lesson without any two-way communication and the student did not focus seriously during the lecture. Consequently, to follow the content of each lecture, he downloaded the power point presentations uploaded in MyUni (an online learning environment). Meanwhile, in the workshops, he found them more important and serious since there was time to ask the tutor questions and to engage in discussions with other students concerning the development of the multi-week assignment. Specifically, the student's academic literacy practices in both these literacy events (lecture and tutorial) are shown in Table 2 overleaf:

Table 2. Academic literacy practices in the lectures and tutorials.

<i>Elements within the literacy events</i>	
Lectures	Tutorials
Participant: the student in this study	Participant: the student
Setting: 50 minute lecture/week	Setting: 100 minute workshop/week
Texts: a. Power Point presentations Text types: information, summary b. Notes written by the participant c. Information on the white board re: - the content of lesson d. Course booklet	Texts: a. Power Point presentations Text types: information, review b. Written notes by the student c. Information on the whiteboard - the student's opinions - content of the lesson d. Course booklet e. The student's written notes f. Spoken: discussions/interactions
Practices around the texts (Literacy Practices): a. Reading the texts in the Power Point Presentations. b. Listening to the tutor's explanations. c. Reading/copying the information on the whiteboard. d. Taking notes. e. Reading the course booklet / textbook(s).	Practices around the texts (Literacy Practices): a. Reading the texts in the Power Point Presentations. b. Listening to the tutor's and the students' explanations. c. Having discussions with a partner/within the group. d. Reading information on the whiteboard. e. Taking notes. e. Reading the course booklet /textbook(s). f. Giving opinions in the class. g. Asking questions to the tutor.

In addition to encountering academic literacy practices in the lectures and workshops, those practices were also encountered by the student during the process of completing a multi-week assignment. In order to describe those academic literacy practices, firstly, it is important to present the list of assignments to be done designed to help the students to develop their engineering communication skills.

Table 3. Topics for each assignment in the Engineering Communication Class.

No.	Assignments	Marks	Goals
1.	Online grammar modules followed by tests	10	Quickly learn basic grammar online since the tutor could not provide it in the limited time of a lecture.
2.	Oral report (3 minutes)	12	Learn how to design and use power point slides, and to present a three minute oral report. Be able to decide the topic for an essay as a major assignment accompanied by evidence.

Table 3 continued...

3.	Research paragraph (250-300 words)	15	Be able to write a paragraph that would be included as a body of text in the essay. Learn analysis, interpreting, and paraphrasing skills.
4.	Annotated bibliography	13	Learn to evaluate sources for relevance, objectivity & usefulness & to do summarizing & referencing.
5.	Draft introduction	10	Be able to write an Introductory Paragraph
6.	Formal oral presentation (5 minutes)	20	Be able to deliver the ideas written in the introductory paragraph into a five minute oral presentation.
7.	Research paper (1000 words)	20	Learn to write argumentatively, to analyse the sources and to integrate them into a cohesive academic paper.

The student encountered varied literacy practices in completing those assignments. In the first assignment, the student used MyUni to learn basic grammar and to have an online grammar test. In addition to having an online grammar test through MyUni, the student also accessed it to get course announcements, course materials, and assignment updates. By accessing this web, the student did literacy practices that he had never encountered before in the university of his home country.

Meanwhile, in the second and fifth assignments dealing with oral communication skills, the student was expected to orally present the topic for his research paper and the ideas for his introductory paragraph accompanied by evidence from academic sources put into his short presentation. Based on his comments, importantly, this project enabled him to design effective power point slides by using graphs. He pointed out that learning how to transfer numbers to graphs by using a computer was very useful since only a limited time was provided for delivering a presentation and the graphs helped a lot in explaining information.

Further, to enable the student to develop written communication skills, the student was required to present his research paper with the characteristics of academic writing (formal, objective, concise, precise, and clear) and with severe attention to detail, such as a sound argument, relevant evidence from academic/reliable sources, avoidance of plagiarism, detailed referencing, etc. This assignment required the student to understand the objectives of the three previous written assignments and to develop academic literacy practice as well. Similar to the research paragraph assignment, the student needed to use the research tools, such as specific databases or catalogues and to find relevant articles for the topic of his writing. His writing topic was determined by his analysis of findings from current newspapers and/or online website advertisements about engineering positions. Also, during completion of this assignment, the student conducted several reading strategies presented in his lectures like skimming and scanning to find relevant research articles. This practice was new and very helpful for him, especially in doing the second assignment, annotated bibliography. He mentioned that the reading strategies explained in the lecture were very simple and effective which helped him to write a brief summary and comment on several articles into an annotated bibliography. Moreover, he pointed out that a well-constructed annotated bibliography would produce a good component for a long research paper.

