CHAPTER TWO
REVIEW OF RELATED LITERATURE

2.0 Introduction

Chapter Two begins with a brief review on the development of ESP ever since its early days in the 1960’s and the concepts adopted by major proponents of the ideas in each of the five stages of development. This eventually leads to the definition of ESP and also to the next point of discussion in 2.2, innovative use of CMC and e-mail in language learning. This section gives an overview of the studies on the use of CMCs in language learning, that have been conducted over the past fifteen years. Subsequently, section 2.3 looks at the use of e-mail in business communications in terms of its advantages and disadvantages. Later, in 2.4, 2.5 and 2.6, the similarities and the differences between memos and letters, conventional and electronic mails as well as those of conventional and electronic memos are explained respectively. Sections 2.7 and 2.8 offer some highlights on the types of error analysis studies conducted and stages of error analysis as well as classification of spelling errors. The last two sections of this literature review describe some useful concepts with regard to research approach related to the present study. At the end of the chapter, a summary concludes the review of related literature.
2.1 ESP: Then and Now

*English for Specific Purposes (ESP)* has indeed experienced tremendous development, ever since its emergence in the 1960’s. Its development has been classified into five major phases (Hutchinson and Waters, 1987), each of which, is based on five interconnected concepts.

The first phase, which began in the 1960’s until early 1970’s, was a concept that was based on register analysis. The basic idea of this concept was that grammatical and lexical features of each different register of ESP were identified. Major proponents included Strevens, Ewer and Swales (see Halliday, McIntosh and Strevens, 1964; Ewer and Latorre, 1969; Swales, 1971). During this phase, the main concern was limited to sentence level and did not go beyond that.

In the second phase, the focus shifted from sentence level to the level above the sentence, developing some knowledge of how language was used in performing different communicative acts, rather than merely providing more practice in composing sentences (Allen and Widdowson, 1974). Names like Widdowson, Selinker and Trimble are often linked with this concept. However, both the first and the second phases did not take the learners into consideration.

The third phase was based on target situation analysis. The term, ‘target situation analysis’ was taken from Chambers (1980), who offered a
detailed description of the procedures involved. Another thorough explanation was given by Munby (1978) in his *Communication Needs Processor (CNP)*, which comprise a series of questions concerning major communication variables which could be used to address the target language needs of the learners. In this concept, the situation in which learners would use the language was identified and the linguistic features of that given situation were analysed so that the language analysis could be brought closer to the learners’ needs. This phase was falsely believed to have reached the height of the development of ESP because it was assumed that the learners’ needs were given due consideration. However, it was not so, as the ‘underlying thinking process’ that was taking place, had been overlooked.

All the three phases mentioned earlier had only looked at the surface forms or linguistic features of the language. Therefore, in the fourth phase, an attempt was made to see below the surface, that is, the underlying thinking process, based on skills and strategies. This skills-centred approach placed a great deal of emphasis on reading and listening strategies so that learners could “reflect on and analyse how meaning is produced in and retrieved from written or spoken discourse” (Hutchinson and Waters, 1987: 14). The main idea behind this approach was that the focus should be on the underlying thinking process, which is not language-specific but rather, universal and it is also academically inclined, not subject-specific (Chitavelu, 1980).
Of all the four main phases, none had paid serious attention to one very important factor, the learning process, which is what the fifth phase is all about. This concept assumes that ESP ought to be seen as an approach to language learning that is based on learners' needs. Thus, "ESP, then, is an approach to language teaching in which all decisions as to content and method are based on the learner's reasons for learning" (Hutchinson and Waters, 1987: 19).

In short, ESP is perhaps best be explained by what it is not, rather than by what it really is. Hutchinson and Waters (1987) summarize the whole idea of these interconnections and divisions of ESP by using the analogy of "The tree of ELT" (p. 17) where at the root level, communication and learning are the two elements that hold everything intact. Next comes language learning from which English Language Teaching (ELT) stems out. ELT produces three major divisions namely English as a Mother Tongue (EMT), English as a Foreign Language (EFL) and English as a Second Language (ESL). From EFL and ESL, a subdivision of General English (GE) and ESP exists. From this point, ESP is further subdivided into two main types depending on whether it is for academic or occupational purposes. Based on these two types of purposes, three categories are normally identified as English for Science and Technology (EST), English for Business and Economics (EBE) and English for Social Sciences (ESS).
Even though ESP has undergone major development in the past four decades, studies in this field are still limited. This is the present scenario both internationally (Holden, 1989; Johns, 1993; Bhatia, 1994) and locally (Leong, 2001). As a matter of fact, according to Leong (2001), most of the few Malaysian ESP studies that have been documented are mainly confined to studies which were conducted on multinational companies (MNCs) because English is used in these organizations (see Ainol Haryati, 1993; Goh and Chan, 1993; Sargunan, 1997). In one of the few documented Malaysian Business English studies, Leong (2001) looked at the communicative needs of sales personnel in locally-owned and managed group of companies. By employing an ethnographic approach, the types of communicative events involved and the communication skills needed were examined. Results indicated that sales personnel needed to communicate in English in both written and spoken modes, thus making it vital for them “to be equipped with a repertoire of communication skills in English in order to perform effectively in their job” (Leong, 2001: 1).

2.2 Studies on innovative use of CMC and e-mail in language learning

The emergence of CMC in general, and e-mail in particular, has placed new demands on language (Biesenbach-Lucas & Weasenforth, 2001) and these demands are closely associated with spoken and written language (Murray, 1996), much similar to Halliday’s prediction that language “will have to become a different language in order [for us] to cope” when “new
demands are made on language” (1990, p. 82). These new demands undoubtedly give rise to different methods of teaching and learning especially at tertiary level. This is another uphill task for university-level educators who would have to prepare their students for the language in the ‘real world’ (Frizler, 1995). Nevertheless, educators are faced with lack of information on how to address these demands with regard to the Internet and CMC in their respective fields. This is due to the fact that many studies tend to focus on virtual distance education (Hara & Kling, 2000).

