

**A CORPUS-BASED GENRE ANALYSIS OF  
QUALITY, HEALTH, SAFETY AND ENVIRONMENT WORK  
PROCEDURES IN MALAYSIAN PETROLEUM INDUSTRY**

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**DEDICATION**

***WAHEGURU JI's blessings in my life:***

*My beloved husband; Santokh Singh*

*My four wonderful children;*

*Amardeep Singh*

*Amreet Kaur*

*Amarjeet Singh*

*Amarpal Singh*

*and others...*

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*May GOD Bless Every Soul*

## ABSTRACT

This research was framed within the perspectives of English for Specific Purpose or ESP for short. Using mainly Hutchinson and Waters' (1987), Strevens' (1988) and Robinson's (1991) definition of ESP, this research investigated the communicative events produced by engineers in the petroleum industry in Malaysia. As a case study, this research focused on a particular division of the petroleum industry in Malaysia, where previous studies have been scarce. The corpus-based genre analysis conducted was based fundamentally on Swales' (1990) and Bhatia's (1993) models of genre analysis. The data is drawn from a corpus compiled using the written communicative event of work procedures in three companies under the petroleum industry in Malaysia. This study presented a corpus-based genre analysis which consisted of a move analysis and a linguistic structural analysis in order to propose a guided framework for designing suitable ESP courses. The areas investigated are the moves used, the frequency of the moves and a structural analysis of the identified linguistic features. In order to add validity to the findings of the genre analysis, a series of interviews with the specialist informants from the selected Quality, Health, Safety and Environment (QHSE) departments of the three companies were conducted. The findings included a nine-move structure used by engineers while preparing the work procedures. The structural analysis also highlighted the ten most recurring part-of-speech (POS) used in each move identified in the move analysis. The data triangulation provided a fundamental base to construct a set of guiding principles to be employed into a guided framework of a corpus-based genre analysis. The proposed corpus integrated framework (CIF) consists of four integrated dimensions namely: purposeful communication, contextual awareness, structural knowledge and grammatical accuracy which were found to be supporting the fundamental construct of the genre of work procedures. The proposed CIF will be useful for ESP course designers as well as researchers engaged in exploring authentic materials for the purpose of producing effective ESP courses.

## ABSTRAK

Kajian ini menggunakan perspektif pengajaran bahasa Inggeris untuk tujuan spesifik (ESP) dengan berlandaskan definisi yang dikemukakan oleh Hutchinson dan Waters (1987), Strevens (1988) dan Robinson (1991). Bagi mendapatkan gambaran penggunaan bahasa Inggeris secara efektif di tempat kerja, kajian ini meneliti serta memeriksa hasil penulisan para jurutera di industri petroleum di Malaysia. Sebagai satu kajian kes, penyelidikan ini telah difokuskan kepada penulisan ‘work procedure’ atau pun arahan tugas harian yang dipraktikkan di bahagian kualiti dan keselamatan (QHSE) di mana didapati kajian sedemikian adalah amat kurang. Data untuk kajian ini diperolehi dari pengumpulan hasil penulisan para jurutera yang ditugaskan untuk menyediakan ‘work procedure’ di bahagian QHSE di tiga buah syarikat berkaitan industri petroleum negara ini. Kajian ini telah menggunakan satu korpus yang dihasilkan khas bagi tujuan meneliti serta mengkaji penggunaan strategi penulisan (move analysis) dan penggunaan struktur tatabahasa (structural analysis) di dalam hasil penulisan para jurutera di industri petroleum negara ini. Kajian ini tertumpu kepada mengenalpasti ‘move’ atau pun strategi penulisan yang digunakan oleh penulis teks tersebut. Satu sistem ‘move’ ataupun strategi yang khas telah dijana melalui penelitian teks tersebut. Bagi mengesahkan penjana sistem tersebut, beberapa siri temubual telah dijalankan. Antara penemuan kajian ini adalah satu struktur yang menggunakan sembilan strategi penulisan serta penggunaan sepuluh ‘part-of-speech (POS)’ paling kerap di dalam ‘move’ yang dikenalpasti. Hasil kajian ini telah mencadangkan beberapa garis panduan yang sesuai untuk menjana satu rangka yang sesuai digunakan bagi proses pengajaran bahasa Inggeris untuk tujuan spesifik (ESP) seperti pengajaran bahasa Inggeris kepada pelajar-pelajar jurusan kejuruteraan petroleum di institusi-institusi pengajian tinggi di Malaysia. Rangka yang dicadangkan tersebut mengandungi empat dimensi penting yang menjadi tonggak kepada penghasilan dokumen ‘work procedure’ tersebut oleh jurutera-jurutera yang terlibat.

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## LIST OF ABBREVIATIONS

ASEAN	-	Association of Southeast Asian Nations
CARS	-	Create A Research Space
CEO	-	Chief Executive Officer
CGA	-	Critical Genre Analysis
CIF	-	Corpus Integrated Framework
CLAWS	-	Constituent Likelihood Automatic Word-tagging System
CNP	-	Communicative Needs Processor
COREWIC	-	Corpus of Engineering Written Industrial Communication
DOSH	-	Department of Occupational Safety and Health
EAP	-	English for Academic Purpose
EFL	-	English as Foreign Language
ELT	-	English Language Teaching
EOP	-	English for Occupational Purpose
ESL	-	English as a Second Language
ESP	-	English for Specific Purpose
EST	-	English for Science and Technology
GA	-	Genre Analysis
<i>ibid.</i>	-	Referring to the same page of the same book
IMRD	-	Introduction, Method, Result and Conclusion
IMP	-	Industrial Master Plans
IMP1	-	The First Industrial Master Plan
IMP2	-	The Second Industrial Master Plan
IMP3	-	The Third Industrial Master Plan
L2	-	Second language
MEF	-	Malaysian Employers' Federation
MTEN	-	Majlis Tindakan Ekonomi Negara

NIOSH	-	National Institute of Occupational Safety and Health
PETRONAS	-	Petroleum Nasional Berhad
PI	-	Preliminary investigation
POS	-	Part-of-speech
QHSE	-	Quality, Health, Safety and Environment
RAT	-	Reading Academic Texts Corpus
SFL	-	Systematic Functional Grammar
SLSA	-	Sentence Level Syntactic Analysis
ToC	-	Table of Content
TSA	-	Target Situation Analysis
UCREL	-	University Centre for Computer Corpus Research on Language
QS	-	Hong Kong Quantity Surveying Corpus

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## **CHAPTER 1**

### **INTRODUCTION**

This opening chapter addresses the background issues related to the study. It begins with an introduction to the study, background to the research issues and the fundamental implications from a preliminary investigation (PI). Next, it describes the problem statement, and the rationale of the study, followed by the aim of the study. Subsequently, it discusses the objectives and the research questions which are formed based on the insights drawn from the preliminary investigation.

#### **1.1 Introduction**

There have been several studies on language use which have considered both the written discourse and the spoken discourse to rely on each other in order to promote successful communication (Cook-Gumperz, 1986; Bloome and Green, 1992; Wells and Chang-Wells, 1992). However, most educationists and researchers have taken to believe that the spoken discourse and the written discourse are in fact two separate modes of communication accommodating a variation of dimensions.

Research by Tannen (1982, 1985), Biber (1988, 1994), Halliday (1989) and Kress (1989) have demonstrated that the spoken and the written discourse vary from each other and often overlap. The variations were found to be accommodated in a number of dimensions including structural and organizational differences, difference in frequencies of use of various language features, different production constraints and different uses for the varieties of the oral and written language texts. It is also proclaimed that certain spoken practices may reinforce or even obstruct the written practices (Grabe and Kaplan, 1996). According to Grabe and Kaplan (1996:5), the written discourse is a much recent invention compared to the spoken discourse. Unlike the spoken language which coextended with the history of species, written language has a documented history of more than 6000 years (Grabe and Kaplan, 1996:5).

Written abilities are learned and not naturally acquired as spoken abilities. As Grabe and Kaplan (1996) put it, writing is a technology, a set of skills which must be practiced and learned through experience. This definition of writing explains why students, especially from the English for Specific Purpose (ESP) setting, encounter problems when writing in complex situations.

The English language writing demands on ESP learners for example, may not be the same with that of the native speakers of English language as the structural rhetorical organization of the language may not be as important to the native speakers as it is to the non-native speakers (Grabe and Kaplan, 1996). For the native speakers, the structural rhetorical organization of the language is acquired naturally and effortlessly. However, non-native speakers of English need to be aware of the structural rhetorical organization and the linguistic conventions of the written communication in order to be able to understand and produce a written communicative event. In particular, they must realize the communicative purposes of the text to be produced.

Furthermore, the English language writing demands for occupational purposes may be different from the demands for academic purposes in terms of language application. English for Occupational Purposes (EOP) writings require a more sophisticated approach to writing as learners are required to apply various styles of writing including report writing, business letter writing, job application writing, sales letter writing and so on which may not be critically imposed in English for Academic Purposes (EAP) writing. The following sections highlight the background of the study. This is followed by a description of the problem highlighted in this particular study.

## **1.2 Background of the Study**

In Malaysia, English is taught and used as a second language and is a fundamental requirement for career advancement. As mastering English requires mastering the spoken and written aspects of the language, English for Specific Purpose (ESP) courses have been integrated into various curricula in the country. Since the 1990s, there has been increased emphasis of learning English especially due to the demands of globalization and internationalization (Khairi Izwan Abdullah, 2001). Now, English language is taught not only to meet academic needs of students in higher learning institutions but also to meet specific occupational needs in industry (Khairi Izwan Abdullah, 2001).

In the 1990s, a number of initiatives were taken in curricular innovations for example in Universiti Teknologi Malaysia (UTM), the *English for Civil Engineering* project which was funded by the British Council-UTM, was designed out of collaboration work between local ESP practitioners and subject specialists (Khairi Izwan Abdullah et al., 1995; Masputeriah Hamzah et al., 1995). The program was developed in order to meet the specific communicative requirements of students enrolled in the Civil Engineering courses at UTM.

Another such project is the *English for Mechanical Engineering* which was developed and conducted by a team of language instructors from the Department of Modern Languages in UTM led by Hadina Habil (1996, 1997a, 1997b, Habil, Abdullah, Ismail, Seliman, & Azahar, 1999).

At present, students in higher learning institutions are required to take academic writing courses as part of their academic programmes (Hajibah Osman, 2004). For example, students who are enrolled for the Bachelor of Engineering course in Universiti Teknologi Malaysia (UTM) are required to complete a 6 credits English language course before successful completion of the degree. According to Hajibah Osman (2004), although students in the higher learning institutions are linguistically proficient, many are still not able to handle specialist genres and require the assistance of the ESP teacher in writing for specific purposes. The end product of ESP teaching has to be addressed and examined in order to highlight the required knowledge needed by the learners in higher learning institutions. One of the areas requiring such an investigation is the engineering domain.