4.2 Genre and Cohesion on the Student's Writing

The final essay, called a research paper, done by this student in the engineering communication course was analysed through Genre and Theme analysis. Firstly, by adapting the framework presented by [Hyland \(1990\)](#) about the schematic structure of

the argumentative text, this study attempted to identify the move of each paragraph in each stage of the student's text. The result of move identification on the student's essay is summarised in the following table:

Table 4. The Summary of Move Identification.

<i>Paragraphs</i>	<i>Stages</i>	<i>Moves</i>
Paragraph I	Introduction	Informing^Proposition^Marker
Paragraph II	The Argument	Marker^Restatement^Claim^Conclusion
Paragraph III	The Argument	Marker^Restatement^Claim^Conclusion
Paragraph IV	The Argument	Marker^Restatement^Claim^Conclusion
Paragraph V	The Argument	Marker^Restatement^Claim^Conclusion
Paragraph VI	The Conclusion	Marker^Consolidation^Affirmation

Note: the sign “^” means “followed by”

Table 4 shows that the moves constructed by the student in his essay reflected the stages in preparation for the genre of an argumentative text. Therefore, it was found that the genre successfully composed by the student in this Engineering Communication course was an argumentative text and was consistent with the course objectives for written communication skills and the tutor's comments. Secondly, by adapting the concept of Hyper-theme introduced by [Martin \(1993\)](#) and [Halliday and Hasan \(1976\)](#), this present study also examined how the student managed and developed his writing in the “Argumentative” Genre, assigned as the last assignment.

The Hyper-Theme in the first paragraph introduced several important changes faced by engineers in their workplaces. Further, it was continued by a detailed explanation regarding several changes that need to be considered as important skills by engineers in four narrow themes, such as communication skills, interpersonal skills, technical knowledge, and work experience. This Hyper-New shows the main scope of the essay. Each narrow topic in this Hyper-New becomes the Hyper-Theme in each of the next four paragraphs. For example, the Hyper-Theme in the second paragraph discussed the importance of communication skills in the engineering workplace. Further, the topic sentence in the third paragraph represents the importance of interpersonal skills for engineers. Finally, the arguments on the importance of technical skills and adequate experience were well discussed in the fourth and fifth paragraphs. Finally, the “Conclusion” stage consisted of a paragraph which summarised those four skills as the most valued characteristics for engineers in the workplace. The main idea of the summary acted as a Hyper-Theme which was ended by supporting arguments functioning as a Hyper-New.

4.3 The Student's Perceptions of the Engineering Communication Course

There were different perceptions by the student about the course, particularly on written communication skills. At the beginning of the course, he had several initial expectations which aimed to recognise the technical terms frequently used in the particular engineering context and to learn how these scientific words were used in writing. Also, the course was expected to provide an opportunity for the student to learn how to write the specific types of reports required in engineering studies. Finally, he was eager to know how to select the articles that have relevant information for the engineering issues in his studies. Below are selected comments from the student (C refers to Comment):

- [C1] *Hmmm, basically, at the start I expected the lecturers or tutors to show how to write attributes in terms of engineering courses and which words we can use to analyse issues in engineering.*
- [C2] *Basically, how to write a report effectively, and e...to know how to use the correct articles, relevant, and to...to...e...e...pick up the most relevant information that we can use in relation to engineering issues.*

However, by the end of the course, there was a different picture on the student's perceptions regarding the course design in written communication skills. According to the student, the writing communication skills provided in this course were completely different from his initial expectations. During his participation in the course, the student only learnt about the characteristics and procedures for academic writing. The course also did not introduce the students about how to write the common types of reports needed in an engineering context. Admittedly, the student expected that he would learn how to write these technical reports effectively by taking this course. The following comments show the student's dissatisfaction on the design of the course for written communication skills:

- [C3] *At the moment, it's quite far of this. We don't do this much, and how to approach the technical terms, so maybe I will gain, but it's not much like I expected. It's just how to write an essay, the structure of an essay. But maybe, it will be useful in the near future.*

In general, the student thought that this course was useful for him to develop his written and oral communication skills. By completing this course, he is more aware of avoiding plagiarism, referencing appropriately, and using graphs produced by a computer. Further, he commented that all assignments that reinforced the characteristics of academic writing were also useful, particularly learning skills to develop arguments based on reliable sources. In addition, a very significant impact of the workshop sessions was the development of oral communication skills which the student experienced. He noted that an everyday group discussion with multicultural students in the workshops had helped him to deliberately advance arguments and to communicate well in sharing knowledge. Lastly, he reported that the benefits of his experiences in the IAP and PEF courses had been really useful during his participation in the engineering communication course since its content was similar to both those prior courses.