Some recent studies, though limited in number, indicate the distinct characteristics of the linguistic properties of e-mail (Baron, 1998) and that they are a combination of spoken and written features (Murray, 1995; Yates & Orlikowski, 1993) though Davis and Brewer (1997) say that it is a little too premature to categorise e-mail as another genre or register. Baron (1998), who studied the linguistic properties of e-mail by comparing them with other forms of communicative systems, has even proposed that e-mail is a type of Creole:

When the linguistic profile of email is compared with those of other evolving communicative systems, it becomes clear that the seemingly schizophrenic character of e-mail reflects ongoing creolization…The creolizing character of email is further defined by its changing scope of uses and usership.

(p. 64 & p.165)
One of the many "scope of uses and usership[s]" (Baron, 1998: 165) of e-mail is language learning and foreign or second language students. According to Singhal (2000), language instructors have been using the Internet in creative ways and one of these innovations is the use of e-mail. She also claims that e-mail can encourage students to use computers in authentic situations which eventually develop communicative and thinking skills. In her work that appeared in *The Internet TESOL Journal*, Singhal (2000) reviewed the benefits and challenges of the internet with regard to foreign language education. In some of the studies that she reviewed, a variety of CMC applications were involved, such as e-mail, bulletin board system, teleconferencing and sometimes more than one application was used (Kroonenberg, 1995; Cononelos and Oliva, 1993; Davis and Chang, 1994). From these studies, relevant conclusions have been drawn, based on their findings. For instance, Kroonenberg (1995) believes that by using e-mail to generate ideas about a topic, ESL students would be encouraged to express their opinions freely and once they become familiar with it, they would be able to let their ideas flow hence creating a more learner-centred and conducive environment for the learners. Cononelos and Oliva (1993), who conducted a study on advanced level Italian ESL students, found that, by using e-mail newsgroup, not only did the students improve in writing but also in their knowledge on culture, after e-mail exchanges. In a study on undergraduate students at Taiwan's National Kaohsiung Normal University (NKNU), in collaboration with Davis and his students at
University of North Carolina at Charlotte (UNCC), USA, Chang explored the potential effects of teleconferencing on literacy acquisition. Both Davis and Chang (1994) later concluded that their students' work had improved in both fluency and organization.

Meanwhile, Belisle (1996) states the following reasons why e-mail should be used in ESL writing:

(a) to familiarise students with a communication tool that would be essential in the 21st century at the workplace
(b) to increase student-teacher and peer interactions in a more flexible temporal and spatial setting
(c) to save time and for better organisation, monitoring and analysis of students' work individually and in group, from initial to final stage
(d) to engage students in process-oriented rather than product-oriented writing activities, and
(e) to create an opportunity for in-class passive learners to interact

In his study, Belisle (1996) explored the benefits of using e-mail in an ESL writing class of first and second year native Japanese students who majored in English at a branch campus of a Japanese institution based in Washington, USA. After giving his students several writing exercises and assignments with the use of e-mail, his analysis showed that students eventually became better communicators and the actual language learning
was transformed from that of teacher-centred, passive nature to a more exciting experience of exploration and discovery for the students. Even the passive and shy students began communicating effectively and felt that they now had the opportunity to express themselves in writing, using e-mail (Belisle, 1996).

In their review of the different types of contexts and possibilities for communicative interaction through e-mail that have been attempted inside and outside of the foreign language classroom, Gonglewski, Meloni and Brant (2001, p.1) suggest the following pedagogical benefits of using e-mail in foreign language teaching:

(a) extending language learning time and place, and
(b) providing a context for real-world communication and authentic interaction, which expands topics beyond the ones discussed in classrooms, promotes learner-centredness, encourages equal opportunity participation and connects students quickly and cheaply.

Since e-mail is a written form of communication, it gives a major advantage to ESL learners, especially in ESP such as Business English with particular reference to written language, for there is an opportunity for one-on-one interaction between the learner and the instructor as well as student-to-peer interaction, within seconds. Gonzalez-Bueno (1998) who analysed the effects of e-mail, by using electronic dialogue journals,
on L2 discourse, identified the following features which had also been observed by other researchers in their studies (Warschauer, 1995; Wang, 1993):

(a) students tend to write more
(b) the topics and language functions vary
(c) students' level of accuracy increases
(d) the language used in written texts are similar to oral language
(e) students tend to initiate more interactions
(f) students tend to use more personal and expressive language use

Although the use of CMC such as e-mail in language learning is indeed advantageous, its application in the classroom is still limited in Malaysia, due to financial constraint and lack of high-quality, faster-speed Internet accessibility. Nevertheless, this does not necessarily mean that the use of CMC, particularly that of e-mail, could not be applied to daily language learning in the classroom. A basic typical language learning classroom that utilises CMC, using whatever available educational tools, is however, still very much practical. And this is what initiates the present study. However, things could soon be very much different with the latest Malaysian government's educational policy to introduce the teaching of science and mathematics in English at primary and secondary levels, thus suggesting the probability that more locally-based ESP studies would be conducted in the next few years.
2.3 The use of e-mail in business communication

Undoubtedly, e-mail has tremendously changed the way people communicate as well as the speed and the extent of communication itself. It has indeed become one of the most important Internet applications (Warschauer, Shetzer & Meloni, 2000) and widely used form of CMC (McElhearn, 1996; Warschauer, 1995). E-mail allows users to get in touch with one another without having to wait for the dial tone. Its use is also extensive in the sense that it covers different locations and time zones. As such, because of its many advantages, more and more people are now using e-mail, especially among business people at executive and managerial level (Le Vasan, 1996). Statistics from the Malaysian Communications and Multimedia Commission (2002) indicate that there are currently 6.4 million internet users in Malaysia, compared to only 0.6 million in 1997. Nevertheless, the figure is only about 26.7% of Malaysia’s total population, compared to almost 60% of the total population of the United States who were using the Internet (Nielsen Net Ratings, 2001).