The demand for engineers in various industries in Malaysia has increased. According to Abang Abdullah Abang Ali (2004), the National Economic Action Council (MTEN) had stated that Malaysia will need 210,000 engineers by the end of 2010. Furthermore, *gradmalaysia.com* (gradmalaysia Engineering, 2012) had recently reported that there is a fast-growing demand of engineering jobs in the lucrative petroleum industry. The increased demand for engineers in the petroleum industry is escalated by the growing world population and energy needs (gradmalaysia Engineering, 2012). Engineering jobs such as geological engineer, petroleum engineer, pipeline engineer, marine-related engineers and environmental engineers are being offered world-wide including in the Malaysian petroleum industry. Engineers in the Malaysian petroleum industry are reported to be earning between RM55, 000 to RM120, 000 per annum (gradmalaysia Engineering, 2012). However, back in 2005, it was reported that engineering graduates made up approximately 15% of the total unemployed graduates in Malaysia (Suresh, 2006).

In 2012, Zulkiple Ibrahim (2012) reported in an online daily website that in the year 2011, local universities, university colleges and polytechnics produced some 184, 581 graduates out of which 44, 391 or 24 percent were unemployed. Among others, bad command of written English and poor communication skills were quoted as the reasons why the graduates were unemployed (Ibrahim, 2012). Thus there seems to be a mismatch between the increased demand for engineers and the current unemployment rate. This mismatch and the importance of written communication skills have been highlighted by studies conducted in various industries, including the petroleum engineering (Manvender and Sarimah, 2012), the chemical industry (Hafizoah Kassim and Fatimah Ali, 2010), business (Leong, 2001), manufacturing (Ainol Haryati Ibrahim, 1993; Hadina Habil, 2003), and government service (Manvender, 2004).

According to Zubaidah Awang, Hafilah Zainal Abidin, Md. Razib Arshad, Hadina Habil and Ahmad Syukri Yahya (2006), one reason for the high rate of unemployment among engineering graduates is the disengagement between the curriculum requirements of higher learning institutions and industry needs, with the requirements of the industries not reflected in higher learning education. In universities, graduates are taught to write research papers and specific subject-related assignments, but these activities do not reflect the demands of on-the-job writing tasks. In a keynote address during a Malaysian Employers' Federation (MEF) conference, Former Human Resource Minister, Datuk Dr Fong Chan Onn (Fong, 2004) stated the problem of skills mismatch is due to lack of coordination between the industry's projections of their human resource requirements and planning on the part of education providers in the country.

Information gained from various sources as stated above, concluded that the industry experience shows that the English taught at the tertiary level does not reflect the English required by the industry. Before suggestions for further improvements to the present curricular can be made, research exploring the actual written communication needs of learners is first necessary, in order to understand what language learners will need in real work situations after completing their studies.

Once a picture of the written English language needs has been formed, this can inform the ESP teaching pedagogy and syllabus planning. Hence, there is a need to understand the use of written English language communication by professional engineers in Malaysia.

However, in Malaysia, there are hardly any studies conducted on the particular ESP needs of petroleum engineering students in the higher learning institutions whereas globally, English language communication needs have been explored and highlighted. For example, in Thailand, Kaewpet (2009) investigated the communication needs of a group of Thai civil engineering students. In her study, Kaewpet (2009) interviewed 25 specialist informants comprising employers, civil engineers, lecturers and former civil engineering students to determine the extent of the communication needs of the students. The findings showed that there is an increased demand for learning professional English including the written communicative skills in the engineering discipline in Thailand and there is a need to increase the number of English courses taught on engineering programmes.

A case study was conducted by Anie Attan (2009) highlighting the importance of the written communication in the manufacturing sector. Her study was conducted in order to analyse the written texts produced by trainee engineers in a Japanese multinational corporation in Malaysia, involved in the assembly of car audios. Her study identified nine types of written texts; Job Instruction Manual, Technician Report, End-of-shift Report, Memorandum, Trouble Countermeasure Report, Cause and Countermeasure Report, Rework Report, Production Instruction Manual and Technical Report. With the same objective to identify the written output prepared and used in an organization, a preliminary investigation (PI) was conducted to inform the main study on the written communicative needs of engineers from the petroleum industry. Although industry executives noted the importance of all four communication skills, the present research aims to investigate the written communication in the Malaysian petroleum engineering workplace as it is an important part of a professional discourse in the petroleum industry as was found in the PI which is reported in section 1.2.1 of this chapter.

The written communication seems to be an important part of daily activities in the petroleum industry reflecting a connective link between the lower and the upper ranking workforce. Any miscommunication in the link may result in serious consequences. Thus, the present research which aims to examine the written communication produced by engineers is a timely study because the demand for engineers especially in the petroleum industry in Malaysia has increased. According to Abang Abdullah Abang Ali (2004), the National Economic Action Council (MTEN) had stated that Malaysia will need 210,000 engineers by the end of 2010. Furthermore, *gradmalaysia.com* (gradmalaysia Engineering, 2012) had recently reported that there is a fast-growing demand of engineering jobs in the lucrative petroleum industry. Most importantly, the present research is conducted to inform the ESP teaching practices of the related courses at various higher learning institutions in Malaysia.

### **1.2.1 Findings from the Petroleum Industry in Malaysia**

Similar to Anie Attan's (2009) study, a PI was carried out to identify and highlight the different types of written communicative events produced by engineers who work in the petroleum industry. However, unlike Anie Attan's (2009) study where the setting was a Japanese multinational corporation, the setting for the PI was companies from the petroleum industry in Malaysia. Four companies which are key players under the wings of PETRONAS were selected. These companies are engaged in integrated engineering and fabrication work for oil and gas production facilities and drilling rigs in Malaysia. The profiles of these companies are shown in Table 1.1. The common corporate languages used in these companies are English and Bahasa Malaysia.

The focus of the PI was on the use of English and specifically on written components of English in the workplace, based on the assumption that writing represents learners' language competence more closely than speech.

It was necessary to focus the study into one specific area as the overall operational activities of the selected companies are expansive. Upon gaining entry into the companies, a specific department, the Quality, Health, Safety and Environment (QHSE) Department, was selected. The QHSE departments of the companies were selected due to easy accessibility to the written data. The locations of the QHSE departments were isolated from the main yards thus allowing an easy access to the departments. This was particularly important as the approval to data collection in the companies was given with prior instructions of avoiding interference with daily job activities. The methods used during the PI include observations, semi-structured interviews with selected engineers from the industry and a textual analysis of selected documents collected from the settings.

**Table 1.1:** Profiles of the selected setting

<b>Company</b>	<b>Location</b>	<b>No. of engineers</b>	<b>Core business</b>	<b>Track record</b>
<b>Company A</b>	Kuala Lumpur	8,100	Oil and gas production, fabrication, construction of pipelines, design and engineering, project management	37 years
<b>Company B</b>	Pasir Gudang, Johor	2,240	Fabrication and construction, offshore and onshore construction support services	25 years
<b>Company C</b>	Kemaman, Terengganu	540	Fabrication and construction, engineering, project management, procurement, maintenance	15 years
<b>Company D</b>	Lumut, Perak	1,400	Fabrication and construction, engineering, maintenance, hook-up commissioning, support services	11 years

Purposive sampling method (Neuman, 2000) was used to select eight engineers from the QHSE department to be interviewed. The responses from the interviews were transcribed manually and analyzed according to the occurrences of similar themes in the transcriptions.

In order to avoid confusion of data and to ensure confidentiality, each respondent was given a specific code, for example; QHSE001A (department, respondent number followed by the company code). The individual codes given to the participants are shown in Table 1.2.

**Table 1.2:** Profiles of the participants for the interviews

COMPANY	CODING	AGE*	EXPERIENCE*	FIRST DEGREE**
A	QHSE001A	26	2	Business Management
	QHSE002A	30	3	Petro-chemical Engineering
B	QHSE003B	31	3	Petro-chemical Engineering
	QHSE004B	29	3	Business Management
C	QHSE005C	25	2	Electrical Engineering
	QHSE006C	30	4	Petro-chemical Engineering
D	QHSE007D	37	5	Petro-chemical Engineering
	QHSE008D	28	2	Electrical Engineering

\*Age and experience are given in years.

\*\*First degree refers to the degree of study taken by the participants in a tertiary course

The following sections describe the findings from the observation, the interviews with engineers and the textual analysis conducted.

### 1.2.1.1 Findings from the observations

Observations were conducted for two weeks at each company through on-site field visits. The time allocated for each observation varied from 45 to 90 minutes. The observations were conducted concurrently with the semi-structured interviews. Notes of the observations were taken down. During the visits, twice the engineers were involved in briefing the content of the work procedures to the workers at job sites. This activity is known as the *tool-box meetings* and is conducted daily.

The researcher was present to observe this daily activity at all the four companies. The researcher had to rely on the engineers to arrange for a meeting when they were assigned to conduct the *tool-box meetings*. Observations during the PI provided some indication of the major written outputs produced by the engineers as their daily work requirements. The findings are categorized in Table 1.3, according to internal and external execution of the documents. The internal written communicative events are meant to be used as a communication tool between the internal higher management and lower sections of the companies while the external written communicative events are used to communicate internal information to the shareholders and for external business purposes.

**Table 1.3:** Types of written communicative events produced by engineers

<b>Type of written communication</b>	<b>The written output</b>
Internal	inter-office memorandums, e-mails, work procedures/job instructions, employee manuals, standard operating procedures, meeting minutes, standing instructions, management reviews, data analyses, survey reports, training modules, counseling reports, corrective action plans, risk analysis reports, environments assessment reports (EA), document control procedures, etc.
External	e-mails, news/press release, newsletters, tender documents, procurement reports, project reports, risk assessment reports, business plans, market surveys, etc

Documents such as the work procedures, instructions manuals, reports and business analyses are confined to specific formal formats, integrating technical words with instructional English language use. These documents are highly informative towards specific job-related issues. During the observations, it was noticed that the work procedures are one of the most important documents in the QHSE departments, where it functions as the guiding instrument for safe work practices in the companies.

Work procedures play important role as guiding tools for the workers. The work procedures allow works to be executed safely. Every work in the fabrication yards has a specific work procedure which is to be read and followed strictly. While observing some of the tool-box meetings, it was noticed that the engineers emphasized the importance of executing works within the domains of the work procedures and advised workers not to ignore any part related to workplace safety as stated in the procedures. It was necessary for the engineers to communicate the content of the written documents so that the workers will adhere to the written rules and regulations related to daily works in the companies' yards.

