CHAPTER THREE
RESEARCH DESIGN AND METHODOLOGY

3.0 Introduction

This chapter begins with a brief explanation about the study. Its subjects and the instruments used are both described in 3.2 and 3.3 respectively, and this is done by highlighting the similarities between this study and the earlier two studies, one by Frizler (1995) and the other by Biesenbach-Lucas and Weasenforth (2001). Subsequently, details of data collection procedures and data analysis are given in 3.4 and 3.5. Finally, section 3.6 provides a summary of the entire chapter.

3.1 The study

In terms of methodology, this study has adapted both quantitative method employed by Biesenbach-Lucas and Weasenforth (2001), in analysing the memo format and the number of occurrences of spelling errors in memo-writing activities, as well as qualitative method used by Frizler (1995) in attempting to analyse students' perceptions on the use of e-mail in writing. This triangulation of methods and data is necessary to increase reliability and validity as the size of the sample is too small for a purely quantitative study. In addition, by taking a qualitative approach at the same time, the researcher would be able to get a more in-depth view that is not only limited to her own perspective, but from the students' perspective as subjects of the study.
3.2 The subjects

The population of this case study is the pioneer group of BTEC HND (Business) first year students at Institut Teknologi Darulnaim (ITD), Kota Bharu, Kelantan, which consists of thirteen students, 6 males (46.2%) and 7 females (53.8%). Although the population of the BTEC HND (Business) students is relatively small compared to the other courses offered at ITD, the female to male ratio is relatively similar to that of overall total student population at ITD where 395 (59.4%) are female, which is more than half of the total population.

From this population of thirteen students, the subjects in this case study were selected based on purposive sampling, as Frizler (1995) did in her study. Only students who met the following criteria were included in the present study:

(a) students who were computer- and internet-literate
(b) students who knew the basics of using e-mail
(c) students who had obtained at least a pass in English Language at SPM level
(d) students who had registered for FIE 1114 (Intensive Business English Level I)
(e) students who attended FIE 1114 classes regularly (at least 80%)
(f) students who had completed all exercises and assessment for memo-writing in FIE 1114
In her study, Frizler (1995) recruited her subjects over the Internet by three ways:

(a) making announcement to EFL/ESL instructors on numerous discussion lists
(b) directly inviting students to participate via schMOOze university
(c) directly communicating with EFL/ESL students on the EFL/ESL student discussion lists via e-mail

Hence unlike in Frizler’s study, the subjects in this case study were recruited in ‘real’ and not ‘virtual’ communication, thus making the subjects in the present study ‘real’ students who still had to attend regular classes and not merely ‘virtual’. This is similar to what Biesenbach-Lucas and Weasenforth (2001) did. In their study, although they did not elaborate on the criteria for their sampling method, Biesenbach-Lucas and Weasenforth (2001) recruited, as their subjects, fourteen ‘real’ non-native ESL students from non-English-speaking countries in an intermediate intensive course at the George Washington University, who were given online writing assignments. Similarly in both studies conducted by Frizler (1995) and Biesenbach-Lucas and Weasenforth (2001) mentioned earlier, not all students fulfilled the said criteria. In this case study, only ten out of thirteen students met the criteria set prior to data collection.
3.3 Instrumentation

In order to build validity and triangulation in this study, the researcher used a variety of instruments in her attempt to view the same situation from different perspectives. The instruments used include:

(a) Students’ texts (memos)

i. Without e-mail (conventional memos), before e-mail was used, during continuous in-class assessment

ii. With e-mail (electronic memos), after e-mail was used, during continuous in-class assessment

iii. Without e-mail (conventional memos), after e-mail was used, during Final Assessment

(b) Questionnaires

i. First stage questionnaire, before e-mail was used, comprising 11 items in Section 1 and 6 items in Section 2

ii. Second stage questionnaire, after e-mail was used, comprising 7 items

(c) Interviews

Semi-structured one-on-one, face-to-face interviews were conducted at the end of the semester with each subject, lasting 15 to 20 minutes, after the students had completed assessments.

(d) Observation in the form of researcher’s notes
Data Collection Procedures

In the present study, *FIE 1114* was an ESP course that carried a total of 4 credit hours, conducted within the duration of 15 weeks. On the other hand, *FUN 101* in Frizler’s study, was a totally online ESOL writing course which did not carry any credit hours, conducted within the duration of 8 weeks. In addition, students in the present study had both online as well as conventional or offline on-going assessment, unlike ‘real’ subjects in the study conducted by Biesenbach-Lucas and Weasenforth (2001) who only had online writing assignments. This is because in their study, there were two types of CMCs involved, one using e-mail and the other, using the word processor. Therefore, adaptations were necessary in terms of the way instruments were used in data collection.