Paperless communication is different from paper-based communication. In paper-based document, it is absolutely essential to make everything completely clear and unambiguous because the reader may not have a chance to ask for clarification. In business, communication has to be accurate, brief and concise (Taylor, 1999) to avoid sending unclear and ambiguous messages. However, with e-mail documents, the recipient can
ask questions immediately and get a prompt reply within seconds, with less formality, because everything is at the click of a mouse.

Another difference between electronic and conventional writing is that in electronic mail, what the sender sees when composing a message might not look exactly like what the reader sees. This is due to the fact that the software and hardware that one uses for composing, sending, storing, downloading, and reading may be completely different from what the recipient uses. The sender's visual qualities of the e-mail may be quite different by the time it reaches the reader, if the former uses HTML e-mail whilst the latter corresponds via plain text e-mail.

Using e-mail in business not only reduces the physical size of the office storage space but also cuts down on the use of a mediator or third party such as the secretary, the typist and the messenger or delivery man, which is time-saving and cost-effective. Filing of documents especially internal records of incoming and outgoing memos is also made easier because most e-mail softwares can be incorporated into the office's computer operating system (OS), if not already embedded within.

On the other hand, using e-mail also has its disadvantages, which include information leakage and data integrity violations, especially in business. For example, employers and online services have the right to keep and perform inspection on messages transmitted through their systems (Le
Vasan, 1996). These messages, which sometimes are confidential, can also be printed, circulated or forwarded by either an authorized or an unauthorized personnel, if access to the information is granted. Since e-mail is accessible via intranet or internet connection, using e-mail causes users to be vulnerable to computer hackers and all kinds of computer viruses, bugs and worms.

Finally, e-mail can also be easily misinterpreted. This is due to the fact that e-mail messages tend to be shorter and also lacking in cohesive devices and punctuations that could sometimes create confusion. Another problem is that, since e-mail works similarly like the word processor, certain features like 'copy', 'cut' and 'paste', carelessness on the sender's part could also result in having the necessary information being unintentionally deleted or inappropriate information accidentally added and forwarded to a third party who is not supposed to have access to it. The outcome of this unfortunate misinformation can be disastrous, because it could mean losing a business deal.

2.4 Memo-writing format in Business English

*Memorandum* or simply *memo*, "is a Latin word which means something to remember" (Shahida et. al, 1999: 2) and is actually "a written note of communication especially in business between people working for the same organization" (Oxford Advanced Learner's Dictionary, 1996: 730). As such, *memos should not be mistaken for letters, because letters are
documents meant for external communication. In general, a memo differs from a letter in terms of purpose because the former is meant for internal readers. Basically, the purposes of writing memos at the workplace are as follows (Shahida, *et. al.*, 1999):

a) to convey message or information

b) to confirm decisions or agreement reached in meetings in order to ensure clear understanding and clear up inconsistencies

c) to instruct or to request for actions to be taken

d) to indicate actions that have been taken

Apart from having different purposes, a memo normally has the following format which is different from the format of a business letter:

(A) THE HEADING

(1) The name and/or logo of the organization and the phrase 'Memo'

a. To : The reader

b. From : The writer

c. Date :

d. Subject :

(B) THE MESSAGE

(1) Introduction

(2) Body/Contents

(3) Closing

Figure 2: The format of a memo (adapted from Shahida *et. al.*, 1999: 3-4)

(1) Sender's address
(or if printed on a letterhead, the name and full address of the organization)

(2) Date

(3) Inside address (recipient's name and address)

(4) Salutation or greeting

(5) The Message/Body of the letter

(6) Complimentary close

(7) Signature

(8) Name and position/designation

Figure 3: The format of a business letter (adapted from Shahida *et. al.*, 1999: 14-16)
Being an internal form of correspondence, a memo does not need to have
the sender's and the recipient's full addresses (see Fig. 2 and Fig. 3, p.32).
In addition, a memo usually does not come with salutation and
complimentary close, because, a memo is supposed to be as brief and as
concise as possible, omitting the unnecessary. However, the phrase
'Memo' or 'Interoffice Communication' and the like, should come in the
heading, together with the name and/or the logo of the organization. Also
in the heading are, the name or the designation (or sometimes both) of the
recipient and the sender respectively and the date on which the memo is
written and the subject, usually underlined or capitalized or in bold letters.
The subject marks the end of the heading and is followed by the message.
The message is usually organized into three main parts, the introductory
paragraph (or sentence), the body which contains the purpose of the
memo and the information to be conveyed and the closing paragraph (or
sentence). A memo is usually between one page and three or four pages
in length, depending on what its purpose is and what kind of information
it conveys. For example, memos that are sent out to give brief
instructions would certainly be different in their organization and length
than the ones that provide reports on actions taken or studies or surveys
carried out.

In brief, the features apparent in memos as explained above are most
likely to be similar to what should be in memos that are sent out using e-
mail. However, in trying to identify the similarities and the differences
between conventional and e-memos, perhaps it would be a good idea if a comparison is made between conventional mail and e-mail, which is done in the next section.