### **1.2.1.2 Findings from the interviews**

In order to avoid any faulty inferences occurring from the time constrained observations or due to personal postulation on the issue, it was necessary to directly consult and interview the engineers. The aim was to elicit reliable responses to the research questions, especially regarding the importance of the written component of English in their workplace. The time and the place of the semi-structured interviews were set by the respondents. The interviews were conducted in English. Table 1.5 lists the interview questions used during the interview sessions. Recording was avoided as this might have disturbed those working in the area. The area where the weekly tool-box meetings are conducted is located in fabrication yards where there is a lot of noise such as vehicles being driven in and out of the compound. This too prevented recording thus the elicited data was taken down as notes.

The thematic analysis of the responses received from the semi-structured interviews highlighted three main themes. It was noticed that a single question asked tend to result in responses to a few themes. Table 1.4 shows the tabulation of each theme identified according to the construct of the interview questions. The analysis provided evidence related to the written communicative events and the importance of the work procedures.

**Table 1.4:** Tabulation of the themes from the semi-structured interview questions

No.	Interview Questions	Theme
1	1. Do you use English at your workplace? How often? 2. As an engineer what job requires you to use the English language?	Workplace English language requirement
2	1. At your workplace, do you use the English language to write? 2. At your workplace, what are the documents that you write in English?	Workplace written English language competence
3	1. Do you face difficulties when writing in English? 2. What are the difficulties faced when you write using the English language?	Difficulties faced while writing the written communicative events

Data from the semi-structured interviews revealed that the engineers are required to master written English to accomplish their daily writing tasks. Following are some of the responses to individual themes.

**a. Theme: Workplace English language requirement**

Respondent QHSE008D:

*"...yes, sometime I use English sometime I use Malay (pause) depend la with who I talk (pause) if boss then I use English if friend I use Malay (pause) every day we meet people who speak English so we also have to speak in English like (pause) with our boss the GM (General Manager) and the SM (Senior Manager) when they speak English we reply in English but sometime we use Bahasa to explain something like (pause) the welder pakai topi salah (the welder wears a wrong helmet) and the sign tak betul (the sign used is incorrect) it all depend on the situation actually..."*

Respondent QHSE005C:

*"...yes we use English every day when we work (pause) normally with our managers and clients (pause) you can see them here always (pause) English is important but*

*sometimes we also speak in Malay no harm (pause) normally with bosses we use English but with friend or colleague we use Malay (pause) English is important we have to write a lot in English because (pause) half of our job is to write (pause) write emails every day write memos write reports and all ..."*

According to the responses related to the workplace English language requirement, all eight participants agreed English plays an important role in their daily job requirements, both spoken and written. The respondents further stated that they need to speak in English with higher level management and their clients who are mainly from abroad. These clients are generally expatriates working for the petroleum industry in Malaysia.

**b. Theme: Workplace English language written competence**

Respondent QHSE001A:

*"...we have to use English language to write these reports (pause) there are also other things that we write, like procedures and instructions (pause) if speaking, we can use Bahasa Melayu (Malay language), but when writing we cannot write in Bahasa Melayu (Malay language) (pause) because our clients are all (pause) they are from (pause) mostly from oversea so (pause) as a QHSE engineer I always write in English..."*

Respondent QHSE003B:

*"...normally we use English in everything here (pause) we write in English and sometimes we have to speak in English (pause) you know the bosses are using English always (pause) yes (pause) we write many type of documents in English like (pause) e-mails, memos and (pause)we write e-mails everyday (pause) like these report (pause) we write a lot of reports everyday (pause) we also have to prepare other documents like that procedure (pause) we prepare them for the general workers (pause) they just follow what we write..."*

Respondent QHSE006C:

*"...we have to be good in English otherwise the bosses will not understand our writings (pause) even though most of the written documents are edited many times (pause) we will try to write in good English (pause) but for your information what we write maybe you cannot understand but our workers understand (normally) they don't have to read (pause) we explain to them it's our job to make sure they understand (pause) we write simple so when people read they don't get confuse (pause) that's why we must know how to write properly for example our reports (pause) they are very important for our clients (pause) other things like our procedures we write all in English not in Malay because they want it in English (pause) but we sometime use Malay to explain them to our workers (pause) they are not that good in English cannot understand many things so we have to translate..."*

Respondent QHSE007D:

*"...you see (pause) I have been working here more than 5 years (pause) yeah many of our clients are from overseas so you see (pause) they cannot understand Malay (pause) so we write in English it's very important (pause) the company want everything in English (pause) we must know English and how to write good English you are dealing with important people here (pause) I mean most of our customers are English speaking people so it's important..."*

The responses elicited for workplace written English language competence showed the engineers have to be competent and have good writing skills while preparing written communication.

According to the respondents, in order to achieve the main objective of their writing, they prefer to write short and straightforward sentences as they have to use and explain many technical words. The main objective is to relay important information related to safe execution of work in the yards which every worker has to understand and comply with. All the respondents agreed that writing using correct and proper English language is important as it reflects their ability to use the language especially in a multinational company.

**c. Theme: Difficulties faced while writing**

Respondent QHSE001A:

*"...sometimes we find it very difficult to write using bombastic words (pause) you know words that people who are really good will use (pause) we end up writing very simple English then (pause) but we don't really need to use bombastic words (pause) what is important is that we write clearly (pause) the problem normally is when it comes to writing long sentence with correct grammar and all (pause) at home you don't write much using English so when at work you have to write in English you will be scratching your head..."*

Respondent QHSE004B:

*"...yes sometimes we find it difficult to write proper sentence in English (pause) normally the problem will be with grammar (pause) the correct words to use and you know how to adjust your writing so that it will look nice (pause) spelling we can correct by using the function in the computer but we must know how to write properly (pause) we use a lot of technical words and the explanation is important..."*

Respondent QHSE006C:

*"...I have difficulty in writing correct English language sentence (pause) so normally I write in very simple English (pause) I use short sentence (pause) I don't like long sentence because (pause) then maybe I might write wrongly so (pause) I just explain with simple sentence..."*

According to the responses received, the authors faced difficulties in writing longer and complex sentences. Almost all of the respondents stated that they prefer to avoid using long sentences when writing and most of the authors opt to use simple and direct sentences.

The feedback elicited also shows that the respondents were having problems with vocabulary and grammar. Most sentences are written using technical words avoiding wider English language vocabulary use.

However, further probing into difficulties faced while writing showed the engineers faced difficulties in areas such as problems with the structural knowledge of sentences and the correct use of grammar. The respondents also highlighted that they face problems with the structural elements of the written texts and following the grammatical rules of English.

### **1.2.1.3 Findings from the textual analysis**

The observations and interviews were enhanced with a macro level textual analysis. The researcher gathered 40 written work procedures, 10 from each of the QHSE departments in the companies. In the QHSE department, the work procedures were compiled into folders and some were stored as softcopies in company computers. As requested, the engineers provided printed copies of the work procedures for analysis. The small scaled textual analysis carried out during the PI provided further insights into the actual language practice in the petroleum industry. The documents were coded using the following codes; DOC (stands for DOCUMENT), QHSE (stands for the Quality, Health, Safety and Environment department), 001 (the serial number given to the document) and A (the company's code).

The work procedures are written guidelines for various working practices at the companies and are a crucial measurement of QHSE compliance. The work procedures are prepared by safety engineers and are reviewed by the QHSE Senior Managers before being approved by the General Managers of the QHSE departments. The work procedures outline the objectives, the scope, the responsibilities and the step-by-step instructions to be completed by workers working in the yards. The procedures also define the related references and definitions according to the responsible QHSE accreditation bodies such as the National Institute of Occupational Safety and Health (NIOSH) and the Department of Occupational Safety and Health (DOSH).

The primary use of the written work procedures is to highlight safety measures related to critical work in the companies and to ensure those critical jobs are conducted in a safe and healthy manner and are performed by competent employees. In a particular department, there could be as many as ten different working stations on the yards, each assigned with different tasks, requiring specific steps for task execution. These tasks are all bound together with identical safety measures which are implemented through the work procedures. For instance, the *In House Scaffolding Training* is a procedure prepared for the safe execution of in-house scaffolding. The *Electrical Safety Procedures* outlines the necessary safety measures required during various activities involving work with electrical appliances. The *Safety Coordination Meeting on Board Vessel* outlines the QHSE precautions for vessels undergoing repairs.

The work procedures were analyzed for core components and content. They are prepared in a formal and uniform outline. Beginning with the objective or the purpose, the texts then outline the scope covered and the specific QHSE rules and regulations related to the procedures. A list of definitions is presented next, followed by the process flow or work instructions and responsibilities. Each of the sections outline has between one to two sentences describing the individual section of the procedures. The written work procedures strictly follow similar outlines, employing a detailed and focused set of instructions for executing a task. The writer's aim is to communicate direct instructions to the reader without allowing any ambiguity to take place in intended meaning, using an almost parallel style of writing.

It is important for the reader to fully understand the text and be able to apply the given instructions accordingly. Failure to understand the instructions could lead to serious problems, including incorrect execution of the jobs described which could lead to injury or damage to costly equipments. The writers of the work procedures are bound by their companies' communication systems that require direct and clear flow of communication among employees. The English used in the documents is simple and directive. The text seems to be communicating directly with the reader.

Generally, the instructions are presented in point form, avoiding lengthy illustrations. The content is meant to be precise and direct, providing step-by-step guidelines of job procedures. The reader is assumed to have an understanding of the technical words used in the text as most of the sentences are integrated with technical words, for example;

DOCQHSE001A:

*The monitoring parameter shall include but not limited to the following:-*

- i. Emission to the air (parameter, frequency and location)*
- ii. Discharge to the water (parameter- Standard B, frequency and location)*
- iii. Noise level (boundary noise;- specification: 65 db day time, 55 db night time)*
- iv. Indoor noise (noise mapping, frequency and location)*
- v. Scheduled wastes (inventory, reference to the Scheduled Wastes Management Procedure)*
- vi. Reusable waste (inventory, reference to The Waste Management Procedure)*
- vii. Environment Objective, Target & Programme*

DOCQHSE0069C:

*3.2.3.1. Mechanical and Piping*

- \* To hook-up and operate test equipment as per XXX approved test package procedure.*
- \* Together with electrical and instrument commissioning team run main and auxiliary equipment in accordance with XXX approved test package procedure, record operating parameters required.*
- \* Together with vendor and XXX representative perform crank test, start sequence test and shutdown test of Turbo-Compressor.*

Further examination of the texts revealed the allocation of supporting documents in the form of appendices. However, these appendices were not provided for this analysis.

The textual analysis conducted during the PI demonstrated a high level of worker-superior dependency. The text reflects the amount of responsibility placed on the writer of the work procedures. The writer is authorized to direct and instruct the workers to safely perform a series of tasks. The writer has to be competent with the use of technical language as used and understood by the workers and be sensitive to the demands of the community and the organization, the participants, the stakeholders and the related rules of negotiations. It was also noticed that the written communication in these organizations seems to contribute greatly to the effectiveness of the QHSE work guidelines. The safe execution of the work in the procedures is basically endorsed by the written texts prepared by the engineers and is carried out based on the merits of the written texts.