5. DISCUSSION

The concept of academic literacy found in this study echoes those of other experts (Hyland & Hamp-Lyons, 2002; Lea & Street, 2006), who have suggested that this concept could be used to present an in-depth analysis of what is involved in writing by students for assessment in accordance with the students' and the tutors' comments. This study found that the participant was involved in a series of academic literacy practices in the process of acquiring engineering communication skills. The major practices that the participant encountered were constructed socially both inside and outside of the

classrooms. Inside the classrooms there was only one-way communication in the lectures; by contrast the participant thought the most influential and robust practices were found in the workshops, such as working in a group with other students and interacting with the tutor. He discussed the development of his multi-week assignments with the tutor and the other students and provided opinions regarding the topics given. Outside of the classrooms, as a new-comer in the engineering community, the participant was also involved in new academic literacy practices, such as accessing MyUni, using various discipline specific databases to list resources, learning/recognising effective reading strategies, and familiarising himself with graphic skills, as pinpointed by [Lengsfeld et al. \(2004\)](#).

Looking further into the types of course topics/assignments included in this engineering communication course, they thoroughly reflect the study by [Lengsfeld et al. \(2004\)](#), in which a multi-week assignment was designed to enable students to produce their writings in coherent, cohesive, and persuasive ways, to use library resources effectively, to evaluate relevant resource materials, and to transfer numbers into graphs. Those objectives were realised in several assignments including an abstract, an outline, an annotated bibliography, a final oral presentation, and a draft of the final research paper, which were then combined into the major assignment, a final version of the research paper. Furthermore, similarities were also found in several details of the students' writings. For example, the genre (text type) assigned in the researched paper in [Lengsfeld et al. \(2004\)](#) was similar with the one in this present study, calling for an argumentative text. Regarding an emphasis on cohesion and coherence in the student's writing described in the study by [Lengsfeld et al. \(2004\)](#), those characteristics were also shown in this study. Through Theme analysis, the participant's writing revealed that in general he used appropriate cohesions in the essay. The main point in the first paragraph shows a clear view on how the whole content was managed. Further, the main points developed in each paragraph indicated clear lexical and well-flowing texts both cohesive and coherent, which had appropriate transition signals to develop the essays to be well-organised ([Halliday & Hasan, 1976](#)). These similarities could be because the study by [Lengsfeld et al. \(2004\)](#) was done earlier so that the developers of the course in this present study could possibly have referred to the course design in the prior study. Also, both studies were done in western countries, USA and Australia.

The discrepancy between before and after the course completion in the student's perceptions regarding the course design should be deeper concern for ESP teachers and engineering lecturers. Analysis of the student's comments shows that the student had different initial expectations and final attitudes regarding the provisions of the course. This finding coincides with prior studies regarding student attitudes toward engineering communication assignments ([Kaewpet, 2009; Paretti, 2008](#)). This may be because the communication assignments introduced in the course only provided opportunities for students to learn how to write essays but not how to write different text types and build the information that best support the situational study and workplace in the engineering context ([Paretti, 2008](#)) as suggested in several previous studies ([Hanson & Williams, 2008; Kaewpet, 2009; Lengsfeld et al., 2004; Paretti, 2008; Plumb & Scott, 2002](#)) that a progress report, a design report, a technical paper, and a research paper are common genres in the context of engineering. In light of this view, the course developers in the engineering faculty could work together with the lecturers in English Language Education Department in order to design and to implement a course appropriate with the engineering context and fundamental communication skills, as described in the

study by Lengsfeld et al. (2004). Also, it may be important to provide a compulsory academic English preparation course for the first year students before commencing the engineering communication course, which would aim to resolve difficulties the students have in proficiency in English, such as lack of necessary vocabulary, lack of academic writing knowledge and paraphrasing skills, as found in the study by Lengsfeld et al. (2004). Although the findings presented in this study resulted from a non EFL context, its input could also be potentially adaptable to be applied in EFL environments that design the engineering communication course as part of curriculum design in the engineering faculties.

6. CONCLUSION

The acquisition of academic literacy can be conceptualised as a process of acquiring skills in academic reading and writing which need the students' engagement or interaction amongst the communities in their academic discipline, and those practices are varied and depend on a particular academic discourse. This paper analysed an EFL student's academic literacy practices in a communication course for engineering and how the student responded to the practices designed in that course. It was found that the student was involved in various academic practices both inside and outside of the classes and working in a group was perceived as the most positive practice in the process of understanding the course and completing a multi-week assignment. Although, there was a difference in the student's attitude before and after the course completion, the student generally perceived the course design positively and he was able to execute a written engineering communication assignment into a cohesive and coherent argumentative text. Some suggestions on the implementation of the engineering communication course are offered here, for example, mutual collaboration between the course developers and the English lecturers providing the course, the provision of program preparation for an academic English program, and the probability of adopting inputs from the present study to EFL environments. Nonetheless, some limitations of this study, such as the absence of the tutor's feedback on the student's writing and only a single participant with adequate English learning experience cannot be extrapolated to the much broader category of new international students that could be the basis for other researchers to conduct further studies in this area.

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[Received 1 June 2016; revised 7 December 2016; accepted 10 January 2017]

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