2.5 Conventional mail and electronic mail

According to Le Vasan (1996), some features of conventional mail are apparent while some rules have also been partially modified in e-mail, as shown in Table 2 (p. 35). Most of the features present in conventional mail can also be found in the electronic mail. For instance, both date and reference numbers are still there in e-mail but they have been accurately displayed inclusive of day and time as well as the name of the file, all of which are controlled by the operating software. The recipient of conventional mail is usually identified by name or title whereas in e-mail, sometimes certain code such as GM for General Manager, may be used. The subject is usually directly worded in conventional mail while in e-mail, the subject is sometimes either indirectly worded or is left without subject, though in such event, the e-mail system will usually respond and ask the sender for confirmation before the e-mail is sent out. In conventional mail, organisation of the text is important and is neatly arranged in proper paragraphs. On the other hand, e-mail texts are known to appear improper due to the idiosyncrasies of the software used, especially if one is sending a HTML-based e-mail while the other receives it as a plain text e-mail, due to the different and limited capabilities of the latter's software.
Table 2: Conventional mail and electronic mail (adapted from Le Vasan, 1996)

<table>
<thead>
<tr>
<th>FEATURES</th>
<th>CONVENTIONAL MAIL</th>
<th>ELECTRONIC MAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date and reference no.</td>
<td>Present but manually placed</td>
<td>Present, accurately displayed (plus day and exact time), generated and controlled by the software used</td>
</tr>
<tr>
<td>Salutations/greetings</td>
<td>Present and formal</td>
<td>If present, informal</td>
</tr>
<tr>
<td>Identification of recipient</td>
<td>Usually by name or title</td>
<td>May be identified by certain code</td>
</tr>
<tr>
<td>Subject identification</td>
<td>Directly worded</td>
<td>Indirectly worded</td>
</tr>
<tr>
<td>Organisation of content</td>
<td>Text is properly organised in proper paragraphs</td>
<td>Text may not be organised in proper paragraphs (randomly following idiosyncrasies of the software used)</td>
</tr>
<tr>
<td>Formality and grammar</td>
<td>Complete, grammatically correct sentences and usually formal</td>
<td>Incomplete sentences and combination of formal &amp; informal structures</td>
</tr>
<tr>
<td>Cohesive devices and punctuations</td>
<td>With all the relevant cohesive devices and necessary punctuations</td>
<td>Using less cohesive devices and punctuations</td>
</tr>
<tr>
<td>Complimentary close</td>
<td>Present and formal</td>
<td>May be present but informal</td>
</tr>
<tr>
<td>Use of abbreviations and emoticons</td>
<td>Not advisable</td>
<td>Commonly used</td>
</tr>
<tr>
<td>Level of privacy and confidentiality</td>
<td>Usually indicated on the envelope as 'Private &amp; Confidential'</td>
<td>Password created and necessary when opening such document</td>
</tr>
</tbody>
</table>

Formality is also lacking both in salutations as well as complimentary close (if present) in e-mail texts. People who send e-mail also tend to use incomplete sentences which are sometimes grammatically incorrect, combining formal and informal structures with less cohesive devices and punctuations. Abbreviations and icons, or emoticons, also known as 'smiley's' are also common in e-mail texts.
Finally, if a mail is only meant for the recipient, it is usually indicated on the envelope as "Private & Confidential". However, with e-mail, the absence of the envelope is replaced by a certain password that could be created and made necessary before such e-mail can be accessed. As an added feature, e-mail can also be programmed to have automatic reply after the recipient has read it, as a form of acknowledgement of receipt as well as to detect anyone else accessing the e-mail (if it is supposed to be 'private and confidential').

Based on similar and different features observed in the table above between conventional mail and electronic mail, a list of similarities and differences between the conventional memo and its electronic version is discussed in this study, which is discussed in the next section.

2.6 Conventional memos and electronic memos

As discussed earlier in 2.5 for the similarities and differences between conventional mail and electronic mail, some of the features that are present in conventional memo can still be found in the electronic memo, though some may also be modified. With regard to the present study, the electronic memo may exist in the form of a word processed document sent via e-mail or it may also be in the form of e-mail itself. The former may be composed using a list of options from the memo templates available or created, in the Microsoft Word software (see Figure 4, p. 37)
whilst the latter may be composed using the *Microsoft Outlook Express*, which also has word processing features (see Figure 5 below) or any other e-mail systems that have word processing features such as *Hotmail*, *Eudora* or *Yahoo*.

**Memorandum**

To : [Click here and type name]  
From : [Click here and type name]  
Date : [Click here and insert date]  
Subject: [Click here and type subject]  

[Click here and type intro.]  
[Click here and type the body/content]  
[Click here and type the closing]

Figure 4 : Sample word processed electronic memo template  
Source : *Microsoft Word memo templates*

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Figure 5 : Sample electronic memo in the form of e-mail  
Source : *Microsoft Outlook Express*
Before highlighting the similarities and differences between conventional and electronic memos, it is important to mention here that since the interest of the present study lies in the format of the memo and the number of occurrences of spelling errors, emphasis is placed on only "spatial and visual arrangement of parts of the memo" (see p. 15) and spelling errors. Therefore, certain features such as formality, grammar, cohesive features and punctuations, are not discussed this study. In addition, although there may exist two modes of electronic memos as shown in Figure 4 and Figure 5 (p. 37), for the purpose of conducting this case study, the emphasis is on the latter (as in Figure 5).