The sentence structures revealed significant importance of accuracy and facilitates fluency in writing. The linguistics characteristic of the text showed the use of technical words along with purposive wordings. The text seemed to be 'communicating' with the intended audience. Therefore, any defective linguistic structure of the language used in the written text will definitely create a misunderstanding of the actual message and mislead the reader of the document.

### **1.2.2 Implications from the Preliminary Investigation**

Generally, the PI was conducted to inform the main research regarding the existence of a fundamental gap between the present English language teaching practices and the real-world workplace English language needs of the potential employees of the Malaysian's engineering sector in the petroleum industry. Teaching English language to undergraduates of engineering courses seems to be unsatisfactorily compelling. Specifically, the main focus of the PI was to investigate the written communication skills required by the engineers in the petroleum industry.

Workplace use of written English language seems to be very important as these organizations are dealing with clients from abroad. It was found that the employees are involved in many daily written assignments, and are required to prepare daily, weekly and monthly reports which are used to communicate with worldwide clients.

Many types of written communicative events occur daily in the petroleum industry where the engineers are required to produce various types of written documents which include project reports, e-mails, memos, job instruction manuals, operating procedures, training modules, surveys, sales letters and meeting minutes which are also used to communicatively link different managerial levels of the organizations.

The written communication is important in the workplace as it promotes vital dependability of inter-communication engagement. In order to be circulated efficiently in an organization, the verbal communication relies heavily on written discourse such as the written work procedures, electronic mails, memorandums and reports. Writing the work procedures, as indicated by the engineers during the PI, is one of the most important writing tasks that the engineers have to carry out. In order to successfully prepare the work procedures, the engineers have to be competent in their written linguistic aspects including grammar, style and vocabulary.

From the PI it was concluded that the challenges faced by the engineers while writing the communicative events, among others are:

- (i) difficulties in constructing grammatically correct sentences
- (ii) using different styles of writing
- (iii) delivering the intended content in a written form
- (iv) writing long sentences in English
- (v) explaining technical words in English

It was noticed that to avoid the stated difficulties, the engineers often opted for simple and direct sentences, using mostly simple English and technical words in their writing in order to avoid lengthy sentences. This was also supported by the textual analysis where it was noted that most of the sentences were short, precise and constructed using mostly technical words. Similarly, a study by Kaewpet (2009) also identified the use of simple English with technical and non-technical terms used in reports written by civil engineers.

During the PI, all of the engineers stated that they are directly involved with the preparations of the work procedures. Therefore, relying on the feedback received from interviews with the engineers, it was decided that for the purpose of this study, examples of the work procedures were to be collected, compiled into a genre-specific corpus and analyzed for the structural linguistic patterns embedded in them. The challenges faced by the engineers emphasize implications of the nation's petrochemical engineering courses as taught at tertiary level. As ESP guided courses, petroleum engineering courses are designed to cater to the needs of future engineers in related fields where the knowledge acquired is applied directly to real world job requirements. However, it is insufficient to highlight engineering students' need for written English as there is a crucial need for the engineering courses conducted to reflect the actual English language being used in the prospective workplace. The challenges highlighted also indicated a need to look into the structural patterns being used by engineers so as to understand the ultimate foundation of the writing practice.

Although many researchers are trying to figure out the best approach, at present, there has yet to surface a single suitable ESP approach of teaching engineering courses. It seems that the language content being taught does not necessarily correspond to the actual language needs of the learners, reflecting incompatibility as they cross the threshold into the real world requirements. Currently in Malaysia, studies describing written communicative events are scarce and require further exploration, particularly in specific job-related fields such as engineering, accountancy, teaching, business, management and legislation.

In Thailand, Kaewpet's (2009) study emphasized on the importance of all four communication skills. However, Kaewpet (2009) failed to emphasize and analyse each communication skill separately, leading to a generalization of communicative ability of the engineers. Basically, the similarity of Kaewpet's (2009) study to the present research is in terms of the focus of investigation, the communication needs of engineers. However, rather than employing a generalized view of the communicative ability of engineers, the focus of the present research is solitarily aimed at investigating the writing communicative skill of the engineers in the petroleum industry.

Falling back to the findings from the PI, it was suggested by the engineers that competency in written communication is in fact a very important tool required by the engineers in the petroleum industry thus justifying the need to investigate the written communication used by the engineers.

According to Anie Attan's (2009:120) analysis, the workplace texts are produced differently from what the learners have been exposed to in the higher learning institutions. The variation in the preparation of workplace written texts suggested the need to have a longer period of industrial trainings in order to prepare the trainee engineers for their workplace written tasks (Anie Attan, 2009). The importance of writing can no longer be denied. It has been recognized as an important tool for the quest of suitable careers and for career advancement (Anie Attan, 2009).

Earlier, in their study of the language needs of trainees on industrial training, Anie Attan et al. (1993) found that some of the trainees were not satisfied with the English language training they received, stating that the written tasks given in the classrooms were different from the written tasks in the real world contexts. This mismatch of classroom written language tasks and real world written language assignments has been highlighted in other related studies as well (Katz, 1998; Redish, 1989; Fennick et al., 1993; Smart, 1993).

Katz (1998) for example, linked poor workplace writing practices to poor education and organizational culture. First of all, she blamed schools for not preparing students for the workplace writing needs. Then she blamed the new employers for placing unrealistic demands on new employees, expecting the new employees to begin conventionalized writing appropriately as soon as they join the organization. Redish (1989) and Fennick et al. (1993) followed Katz's (1998) allegation and blamed the lack of education and training of the employees as the main reasons for poor workplace writing. Smart (1993) stated that in order to achieve successful career advancements it is necessary for the employees to have good command of the writing skill.

In order to improve the effectiveness of ESP teaching practices presently employed in Malaysia, especially the teaching of ESP writing, it is necessary to conduct studies involving authentic written texts produced in actual workplaces.

Workplace use of written English is important since globalized organizations are dealing with clients from abroad, so employees may be involved in writing in English daily to communicate with clients from all around the world. In Malaysia, some of the universities preparing students for careers as engineers in the petroleum industry are Universiti Teknologi Malaysia (UTM), Universiti Teknologi Petronas (UTP) and Universiti Malaya (UM). Out of these three universities, UTM and UM are public universities while UTP is a private higher learning institution. In UTM, the petroleum engineering course is offered by the Faculty of Petroleum and Renewable Energy Engineering.

As part of the curriculum for *Bachelor of Engineering (Petroleum)*, some of the ESP-related content subjects are *English for Academic Communications*, *Fundamentals of Petroleum Engineering* and *Advanced English for Academic Communications*. Students are also exposed to writing academic papers such as *Undergraduate Project Paper I* and *II* leading to a ten-week industrial training done during the semester break.

However, there is a lack of integration of ESP-related professional writing courses which encourage and develop students' competency of writing real world engineering written tasks. Thus, supporting the claims made earlier by Anie Attan et al. (1993), Katz (1998), Redish (1989), Fennick et al. (1993) and Smart (1993) regarding poor workplace writing and lack of education of the employees.

As reflected in the PI, there is evidence of incompatibility in terms of the relevance of ESP linguistic knowledge when applied to real-world workplace demands. Thus, suggesting a need to further investigate the written communication in terms of the structural linguistics layout of the texts prepared by the engineers. An in-depth structural linguistics analysis would assist the ultimate understanding of the texts written by the engineers. Identification of the structural linguistic patterns used by engineers may well provide some useful hints regarding the knowledge application of the learners and assist in clarifying the actual needs of the ESP learners. Such insights could serve to inform future Malaysian ESP courses designed for engineers.

Every genuine ESP course should be prepared based on the actual needs of learners. ESP course designers and language practitioners have attempted to determine learners' language needs as closely as possible to actual language use, using various methods of needs assessment. While assessment of learners' needs is complicated and often process-based (Johns and Price-Machada, 2001), the PI indicated written discourse is an important communication tool in the daily activity of the engineers involved in this research. The PI also showed the responsibility placed on the writers of the work procedures. The written texts function as the communicative voice of the engineers and are direct commands from the engineers to the general workers which must be followed exactly, indicating that in the petroleum industry, written communicative events play an important role in company communication processes, as the overall performance of QHSE departments depends on the engineers' precise written instructions. The existing gap between the present curriculum for engineering students and engineers' real-life language requirements needs to be closed.

Teaching needs to be aligned to the industry's need for English language use. However, the PI conducted is only limited to the petroleum industry in Malaysia and should not be generalized to other industrial settings and contexts.

According to Bhatia (1994) it is not enough for ESP professionals to look at language trying to bridge the gap between language and the professions. In order to align teaching needs with the industry's needs, the ESP professionals need to make significant inroads in the world of professions, especially in the form of relevant ESP research output. Johns (1993) emphasized on the need of locally-based research particularly into the area of ESP teachings. In favor with Johns (1993), I feel researches in this particular area need to be expanded further till it reaches the ultimate destination of individuals trailing the path.

Although there are a number of studies investigating the English language needs of learners (Ainol Haryati Ibrahim, 1993; Ainol Haryati Ibrahim et al., 1994; Leong, 2001; Manvender, 2004; Sarimah Shamsudin, 2008; Hafizoah Kassim and Fatimah Ali, 2010), there seems to be insufficient research in the area of exploring the actual written texts as produced by the language users in the actual industrial settings.

Research exploring the actual written communicative events is deemed necessary to understand what is actually being practiced by Malaysian ESP learners when their writing skills are put to test in the real work situations. These learners have spent more than twelve years in learning and understanding English language instructions in schools and higher learning institutions. The findings of the PI, however, showed that professionals from the petroleum industry are facing problem using written English language as a tool for communication, leading to ineffectiveness in written communication. This inability may further lead to social and economic drawbacks, in terms of mobilizing social engagements and job attainments.

Therefore, it is timely to say that researchers should look at the end product of the learning process where the actual acquisition of the written instructions is being applied. Genre analysis conducted using authentic materials from the real workplace settings may well be useful to design and develop future ESP course designs. As writing involves the use of particular communicative moves (Swales, 1990), the gaps identified from the PI suggested the need for a framework which "...not only makes move identification more inter-subjective and replicable but which also provides a more fine grained analysis of the linguistic features used to accomplish particular moves" (Kanoksilapatham, 2003:3).

An appropriate method to identify the moves or strategies used in the actual written workplace communication is to use authentic materials such as the work procedures. The proposed technique of analyzing written communication is applicable across various disciplines of the written discourse thus benefitting the present ESP teaching practices. The following sections discuss the problem statement, the rationale of the present research, the research objectives and the research questions to be answered, the significance of the outcome from the present research, the scope of the study, the theoretical and the conceptual framework of the study and finally the definitions of terms used in this particular study.