To begin comparing and contrasting the conventional memo and the electronic memo, we first look at the heading. The word "Memo" or the phrase "Interoffice Memo" and the like, which is present in conventional memo, may not be present if the electronic memo sent is in the form of a typical e-mail itself. This is because, unless specifically programmed, the e-mail does not have the word or phrase in its heading. As such, the organisation of the heading in the received electronic memo in the form of e-mail itself has changed from the one in Figure 2 (p. 32) to the following organisation as shown in Figure 6 (see p. 39).
From: “Sender's registered name” <sender's username@domain>
To: “Recipient's registered name <recipient's username@domain>
Sent: Date (and time) which the electronic memo is sent via e-mail
Subject: The subject of the e-mail

Figure 6: The organisation of the heading in the e-memo sent in the form of e-mail

In the heading, the name or designation of the recipient and that of the sender are apparent in both conventional and electronic modes. Unlike in conventional memo, a missing character in the recipient's e-mail address or a misspelling in recipient's username will result in the electronic memo not being successfully sent to its rightful recipient or it may be sent back to the sender. Like in electronic mail, the date is also more accurately displayed in electronic memo. The display of date, which may also include time, depends on the system or software used and the time zone that has been programmed. However, the date (and time) the electronic memo is sent should not be confused with the date (and time) the electronic memo is received, which is displayed by the e-mail system of the recipient on the computer screen or monitor, but does not appear in its printed hard copy. In addition, the subject in electronic memo is never left blank or empty, unlike in other electronic mail where the sender may choose to leave it blank, though in both types of electronic correspondence, the e-mail system will automatically ask the sender for
confirmation before sending the electronic message to the recipient if the subject is left blank or empty.

As in conventional memo, salutation and complimentary close should not be present. In terms of text organisation, the electronic memos in this study resemble those of the electronic mail as discussed earlier in 2.5 because both are e-mail texts. Apart from text organisation, other similar features that appear in the electronic mail such as abbreviations and emoticons can also be found in the electronic memos because both are e-mail texts. Therefore, abbreviations and emoticons that appear in the former may also be found in the latter.

Finally, what is missing from the conventional memo is the ability to use the spellchecker within the word processing software or the e-mail software concurrently as the electronic memo is being composed and sent to its recipient via e-mail. Thus, theoretically, the number of occurrences of spelling errors should indeed be minimised if a spell check is performed using the spellchecker that comes within the word processing and the e-mail softwares.
2.7 Error analysis on spelling

In 1992, Connors and Lunsford conducted a study on changes in spelling as the result of using computers. In their study, results show that, with the help of spellcheckers, the number of spelling errors produced by students has been reduced to almost half of that without the use of computer. Both of them conclude from their study that the three most commonly misspelled categories of words are homophones, spelling based on pronunciation and visual errors. Earlier, in a study on recognising patterns of spelling errors, Meyer and Smith (1987) point out that students need to be introduced to the fundamental principles of phonics and syllabication underlying the spelling rules.

According to Kulwindr (1996), error analysis on spelling may be carried out through the following five stages:

(a) error identification, which differentiates between ‘proper errors of competence’ and ‘mere mistakes’

(b) error description, which describes errors linguistically according to grammatical viewpoint

(c) error classification, which classifies errors into various categories and sub-categories

(d) error explanation, which attempts to find reasons why such errors occur (probably due to the influence of L1, the structure of L2 or the teaching techniques)
(e) error evaluation, which measures the degrees to which errors made
differ from the norms of L2

In this study, however, error analysis is limited to determining the number
of occurrences of spelling errors and followed by description and
classification of spelling errors from grammatical point of view, based on
major parts of speech, which is discussed in the next section.

2.8 Classification of spelling errors

In 1961, the Panel for the Scottish Council for Research in Education
came up with a classification of spelling errors in a study headed by
H.J.L. Robbie, which included teachers and members of the staff of the
Scottish Training Colleges. This classification, as cited in Kulwindr
(1996), identifies types of spelling errors based on omission of letters
(other than failure to double, either a single letter or syllable); insertion of
letters (other than erroneous doubling, either a single letter or syllable);
transpositions (either adjacent letters or transposition proper); doubling
(either single for double, or double for single); confusions and
substitutions (either a single letter or syllable); homonyms; preservation;
and unclassified group (either errors of ignorance or errors of
carelessness).
Nevertheless, the main aim of this study is not to find out reasons why these spelling errors are made but rather to determine whether the use of e-mail has any effect on the number of occurrences of spelling errors in memo-writing. Therefore, it is the number of occurrences of spelling errors produced individually before and after the use of e-mail that matters. Hence, a simple classification based on major parts of speech is deemed to be more practical, than the one suggested by Robbie et. al. (1961). Thus, in this study, the classification of spelling errors is based on major parts of speech such as nouns, main verbs, modifiers (adjectives and adverbs), determiners, prepositions, conjunctions and others (which do not fall into any of the other six categories). Moreover, most of the subjects in this study are average and below average students who have been anticipated to have problems in identifying words according to parts of speech, as reflected in the preliminary study conducted prior to the present study. This is clearly evident when students come across words such as ‘complain’ (verb) and ‘complaint’ (noun), or ‘advise’ (verb) and ‘advice’ (noun), and the like.
2.9 Review of research approach

Nunan defines research as “a systematic process of inquiry consisting of three elements or components: (1) a question, problem or hypothesis, (2) data, (3) analysis and interpretation of data” (1992, p.3). In general, Chaudron (1988) classifies research traditions in language learning into four categories, psychometric tradition, interaction analysis, discourse analysis and ethnography, though Nunan (1992) argues that both discourse analysis and interaction analysis are data collection methods and not truly research traditions. Van Lier (1988) proposes a model for characteristics of research in applied linguistics, of which analysis is done based on two parameters, an interventionist parameter and a selectivity parameter. In the former, the researcher intervenes in the research while in the latter, the researcher selects who or what to investigate and to what extent the phenomena is to be observed, without intervening. However, when these two parameters intersect, “four semantic spaces” are created (see Figure 7, p. 45).
<table>
<thead>
<tr>
<th>CONTROLLING intervention</th>
<th>MEASURING non-intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASKING/DOING</td>
<td>WATCHING</td>
</tr>
<tr>
<td>non-selective</td>
<td></td>
</tr>
</tbody>
</table>

Figure 7: Parameters in research design  
Source: Nunan (1992, p.7)

Meanwhile, in analysing research studies, Grotjahn (1987), as cited in Nunan (1992, pp. 4-6) suggests the following considerations: (1) data collection methods employed in the research, (2) the type of data yielded, and (3) the type of data analysis conducted. Based on these considerations, two types of research studies emerge, the pure form with two paradigms, and the mixed form with another six paradigms. Therefore, even in an experimental or quasi-experimental research, statistical data analysis may still be performed even though data are qualitative in nature (see Table 3, p.46). However, this will involve certain kind of data transformation.
<table>
<thead>
<tr>
<th>FORM</th>
<th>PARADIGM</th>
</tr>
</thead>
<tbody>
<tr>
<td>PURE</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>exploratory-interpretive</td>
</tr>
<tr>
<td></td>
<td>(a) non-experimental design</td>
</tr>
<tr>
<td></td>
<td>(b) qualitative data</td>
</tr>
<tr>
<td></td>
<td>(c) interpretive analysis</td>
</tr>
<tr>
<td>2</td>
<td>analytical-nomological</td>
</tr>
<tr>
<td></td>
<td>(a) experimental or quasi-experimental design</td>
</tr>
<tr>
<td></td>
<td>(b) quantitative data</td>
</tr>
<tr>
<td></td>
<td>(c) statistical analysis</td>
</tr>
<tr>
<td>MIXED</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>experimental-qualitative-interpretive</td>
</tr>
<tr>
<td></td>
<td>(a) experimental or quasi-experimental design</td>
</tr>
<tr>
<td></td>
<td>(b) qualitative data</td>
</tr>
<tr>
<td></td>
<td>(c) interpretive analysis</td>
</tr>
<tr>
<td>4</td>
<td>experimental-qualitative-statistical</td>
</tr>
<tr>
<td></td>
<td>(a) experimental or quasi-experimental design</td>
</tr>
<tr>
<td></td>
<td>(b) qualitative data</td>
</tr>
<tr>
<td></td>
<td>(c) statistical analysis</td>
</tr>
<tr>
<td>5</td>
<td>exploratory-qualitative-statistical</td>
</tr>
<tr>
<td></td>
<td>(a) non-experimental design</td>
</tr>
<tr>
<td></td>
<td>(b) qualitative data</td>
</tr>
<tr>
<td></td>
<td>(c) statistical analysis</td>
</tr>
<tr>
<td>6</td>
<td>exploratory-quantitative-statistical</td>
</tr>
<tr>
<td></td>
<td>(a) non-experimental design</td>
</tr>
<tr>
<td></td>
<td>(b) quantitative data</td>
</tr>
<tr>
<td></td>
<td>(c) statistical analysis</td>
</tr>
<tr>
<td>7</td>
<td>exploratory-quantitative-interpretive</td>
</tr>
<tr>
<td></td>
<td>(a) non-experimental design</td>
</tr>
<tr>
<td></td>
<td>(b) quantitative data</td>
</tr>
<tr>
<td></td>
<td>(c) interpretive analysis</td>
</tr>
<tr>
<td>8</td>
<td>experimental-quantitative-interpretive</td>
</tr>
<tr>
<td></td>
<td>(a) experimental or quasi-experimental design</td>
</tr>
<tr>
<td></td>
<td>(b) quantitative data</td>
</tr>
<tr>
<td></td>
<td>(c) interpretive analysis</td>
</tr>
</tbody>
</table>
In qualitative research methodology, triangulation is an important element that helps build the reliability and validity of the data. In some cases, major proponents of qualitative research methodology even go to the extent of giving alternative criteria for judging qualitative research (Lincoln & Guba, 1995: 300), as opposed to the conventional terms commonly used in quantitative research:

<table>
<thead>
<tr>
<th>CONVENTIONAL TERMS (Quantitative Research)</th>
<th>NATURALISTIC TERMS (Qualitative Research)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal validity</td>
<td>Credibility</td>
</tr>
<tr>
<td>External validity</td>
<td>Transferability</td>
</tr>
<tr>
<td>Reliability</td>
<td>Dependability</td>
</tr>
<tr>
<td>Objectivity</td>
<td>Confirmability</td>
</tr>
</tbody>
</table>

Trochim (2002) further explains these criteria as follows:

Credibility involves establishing that the results of qualitative research are credible or believable from the perspective of the participant in the research...[while] transferability refers to the degree to which the results of qualitative research can be generalized or transferred to other contexts or settings.... Dependability is concerned with whether we would obtain the same results if we could observe the same thing twice... [and finally] confirmability refers to the degree to which the results could be confirmed or corroborated by others....

The Research Methods Knowledge Base, 2nd Edition.,
http://trochim.human.cornell.edu/kb/index.htm,
[2 August 2002]
Nevertheless, Trochim (2002) also claims these naturalistic terms are just another way of giving different labels to the ones used by quantitative researchers. This practice of giving different labels is usually the case when the researcher faces problems in the sampling method and the size of the sample as well as problems in measurement of non-numeric data or lack of precise measurement. In most cases where two variables measured in the same yet small (n≤30) sample (also known as dependent or correlated samples) and involves nonparametric methods, the following statistical tests are normally used (Dallal, 1988):

(a) Wilcoxon matched pairs signed-rank test, instead of paired *t*-test (in parametric methods), to examine the differences between the two sets of data

(b) McNemar symmetry *Chi-square* (also known simply as McNemar's test), if the variables are dichotomous

(c) Spearman rank correlation coefficient, instead of Pearson correlation coefficient, to assess the linear association between two variables

In their data analysis, Biesenbach-Lucas and Weasenforth (2001) used average normalized counts to analyse data for cohesive devices whilst the Wilcoxon matched-pairs signed-ranks test was used to examine the differences in text length between the number of words in each student's text using the word processor and the one using e-mail. The size of the sample was small and measures of the two situations (that is, using word
processor and using e-mail) came from the same subjects, which explain
the appropriateness of using such nonparametric method. This
quantitative nonparametric method could be employed because both
researchers had first classified and transformed their non-numeric raw
data (consisting of words and phrases) into quantitative measurement
scale, unlike Frizler (1995) who totally adopted the qualitative
methodology.