### **1.3 Statement of the Problem**

The PI conducted informed the main research on the issues related to the existing workplace language needs and challenges faced by engineers in the petroleum industry. An important issue highlighted in the PI was on the importance of the written linguistics requirement and its structural deployment by the engineers. Dwelling upon the findings of the PI, there is a need to investigate the written linguistics knowledge required by the ESP learners as it is actually used in the real-life situational contexts.

The situational context of language use is as proposed by Halliday's statement; "...every text - that is, everything that is said or written - unfolds in some context of use" (Halliday, 1994: xiii) needs to be explored. At present, the ESP teaching practice of the written skills still occupies the room where language teaching is based practically on accomplishing tasks given according to the academic requirements and learners apply what they are taught in the classroom. This may not reflect the exact industrial written linguistics requirements as indicated in the PI conducted.

Currently in Malaysia, there is a lack of studies describing the structural linguistic patterns of the written communications especially in job-related fields such as the engineering field of the petroleum industry. It seems not much attention have been paid to the aspect of investigating written communicative events especially the structural linguistic patterns of the texts as it is used in the actual situations. ESP experts and researchers have, in the past, acknowledged the importance of relying on authentic materials such as the actual written communicative events as produced in the industries in order to develop accommodative models of language teaching in the dimensions of ESP teaching practices.

One such way is to promote research in the area of genre analysis by examining the written texts produced as the end product of the language users. The term 'language users' here refers to those who have spent years of learning the language and are finally given the opportunity to use it as it is required and not as it is instructed in accomplishing a given assignment in the ESP classroom. As suggested by the findings of the PI, there has been evidence of incompatibility in terms of ESP linguistics knowledge applications into the real world written linguistics demands. As stated earlier, some of the studies conducted on the English language needs of ESP learners and engineers, specifically, had identified a gap between the industrial demands and the ESP course designs being applied presently at the higher learning institutions in the nation. Thus, there is a crucial need to close the gap and to improve the teaching of the written communication skill.

## **1.4 Rationale of the Study**

In order to have an intrinsic understanding of the written communicative events, it is important to address the linguistic structures used, indicating a need to conduct a genre analysis of the written communicative events produced in the specific setting of the petroleum industry in Malaysia. The rationale of this research was viewed in terms of the selected mode of communication, the type of analysis to be conducted and the setting identified for the research purpose.

### **1.4.1 Why the written discourse?**

All over the world, people are engaged in writing - societies are linked by the print media; industries rely heavily on written communication as part of their daily conversational acts, governments are engaged in written documentations while learning institutions use the written communication to provide linguistics knowledge to learners. As a recent invention, the written discourse plays an important role in the daily linguistics requirement. However, the ability to write is not naturally acquired as in the case of the spoken language. Grabe and Kaplan (1996) stated that writing is culturally transmitted, is a technology, a set of skills which requires practice and is learned consciously through experience. Complex writing "...involves training, instruction, practice, experience, and purpose" (Grabe and Kaplan; 1996:6).

In Malaysia, the need to learn to write in English is confined to the role of English language where it is regarded as a second language (L2) and is also an important business and educational language. Any definition of writing needs to include what Grabe and Kaplan (1996:24) calls the wide diversity of the L2 learners' use of and the needs for writing.

Basically, the written discourse of work procedures was chosen as the focus of this research due to the implications from the PI. As asserted by the engineers and the observations conducted during the PI, the work procedures seem to be important operating manuals which are highly useable in the petroleum industry. The work procedures were used for the genre analysis and were compiled to form a genre-specific corpus to be known as COREWIC (short for Corpus of Engineering Written Industrial Communication) and to be used as a tool for the in-depth structural linguistics analysis. More will be elaborated in Chapter III on the compilation and the use of the genre-specific COREWIC corpus.

#### **1.4.2 Why a genre analysis?**

The rationale of applying a genre analysis to the written texts is due to the definition of a 'genre' itself which reflects the way people get things done through their practical use of language in a particular setting (Johns et al., 2006). Genre, in this case is the written work procedures prepared by engineers in the petroleum industry. The communicative purpose of the genre is transmitted via the written work procedures.

Bhatia (2008) argues for a serious commencement on genre analysis using a more analytical perspective on professional genres to generate evidence of knowledge transfer. He believes that the tradition of analyzing genres within the contextual factors may well be enhanced to include text-external factors such as the integration of discursive and professional practices of the professions. Hyland (2003) points out that a genre analysis may help L2 students to realize the social relations that genres construct and reinforce. According to Johns et al. (2006) ethnographic studies including those using interviews with individuals who read or write the genre are more useful in genre analysis as these studies provide L2 students access to authentic contexts, critically engaging them within the perspectives of cultural and textual practices.

The rationale of creating a corpus of the written texts is to allow systematic tagging of the moves in the texts. This will allow an easy visual illustration of the whole tagged documents and assist in assembling recurring moves in the texts.

The idea of moves analysis as Bhatia (1997) points out is not only to interpret and maintain a generic integrity but it is also to account for the complex communicative realities of the world. A 'move' is defined as a communicative act that is used to achieve a communicative intention that helps fulfill the overall communicative purpose of the genre (Swales; 1981, 1990). According to Johns et al. (2006), the use of genres as a teaching methodology should consider the situations students are likely to encounter and the kind of genres they will need to achieve their purpose of using the language in those particular situations. Johns et al. (2006) listed five reasons to consider what types of genres to use to teach students;

- (i) Genres that the students will be strongly motivated to learn, which means genres that they will need or want to use soon.
- (ii) Genres that embody the kinds of thinking the students will need or want or ought to be able to do.
- (iii) Genres that differ significantly according to the content of each course of learning, in order to help students develop genre awareness.
- (iv) Genres are not meant to be memorized as formats but instead learned as functional strategies in achieving one's purposes in particular types of situations.
- (v) Students should learn at least one genre in each course actively, by investigating it themselves.

Interestingly, the concept of genre is directly related to the concept of discourse community. In order for a genre to exist, there must be an existence of a community that shares similar purposes, styles, content and structure of the communicative events.

In the present research, the discourse community is the community from the QHSE departments of the petroleum industry which has specific job-related purposes, specific styles of writings, specific content and structure of the communicative events and shares the similar discourse with various other communities of the similar settings in the industry.

### **1.4.3 Why the petroleum industry?**

The development of Malaysia's industries is planned and implemented under the Industrial Master Plans (IMP). So far, the nation has developed its industry under two of the master plans; IMP1 and IMP2, each covering a period of 10 continuous years. The third Industrial Master Plan (IMP3) is a 15-year plan and was implemented on 18 August 2006 where among others it maintains that the petroleum industry functions as a major contributing component to the economy, in addition to the manufacturing industry and the service sector.

As a major contributor to the Malaysian economy, the petroleum industry has under its hat a worldwide human capital of approximately 39,236 individuals, which forms its strong foundation of supporting services such as fabrication, refineries, construction, manufacturing and engineering (von der Mehden and Troner, 2007).

Asserting Malaysia's move towards a knowledge-based economy, Zubaidah Awang, et al. (2006) point out that Malaysia needs to develop human capital that is highly knowledgeable, highly skilled and has a positive mindset. It is believed such human capital would steer the nation toward a prospective developmental stage along with advancements in international investment. The Malaysian government envisions a fully developed nation by the end of 2020. The investment in the petroleum industry in Malaysia stood at Ringgit Malaysia (RM) 57.2 billion in 2008.

The petroleum industry is involved in the production of petroleum products, petrochemicals, and natural gas. The rapid expansion of the industry is mainly credited to the accessibility of oil and gas as feedstock, a strong foundation of supporting services, well-developed infrastructure, and the country's strategic location within ASEAN and its closeness to key markets in the Asia Pacific. Most petroleum companies work in association with Malaysia's national petroleum company, PETRONAS which stands for Petroliam Nasional Berhad (Reference for Business, 2012). For the present study, three companies which are key players under the wings of PETRONAS were selected. These companies engage in integrated engineering and fabrication work for oil and gas production facilities and drilling rigs in Malaysia. The selection of the companies was based on easy accessibility to data. It was necessary to focus the study into one specific area as the overall operational activities of the selected companies are expansive.

Upon gaining entry into the companies, a specific department, the Quality, Health, Safety and Environment (QHSE) Department, was selected. QHSE compliance in the petroleum industry comes under the principal Petroleum (Safety Measures) Act of 1984, the Occupational, Safety and Health Act (OSHA) of 1967 and the Environmental Quality Act of 1974, requiring work procedures to be prepared with an acceptable degree of quality and professionalism.

Nevertheless, while carrying out a search for related literature it was found that there is a lack of studies conducted in the area of exploring the communicative competence of the workforce in the Malaysian industries. Although many studies were conducted to investigate the communicative competence of individuals in the industries, limited studies were intended to explore and examine the specific written communicative events as produced by the engineers in the industries especially in the nation's petroleum industry. Therefore, in order to fill the gap identified and address the problem highlighted, the main purpose of this study was generally to explore the written communicative events produced by engineers in the selected discourse community which is specifically from the QHSE department of the petroleum industry.

## **1.5 The Purpose of the Study**

The purpose of the study is therefore to conduct an in-depth structural linguistics analysis of the written communication in the selected setting which is the petroleum industry in Malaysia. The structural linguistics analysis is conducted within the aspects of a genre analysis comprising the identification of moves used by engineers to prepare the written work procedures. The move analysis is further supplemented by an analysis of the structural patterns of the part-of-speech (POS) used in the identified moves. Finally, the findings of these two analyses are validated using information gained from specialist informants from the selected industry via semi-structured interview sessions.

This study tries to fulfill the following objectives in order to identify and describe the linguistics content of the written work procedures prepared by the engineers in the selected discourse community.

## **1.6 Objectives of the Research**

This study aims to investigate and examine the written communicative events produced by engineers in the petroleum industry in Malaysia. As suggested by the findings of a PI the engineers' linguistics requirements do not convene with the actual workplace English language requirements therefore requiring a research to highlight and improve the area of ESP teachings presently employed at various higher learning institutions in Malaysia. The main objective of this study was to conduct a structural linguistics analysis of the work procedures prepared by the engineers.

The structural linguistics analysis was conducted to identify the moves (Swales, 1990; Bhatia, 1997; Kanoksilapatham, 2003) used by engineers in order to communicate the intended messages to the readers of the written work procedures and to examine the structural linguistic patterns in the moves used.

Basically, the aims and objectives of this research can be summarized as;

- (1) To identify and describe the structural linguistic patterns used in the corpus of work procedures in the petroleum industry, in terms of;
  - (i) The core components of the work procedures,
  - (ii) The moves used,
  - (iii) The frequency of the moves used.
  