2.10 Nonparametric methods

According to Sheskin (1997), a general rule applied to statistical test is
that if specific assumptions of the population parameters "that
characterize the underlying distribution(s) for which the test is employed
... [such as] the level of measurement represented by the data that are
being analysed" are violated, then nonparametric methods are used. As
such, "inferential statistical tests which evaluate categorical/ nominal data
and ordinal/ rank-order data are categorised as nonparametric tests, while
those that evaluate interval data or ratio data are categorised as parametric
tests" (Sheskin, 1997: 19). To determine which inferential statistical
test(s) to employ, Sheskin also provides some guidelines in deciding the
most appropriate test(s) as shown in the following tables:
Table 5: Decision table for inferential statistical tests employed with ordinal/rank-order data (adapted from Sheskin, 1997: 29)

<table>
<thead>
<tr>
<th>Number of samples</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single sample</td>
<td>The Wilcoxon signed-ranks test</td>
</tr>
<tr>
<td></td>
<td>The single sample test for the median</td>
</tr>
<tr>
<td>Two samples</td>
<td>The Mann-Whitney U test</td>
</tr>
<tr>
<td></td>
<td>The median test for independent samples</td>
</tr>
<tr>
<td></td>
<td>The Siegel-Tukey test for equal variability</td>
</tr>
<tr>
<td>Two independent samples</td>
<td>The Wilcoxon matched-pairs signed-ranks test</td>
</tr>
<tr>
<td></td>
<td>The sign test</td>
</tr>
<tr>
<td>Two dependent samples</td>
<td>The Kruskal-Wallis one-way ANOVA by ranks</td>
</tr>
<tr>
<td></td>
<td>The median test for independent samples</td>
</tr>
<tr>
<td>Two or more samples</td>
<td>The Friedman two-way ANOVA by ranks</td>
</tr>
<tr>
<td>Two or more independent samples</td>
<td></td>
</tr>
<tr>
<td>Two or more dependent samples</td>
<td></td>
</tr>
</tbody>
</table>

Table 6: Decision table for inferential statistical tests employed with categorical/nominal data (adapted from Sheskin, 1997: 29)

<table>
<thead>
<tr>
<th>Number of samples</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single sample</td>
<td>The chi-square goodness-of-fit test</td>
</tr>
<tr>
<td></td>
<td>The binomial sign test</td>
</tr>
<tr>
<td></td>
<td>The z test for a population proportion</td>
</tr>
<tr>
<td></td>
<td>The chi-square test of independence</td>
</tr>
<tr>
<td></td>
<td>The single sample runs test</td>
</tr>
<tr>
<td>Two samples</td>
<td>The chi-square test for homogeneity</td>
</tr>
<tr>
<td></td>
<td>The Fischer exact test</td>
</tr>
<tr>
<td></td>
<td>The z test for two independent proportions</td>
</tr>
<tr>
<td>Two independent samples</td>
<td>The McNemar test</td>
</tr>
<tr>
<td>Two dependent samples</td>
<td>The McNemar test</td>
</tr>
<tr>
<td>Two or more samples</td>
<td>The chi-square test for homogeneity</td>
</tr>
<tr>
<td>Two or more independent samples</td>
<td></td>
</tr>
<tr>
<td>Two or more dependent samples</td>
<td></td>
</tr>
</tbody>
</table>

In their study, Riesebach-Lucas and Weasenforth (2001) had employed the Wilcoxon matched-pairs signed-ranks test for reasons as explained earlier (see pp. 48-49). Hence, in this case study, the same statistical test applied in examining the differences in students’ scores on the memo format and the number of spelling errors they produced before and after
the use of e-mail. A thorough explanation on data collection, coding and analysis will be provided in Chapter Three.

As indicated in Table 5 (p. 49), two options are available. Nevertheless, the Wilcoxon matched-pairs signed-ranks test is a better alternative than the Sign test if data yielded are capable of showing the relative magnitude of difference, not merely subjective ratings such as more-less, higher-lower or larger-smaller as used in the Sign test. Furthermore, the Wilcoxon matched-pairs signed-ranks test examines both the direction of difference and the relative amount of difference (Portney and Watkins, 2000).

For the Wilcoxon matched-pairs signed-ranks test, the procedure begins with listing the paired data and calculating the difference ($d$) between the two. The difference scores are later ranked from the smallest to the largest, ignoring the plus and minus signs, and discarding the tied pairs where $d=0$. If there are ties, then the number of subject ($n$) is reduced, as in the Sign test. When there are two or more identical difference scores, the mean of their ranks is given. The ranks are then repeated but this time each is given the sign plus or minus, according to the sign in the calculation of the difference scores earlier. The null hypothesis ($H_0$) is accepted if the sum of positive signs equals to the sum of negative signs, or the sum of positive ranks equals to the sum of negative ranks.
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Eventually, the value of \( T \), the test statistic, which is the sum of ranks for the less frequent sign, is determined. For example, if there are fewer negative ranks, then \( T \) is the sum of the negative ranks, and vice versa. However, only the absolute value of \( T \) is used. Only when performing a one-tailed test does the sign of \( T \) is of concern. A one-tailed test is performed if a change has already been predetermined and the test is performed to find out whether the change contributes to the increase or the decrease of what is being measured. In other words, it is the direction of the change that is under investigation. However, in the present study, the objective is to find out whether or not any change actually takes place. Therefore, a two-tailed test should be performed, instead of a one-tailed test. What all this means is that the predetermined level of significance (\( \alpha \)), for example if the level of significance, \( \alpha = .05 \) has been predetermined by the researcher, for the two-tailed test, this will result in the level of significance being, \( \frac{1}{2}\alpha = \frac{1}{2} (.05) = .025 \). The result should be able to tell us whether a change does take place, according to the predetermined level of significance.

In the Wilcoxon matched-pairs signed-ranks test, the absolute calculated value of \( T \) must be less than or equal to the critical values of \( T \) (see Appendix A: Critical values of \( T \) for the Wilcoxon's signed-ranks and matched-pairs signed ranks test) in order for it to be significant, which is opposite to the way most critical values are being used. If the absolute calculated value of \( T \) is significant, then the researcher could measure the
association (the difference between the two sets of data) in terms of strength by performing the computation of the nonparametric coefficient of correlation such as the Spearman rank correlation co-efficient, \( r_s \), an analogous alternative to the parametric Pearson coefficient of correlation, \( r \). In simple words, although there is a change in what is being measured, the researcher may move a step further in trying to determine whether the relationship between the variables of interest is strong or weak. Apart from the Spearman’s \( r_s \), another measure of association, the Kendall rank correlation coefficient \( (T) \) or sometimes termed as the Kendall’s tau (\( \tau \)) is also applicable and may be used as an alternative strategy to perform countercheck on the Spearman’s \( r_s \). The Kendall rank correlation coefficient \( (T) \) actually refers to “the statistic based on a sample and [the Kendall’s tau] \( \tau \), [based on] the population parameter” (Siegel and Castellan, 1988: 251).

On the other hand, according to Siegel and Castellan (1988), if “data from \( k \) matched samples [or more than two matched samples] are in at least an ordinal scale, [then] the Friedman two-way analysis of variance by ranks is used” (p.174). Although initially this case study attempted to replicate what Biesenbach-Lucas and Weasenforth (2001) did in their study, the researcher in this case study had made some adaptations, that is, by adding one more set of data, other than the ones obtained before and after the use of e-mail. This set of data was obtained by having the students’ scores in the final assessment compared to the scores before and after the
use of e-mail. Although the Friedman test could be applied in this situation, where more than two sets of data are compared simultaneously, an alternative method could also be applied by performing the Wilcoxon matched-pairs signed-ranks test on each pairwise comparison where only two sets of data are compared simultaneously (Sheskin, 1997). It may be necessary to mention here that in the Wilcoxon matched-pairs signed-ranks test, computation is based on the absolute difference between the two sets of data in each row (for each subject), which is later ranked. The plus and minus signs, which are discarded earlier (hence explains the term absolute difference), are included, resulting in having the sums of positive and negative ranks. On the other hand, the computation of $F_r$ in the Friedman test is based on data (not the difference between the sets of data) which are ranked horizontally. In the present study, the researcher decided to use the Wilcoxon matched-pairs signed-ranks test for each pairwise comparison, not the Friedman test. This was done because only two pairwise comparisons were necessary, that is, between the students' scores in conventional memos before the use of e-mail and the ones in electronic memos after the use of e-mail, and also between the students' scores in conventional memos before the use of e-mail and the ones in Final Assessment where students had to revert to conventional memo-writing. Furthermore, performing one calculation at a time for each pairwise comparison in the Wilcoxon matched-pairs signed-ranks test, instead of simultaneous calculations in the Friedman test would yield better results (Sheskin, 1997). Nevertheless, all computations in this...
study were done with the help of statistical software package, *SPSS for Windows ver. 10.01*.

2.11 Conclusion

There have been significant changes in the field of ESP over the past four decades and it is now in its fifth stage of development, where ESP is viewed as an approach, rather than a product. Although ESP has been in existence for more than forty years, studies on ESP are still lacking. Therefore, more research should be carried out, especially locally-based research (Johns, 1993) in order to fulfil such needs. Similarly, there has been little research done on the use of e-mail in tertiary level Business English in Malaysia, particularly in electronic memo-writing as most Malaysian ESP studies tend to focus on multinational companies (Leong, 2001), even though e-mail is the most important of all Internet applications (Warschauer, Shetzer & Meloni, 2000) and the most widely used form of CMC (McElhearn, 1996; Warschauer, 1995). This is something that ESP practitioners and researchers in this field should give serious consideration since the use of e-mail is increasingly becoming extensive in business.

In this study, an attempt was made to examine students’ scores on memo format as well as the number of spelling errors they produced both before and after the use of e-mail. Only certain aspects such as the spatial and visual arrangement of the memo are examined with regard to the memo
format. Similarly, error analysis on spelling in this study is limited only up to three stages, that is, error identification, error description and error classification that is based major parts of speech.

In research studies, three basic considerations are taken into consideration and they are the methods employed in data collection, the type of data yielded and the type of data analysis performed. From these considerations, eight types of research design emerge (Grotjahn, 1987 as cited in Nunan, 1992). Instead of applying purely quantitative or purely qualitative methods in a study, combining these two research traditions are possible. This will result in not only triangulation of methods but also triangulation of data. However, certain modifications are necessary and if the normal assumptions applied in parametric methods have been violated, then nonparametric methods should be employed.

In applying the nonparametric methods as similarly done by Biesenbach-Lucas and Weasenforth (2001), the Wilcoxon matched-pairs signed-ranks test is applicable in one pairwise comparison of two correlated matched samples. Although the Friedman test could possibly be employed, the researcher decided to apply the Wilcoxon matched-pairs signed-ranks test in each of the pairwise comparisons because it is a more appropriate and better alternative (Sheskin, 1997).