- (2) To identify and describe the structural linguistics components of the moves used to prepare the work procedures in the petroleum industry, in terms of;
  - (i) The part-of-speech (POS) used in the moves,
  - (ii) The frequency of the POS used in the moves, and
  - (iv) The distributional patterns of the most frequently used POS.

The outlined objectives were the guiding principles of this research where the fundamental aim was to answer the following research questions.

## 1.7 Research Questions

As an investigative and a descriptive study, this study applied the mixed method of analysis, comprising both qualitative and the quantitative research methods. Following the objectives stated earlier, the research questions were;

- (1) What are the structural linguistic patterns identified in the corpus of work procedures in the petroleum industry?
  - (i) What are the core components of the work procedures?
  - (ii) What are the moves used?
  - (iii) What is the frequency of the moves used?
  
- (2) What are the structural linguistics components of the moves used to prepare the work procedures in the petroleum industry?
  - (i) What are the part-of-speech (POS) used in the moves of the work procedures?
  - (ii) What is the frequency of the POS used in the work procedures?
  - (iii) What are the distributional patterns of the most frequently used POS in the moves of the work procedures?

The first research question is divided into three components. The first component; what are the core components of the work procedures is a necessary inquiry in order to generate a fundamental move scheme. The move scheme is then used to identify moves used as required in the second component of the research question. Finally, the third component presents the frequency of the moves identified in the second component. Similarly, the second research question too is divided into three components. The first component identifies the POS used in the work procedures while the second component presents the frequency of the POS identified in the first component. The third component describes the distributional patterns of the most frequently used POS in the work procedures.

## **1.8 Significance of the Study**

Generally, once the research questions are answered, the findings of this research are believed to benefit a number of stakeholders. First and foremost, this study will benefit the Malaysian Ministry of Education (Kementerian Pendidikan Malaysia) and the higher learning institutions in Malaysia. The benefits among others are that this study will provide a better understanding of the workplace written English language requirements.

Once the research questions of this particular study are answered, some of the written communicative industrial requirements of the petroleum industry will be aligned with the language needs of the would-be employees of the industry. It would provide a basis for new ESP course designs especially for the engineering programs relevant to the QHSE division of the petroleum industry. In addition, the findings of this study may be useful to enhance, review and redesign the petroleum engineering curriculum being applied at present in the higher learning institutions. This study has also been a reflective source of information on the effectiveness of the present ESP course designs towards producing capable prospective engineers.

The second beneficiary of this particular investigative study would be the engineering students in the local public and private higher learning institutions. This study would provide insights related to the actual written English language requirements and expectations of the prospective employers.

Apart from that, this study would also highlight and provide feedback on the problems being faced by engineers who are at present employed in the industry, while performing the written communication. This study would also provide the engineering students with some beneficial input on the specific area to focus on while learning the English language writing skills.

Subsequently, this study would also benefit employers from various industries in Malaysia in terms of acknowledging the existence of the mismatch between the organizations' needs and what is being actually taught in the present education system of the nation. The study provided feedback related to the capability of the present human capital and the projected needs of the targeted human capital required by the nation.

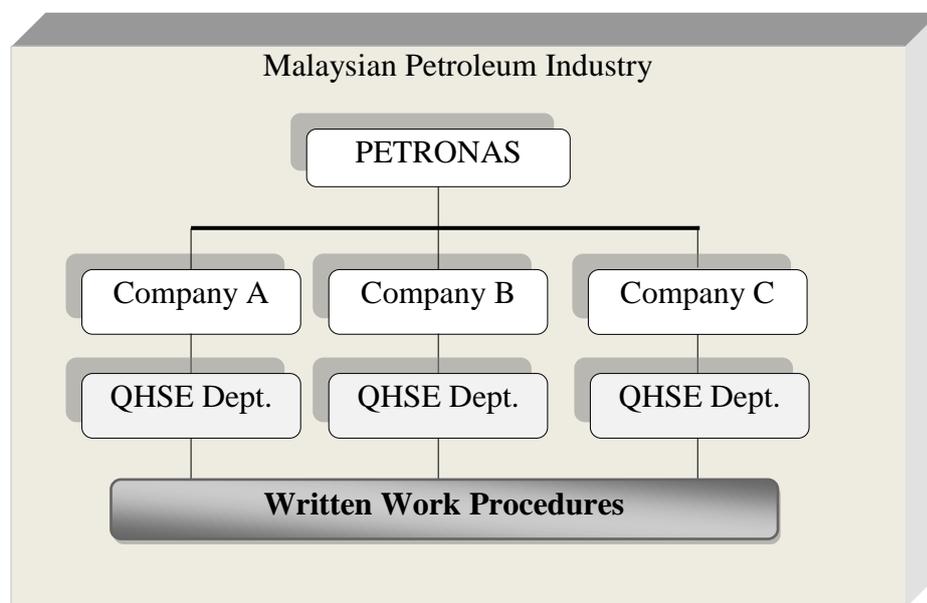
In terms of awareness, this study would provide an increased awareness on the need for the employers to get actively involved in the preparation of a capable human capital in Malaysian economy. In the long run, this study would benefit some accreditation bodies in Malaysia, for example the Board of Engineers, in terms of providing useful information regarding the criteria used by the Board in accreditation of the petroleum engineering course outlines available at present in the higher learning institutions in the nation.

Particularly, this study would contribute in the form of proposing a set of guidelines fundamental for the development of a corpus integrated framework (CIF) of teaching ESP courses to learners from the petroleum engineering domains generally and from the QHSE domains specifically. This study will also contribute to research methodology as corpus-based genre analysis was used to gain insights into the nature of specific ESP course designs. The use of genre-specific corpus-based analysis is still new in the Malaysian context thus requiring further research development in the particular area.

Another significant contribution of this study would be in the form of the compiled genre-specific corpus; COREWIC, consisting of the written communicative events which will be suitable for further research especially in the area of specific genre and critical discourse analysis. The corpus will also contribute to the numbers of genre-specific corpora available at present in Malaysia.

## 1.9 Scope of the Study

As an investigative case study, the focus in this research was on the written communicative events of work procedures prepared by engineers from the QHSE departments of three key player companies in the national petroleum industry in Malaysia, PETRONAS. The written work procedures are used as guidelines, by various levels of employees such as the general workers, the supervisors, the engineers and the clients in order to monitor works conducted on the fabrication yards of the selected companies. Figure 1.1 shows the focal point of the research.



**Figure 1.1** The Focal Point of Research

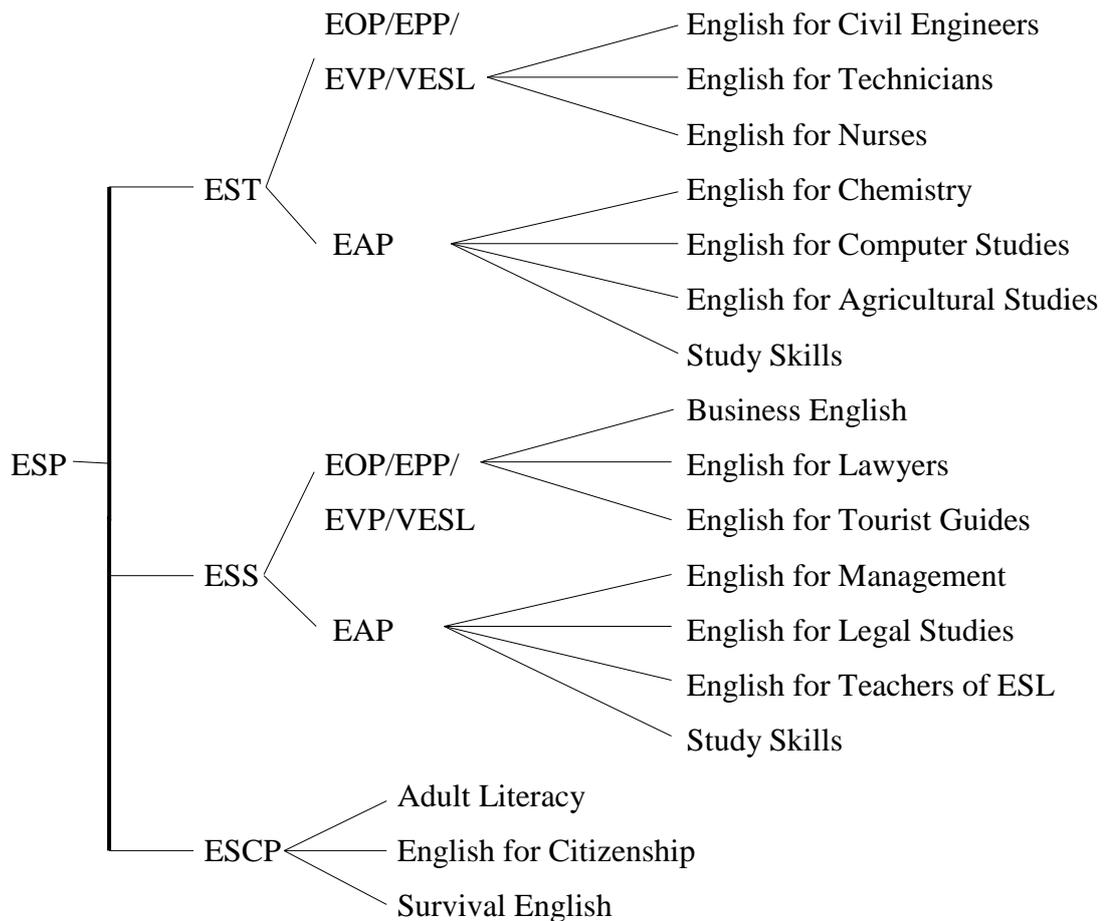
## 1.10 The Theoretical Framework of the Study

Theoretically, this study is based within the existence of a discourse community that applies specific perspectives of ESP teaching methodologies. The analysis conducted is situated within the theory of genre, enculturation and the situated learning approach. These theories and approach form the foundation of this particular study.

The point of departure of this research is the discourse analysis conducted within a specific discourse community (Bhatia, 1993). Generally, a discourse analysis refers to describing language at the intersection of disciplines such as sociolinguistics, psycholinguistics, philosophical linguistics and computational linguistics (Brown and Yule, 1983). More specifically, the analysis of a discourse refers to the analysis of language as being used by language users. According to Brown and Yule (1983:1) an analysis of discourse "...cannot be restricted to the description of linguistic forms independent of the purposes or functions which those forms are designed to serve in human affairs". The present research is concerned with ESP course designs applied in higher learning institution that contributes to the preparation of workforce for specific discourse community.

According to Khairi Izwan Abdullah (2002), the subcategories of ESP teaching methodologies can be divided into three broad areas; English for Science and Technology (EST), English for Social Sciences (ESS) and English for Socio-Cultural Purposes (ESCP), which can further be streamed into; English for Occupational Purposes (EOP), English for Professional Purposes (EPP), English for Vocational Purposes (EVP), English for Academic Purposes (EAP) and the Vocational English as a Second Language (VESL). Figure 1.2 is adapted from Khairi Izwan Abdullah (2002) presenting the ESP family tree.

The present research is placed specifically within the EOP and EPP areas of ESP. This is due to the fact that the focus of the present research is basically on the application of ESP teaching into real world occupational needs of the learners. The participants are engineers who produce written output as an evidence of ESP teaching received during their higher education in the local higher learning institutions. As a product of the education system, these engineers now occupy the discourse communities of various local industries. Thus in order to gain valuable insights related to linguistic comprehension of engineers in the petroleum industry and to provide answers to the research questions in the present study, it was concluded that a genre analysis within the ESP domain would be most interpretative and reflective of the English language used.

**Key:**

EST - English for Science and Technology

ESS - English for Social  
Sciences

ESCP - English for Socio-Cultural Purposes

EOP - English for Occupational  
Purposes

EPP - English for Professional Purposes

EVP - English for Vocational  
Purposes

EAP - English for Academic Purposes

VESP - Vocational English as a  
Second Language

**Figure 1.2** The Subcategories of ESP  
(Adapted from Khairi Izwan Abdullah, 2002)

Lately, genre theory has been placed under great interest. Researchers from throughout the world has started emphasizing on corpus-based analyses in the EAP/ESP textlinguistic perspectives, moving away from the lexical and grammatical items or the lexico-grammatical patterns analyzed at the sentence level (Swales, 1990; Bhatia, 1993, 1995; Connor and Mauranen, 1999).

In the process of knowledge production, a genre serves as an initial step (Berkenkotter and Huckin, 1995), and it is a field that "all academics have to come to terms with at some point of their career" (Connor and Mauranen, 1999:7). A genre analysis, in this case, would be useful to reflect language use by ESP learners once they are embraced into specific work culture. As the engineers come from various cultural backgrounds, proceeding into a specific work culture requires certain alignments including linguistics applications. Generally, linguistics applications are guided by the process of enculturation into specific concepts and value system or culture of the specific discourse community (Khairi Izwan Abdullah et al., 1995:15). Upon graduation and employment, Malaysian ESP learners are required to effectively participate into specific discourse communities and are bound by the process of enculturation into a new cultural adaptation.

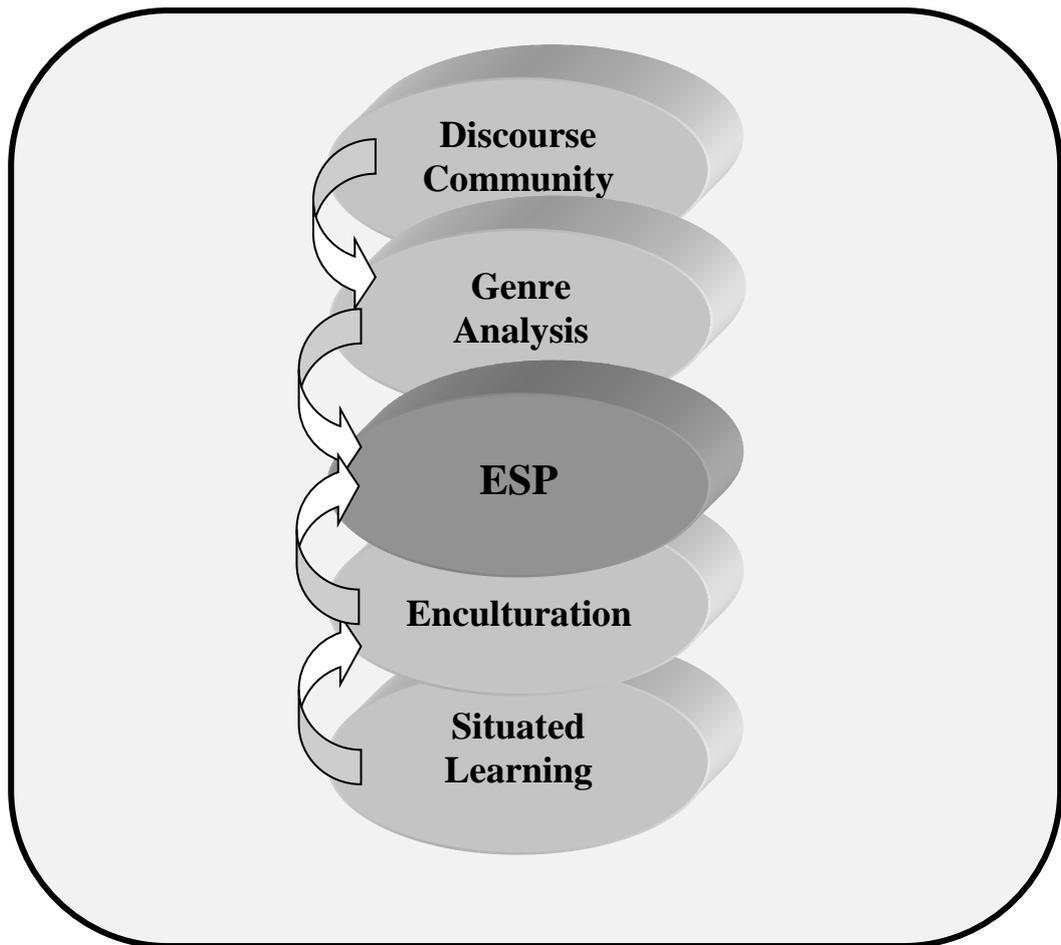
The notion of enculturation was first defined by Herskovits (1948) as the process of socialization and maintenance of norms associated with one's culture. Disengaging enculturation from acculturation, Kim and Abreu (2001) defines enculturation as a process of (re)learning and maintaining the norms of one's own indigenous culture while acculturation is the process of adapting to the norms of a dominant culture. According to Brown, Collins and Duguid (1989), enculturation refers to the process of knowing and learning the cultural practices and norms of a community of experts. Relying on the above definitions of enculturation, the present research defines enculturation as the process of valuing, accepting and relearning of the norms existing in the specific discourse community in order to successfully apply previously learnt linguistics knowledge with limited interference of one's own linguistics background.

Acceptance of the cultural practices of a specific discourse community reflects the acceptance of the activities, contexts and cultures of the situated community, learners are provided with a “cognitive apprenticeship” of the practices (Collins, Brown & Newman, 1989). This in return, requires the learners to master activities within the “peripheral features of authentic tasks” and become enculturated with the practices of the experts through the process of apprenticeship (Brown et al. 1989:34). This concept of learning is referred to as situated learning which provides learners with “legitimate peripheral participation” opportunities in the sociocultural practices of the community (Lave and Wenger, 1991). Lave and Wenger (1991:29) defined “legitimate peripheral participation” as;

*“...the process by which newcomers become part of a community of practice. A person’s intentions to learn are engaged and the meaning of learning is configured through the process of becoming a full participant in a sociocultural practice. This social process includes, indeed it subsumes, the learning of knowledgeable skills.”*

Therefore, by allowing learners to participate in active situated learning opportunities it will eventually allow them to master the knowledge and skills required for effective job-related tasks accomplishments in the specific discourse community. The notion of situated learning approach has its origin placed in the application of Vygotsky’s theory of social development (1962; 1978). More will be discussed in Chapter II of this thesis on the placement of the present research within the five distinctive theories namely; discourse community, the ESP teaching methodology, theory of genre, enculturation and the theory of situated learning.

In the present study, the fundamental theory of genre analysis is applied within the perspectives of a discourse community, an ESP teaching methodology of petroleum course design, the notion of enculturation within the discourse community and the situated learning approach in which the engineers are engaged in. Figure 1.3 represents the theoretical framework of the study.



**Figure 1.3** The Theoretical Framework

Guided by the theoretical underpinnings and the findings from the PI, a conceptual framework for this research was generated to show the flow of the study conducted. The chosen discourse community for the present research was the QHSE department of the petroleum industry while the instrument used for the genre analysis consisted of a genre-specific corpus to be known as Corpus of Engineering Written Industrial Communication or COREWIC for short.

The construct of the COREWIC Corpus is elaborated in Chapter III of this thesis. In order to answer the research questions in this study, it was first necessary to identify and review related literature.

Some related studies were reviewed and used as lead into the present analysis of the work procedures. Ultimately, the end product of this study is the Corpus Integrated Framework (CIF) for ESP course designs suitable for the engineering courses. The two main research questions of this study were answered based on the conceptual framework summarized in Diagram 1.3 in the next section.

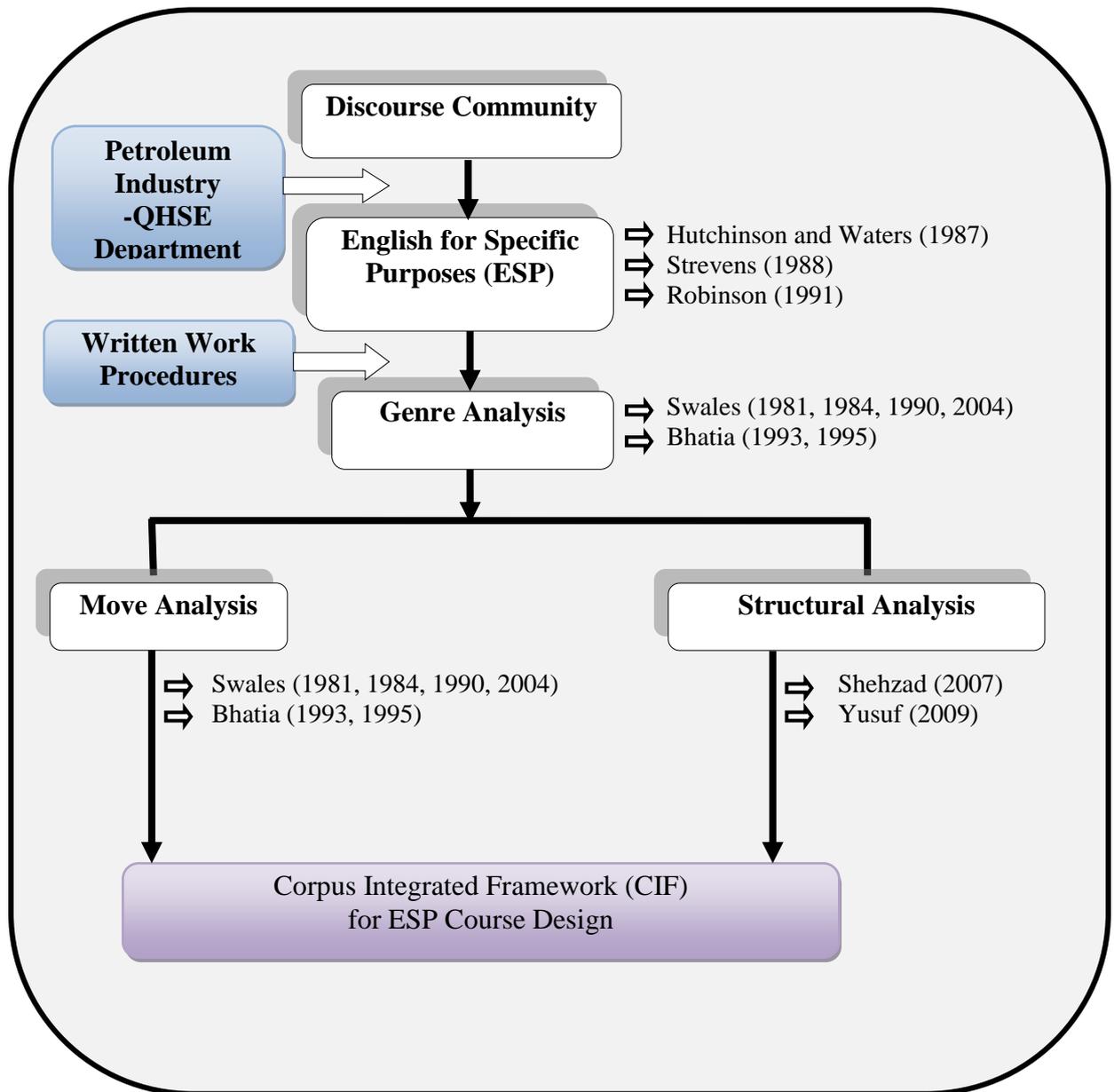
### **1.11 The Conceptual Framework of the Study**

This study is situated within the domain of Discourse Community and the English for Specific Purpose (ESP) wing of English language teaching methodology where the fundamental theory of Genre Analysis (GA) is applied to the structural linguistic patterns of the written communicative event of work procedures. The analysis is conducted in the area which is an ultimate outcome of a specific ESP teaching course design; the teaching of writing skills in an engineering course design. Specifically, the genre analysis consisted of a move analysis and an analysis of the structural patterns in the moves conducted using a specifically compiled corpus.

Figure 1.4 shows the point of departure into the research which consists of a discourse community; the QHSE department of the petroleum industry. A gap was identified in terms of lack of studies investigating the written communication in the Malaysian petroleum industry requiring a research in the area of structural linguistic patterns of the written communication, in this case, the written work procedures.

The conceptual framework shows the placement of this particular study within the perspectives of ESP teaching methodology aligned with ESP definitions provided by Hutchinson and Waters (1987), Strevens (1988) and Robinson (1991). The present research includes mainly Swales' (1990) and Bhatia's (1993) concepts of genre analysis.

There is a lack of studies investigating written documents such as the work procedures. At the time of this study, there was not a single study conducted to investigate the structural linguistic patterns of the work procedures in the Malaysian petroleum industry.



**Figure 1.4** The Conceptual Framework of the Study

Studies reviewed include Swales (1990), Bhatia (1993), Henry and Roseberry (2001), Ching (2010), Ho (2010), Yusuf (2009) and Shehzad (2007) in order to highlight the relevance of the genre analysis applied in the present analysis. Subsequently, in order to facilitate and answer the research questions of this study, a genre analysis as proposed by Swales (1990) and Bhatia (1993) was conducted on the written work procedures gathered from the specific discourse community of the QHSE department from the petroleum industry. The written documents were analyzed using two complementing approaches; a move analysis (Swales, 1990; Bhatia, 1993) and a structural analysis (Shehzad, 2007; Yusuf, 2009) while the findings of these two analyses were validated via interviews with specialist informants from the setting.

The two main research questions of this study were eventually answered by the two complementing analyses while the validation of the findings for both the research questions were conducted using semi-structured interview questions developed from selected parameters of Munby's (1978) CNP model. Subsequently, a data triangulation was formed to highlight the underlying principles of a suitable framework which is corpus integrated and deemed to be appropriate for teaching ESP engineering courses.

This study was conducted with restricted accessibility to data and was placed under extremely high supervision by the selected personnel from the organizations. Only limited access and time was allocated for the data collection activities. The research questions were basically answered using specific data which was collected and analyzed in isolation. The researcher holds full responsibility of the data gathered and had assured the organizations that any part of the data gathered will not consist of any related information of the organizations involved. Therefore, the data gathered was only shown and discussed with the supervisors and the human coder for the inter-coder reliability assessment. Related journal articles and conference presentations used the edited versions of the data gathered. The following section provides definition of terms used in this thesis.

## 1.12 Definitions of Terms

This research defines the listed relevant terms as follows:

### 1.12.1 Written communicative events

Written communicative events refer to any form of written activities performed by engineers from the QHSE department as part of their job requirements. These include emails, memos, work procedures, reports, and manuals.

### 1.12.2 Work procedures

Work procedures refer to the written work instructions prepared by QHSE engineers in order to instruct the execution of works done at the yard.

### 1.12.3 Workplace language needs

Workplace language needs refer to the actual workplace language requirement of the engineers in the petroleum industry generally and specifically in the HSE department. The language needs include all the four skills; spoken, written, reading and listening. However, for the purpose of this particular research the language needs highlighted is the written language need of the engineers.

### 1.12.4 Engineering fields

Engineering fields refer to the engineering sections of an organization. A specific engineering section of the petroleum industry which is the QHSE section forms the research setting for the investigation comprising the genre analysis and the interviews with the specialist informants.

#### 1.12.5 Petroleum industry

Petroleum industry refers to the industries involved in producing the petroleum products, petrochemicals, natural gas and also the fabrication yards given the responsibilities of fabricating the components used in the industry.

#### 1.12.6 Move structure

A move structure refers to the identification and categorization of the sentence structures into various functions of language use at the discourse level. Move structures will be analyzed according to how sentences are combined to form texts, how the texts are organized and how the various functions of language are realized by the authors of the written texts; for example the functions of describing, classifying and presenting information in a report. According to Swales (1981, 1990) and other genre analysts a 'move' is defined as a communicative act to achieve one main communicative intention that helps fulfill the overall communicative purpose of the genre.

#### 1.12.7 Genre

A genre is a recurring communicative event. In this research, the term "genre" is used to define the written communicative events of the engineering discourse, accommodating the genre-specific corpus analysis. The corpus is specifically compiled to be used in this particular research and is not meant to be used for any other purpose other than research.

#### 1.12.8 Genre-specific corpus

In this particular study, a genre-specific corpus refers to the compilation of texts into a corpus which is specifically gathered from a specific discourse and the corpus is genre-specific as it reflects a

specific genre which is investigated, for example the genre of written work procedures from the specific discourse of the QHSE department of the petroleum industry.

#### 1.12.9 Technical words

Technical words refer to specific words used by the discourse members such as the managers, engineers, welders, riggers and general workers that may not be used and understood by others outside the discourse community of the petroleum industry.

#### 1.12.10 Tool-box meeting

Tool-box meeting refers to the daily gathering of on-site workers and the engineers where the engineers communicate and elaborate the content of the work procedures to the workers at the sites of the fabrication yards. It involves discussion of project matters, safety measures, new instructions and important safety alerts. Tool-box meetings are usually held at the fabrication yards.

#### 1.12.11 Fabrication yard

Fabrication yard is a place where pipe spools and structural materials are constructed of the topsides and jackets which once completed will be lifted and shipped to respective clients around the world. Each fabrication yard is assigned with different fabrication activities.

#### 1.12.12 Authentic written texts

Authentic written texts are the real written texts being produced at the workplace of the engineers.

#### 1.12.13 Genre analysis

In this study, genre analysis refers to the analysis conducted on the genre of work procedures prepared by the engineers in the QHSE departments of the three selected companies. The genre analysis is conducted using Swales' (1981, 1990) and Bhatia's (1983) approaches to genre.

#### 1.12.14 Move analysis

In this study, a move analysis refers to the identification of 'moves' as defined by Swales (1981, 1990) or as communicative strategies used by the engineers in order to 'communicate' their intentions or messages to the readers of the work procedures, in a written form. The move analysis conducted in this study identified the moves used and tabulated the moves according to the nature the moves are used in the work procedures. The move analysis also included a frequency analysis of the moves in order to examine and analyse the most frequent moves used.

#### 1.12.15 Structural linguistic analysis

Structural linguistics analysis refers to the analysis of the internal structure of a text. It refers to the analysis of the sentence level structure of texts which was analysed according to individual moves used and individual grammatical part-of-speech (POS) used in each move.

### 1.13 Conclusion

As a conclusion, the present research is a timely topic. Based on the literature reviewed, it was found that generally there are not many studies been conducted in the area of written communication. Specifically, a gap was identified in the area of investigating and examining real-world written professional discourse such as the written work procedures.

There is also a gap indicated in the area of investigating written communication prepared by engineers in the Malaysian petroleum industry. The literature has shown that not many studies have been conducted using the written professional discourse. Furthermore, up to the date the present research was conducted, there was not a single study conducted using the written work procedures from the petroleum industry in Malaysia. The petroleum industry is one of the nation's major economy contributors. In terms of employments and career advancements, an investigation of the written communication is deemed useful and could assist in enhancing written linguistics knowledge of the future employees of the industries. Hence, the present research is required in order to highlight the necessary structural linguistic patterns used by the present employees in the industry.

The present research is necessary in order to guide future engineers reckoned to be employed by the petroleum industry. These engineers rely heavily on what input is presented to them during their higher learning in Malaysian universities. The use of authentic written work procedures in the present analysis is hoped to provide some important and beneficial information regarding the linguistics requirements of the future engineers. The method used in the present research is hoped to assist future ESP course designs and benefits the engineering faculties in the nation's higher learning institutions. The method applied in the present research is applicable across various disciplines including legislative, business and other professional discourse.

### **1.14 The Outline of the Thesis**

This thesis consists of five Chapters. The first Chapter presents the introduction of the present study, defining the context, the background and the purpose of the study conducted. Chapter 1 also contains the objectives of the study, the guiding research questions and the significance of the study. Next, in Chapter 2, a literature review of relevant areas is provided along with discussions of some related studies. These include discussions of other studies that employed similar approach of corpus-based genre analysis and also the fundamental move analysis as applied in Swales' (1990) and Bhatia's (1991) studies.

In Chapter 3, the research design is presented along with a description of the selected discourse community. These are followed by a description of the research instruments where the development of the corpus is described along with the content of the genre-specific corpus used for the analysis. Some examples of the coded and tagged corpus are provided. Next, there is a discussion on the research sample and the data analysis along with the ethical considerations applied in the present study.

Chapter 4 describes the findings of the data analysis along with some discussions related to the findings. Following these, the answers to the research questions of the study are discussed. Finally, Chapter 5 presents a conclusion to the analysis conducted in this study along with some suggested studies and prospective areas of investigations.

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