To obtain data in this study, apart from making her own observation in the form of notes on daily accounts of what was going on, the researcher gave two types of in-class exercises, one using conventional memos, and the other using electronic memos. The whole memo-writing activities took 12 hours of on-going in-class assessment, within 3 weeks’ time, inclusive of one week Mid-Semester break. At the end of the 15-week semester, students had a two-hour Final Assessment on writing, in which conventional memo-writing was part of it. Pairwise comparisons were made to the data obtained before and after the use of electronic memos, as well as to those of the Final Assessment, with regard to the memo-format.
and the number of occurrences of spelling errors. In addition, two-staged questionnaires (before and after the use of e-mail) were sent via e-mail but printed as hard copies and collected manually. A short one-on-one, 'real' face-to-face interview was held with each of the subjects at the end of the semester.

In her study, to obtain data, Frizler gave exercises to her subjects; posted online questionnaires to them of which the identity of each respondent was revealed to her, conducted online interviews with each of her subjects, invited other instructors to make comments in the discussion lists and made her own notes on daily accounts of what took place throughout the 8-week duration. Meanwhile, in their study, Biesenbach-Lucas and Weasenforth (2001) gave two kinds of writing assignments, one using e-mail and the other using word processor. Each assignment had three topics which were related to immigration, religion and multiculturalism. In their study, they explored the differences between the ESL students' e-mail and word processed writings with regard to cohesive features, text length and contextualization. However, in this case study, the BTEC HND (Business) students were given two kinds of writing exercises, one using conventional memos and the other, using electronic memos. In each exercise, students were given two similar questions. The students' texts were later analysed with regard to the memo-writing format and spelling errors. Similarly, students' texts in the Final Assessment, where they had to resort to writing conventional
memos again, after being exposed to electronic memo-writing, were also analysed.

In an attempt to find out what the students thought of and how they felt, from their own perspective, about using e-mail in memo-writing before and after the use of e-mail, two-staged questionnaires (see Appendix B: Questionnaires) were sent via e-mail to each student, one during Week 3, before the use of e-mail (First Questionnaire), and the other (Second Questionnaire) during Week 9, after the use of e-mail. Nevertheless, unlike in Frizler's study where all questionnaires were sent and returned via e-mail thus revealing the identity of each respondent, in this study, all students were asked to type their own alphanumeric code numbers, not known to the instructor. The hard copies of the questionnaires were then collected for data analysis, some time during Week 4 and Week 10, for the First and Second Questionnaires respectively. This was done to reduce the element of researcher bias and to ensure that the students felt safe and free to answer all the items in both questionnaires.

During Week 7, after business correspondence was taught, students were given in-class memo-writing exercises, using conventional memos. After a one-week mid semester break (Week 8), during Week 9, students were given similar memo-writing exercises to the ones they have before, but this time, with the use of e-mail. Then, at the end of the semester, students were required to write conventional memos, as part of their Final
Assessment. All memos produced during these three stages were analysed with regard to the memo format and the number of occurrences of spelling errors.

In order to gather more in-depth views from the students, by the end of the 15-week semester, a one-on-one interview (see Appendix B: Interview questions) was held with each of the subjects, which was not conducted entirely in English, to allow students to express their opinions as frankly as possible in their own native language. Even though data had already been obtained from the questionnaires, the researcher attempted to increase the reliability and validity of the information gathered by conducting a one-on-one interview. In the present study, data from interviews were in the form of audio texts, which were later transcribed for data analysis, unlike in Frizler's study where data from interviews were not in audio form because they were conducted online. This also explains why Frizler (1995) had to conduct a series of extensive interviews, which was not deemed necessary in this study. In the present study, the researcher only spent 15 to 20 minutes with each informant mainly because each interview was conducted face-to-face and also due to the fact that the researcher was also able to observe each subject in 'real' setting, something that the researcher had been doing from the beginning until the end of the study.
3.5 Data Analysis

3.5.1 Students texts (memos)

3.5.1.1 The memo format

The format of the memo was analysed in terms of the presence or the absence of certain features, based on the following organization (Cf: Biesenbach-Lucas and Weasenforth (2001) in analyzing contextualization):

(a) What a memo should have:
   
i. The word or phrase, "Memo", "Interoffice Memo" or equivalent

   ii. The name or designation of the recipient

   iii. The name or designation of the sender

   iv. The date

   v. The subject

   vi. The message, which is sub-divided into the introduction, the body or the content and the closing

(b) What a memo should not have:
   
i. The sender's address

   ii. The recipient's address

   iii. Salutation

   iv. Complimentary close
For each exercise, marks were given for format, ranging from 0 to 10. In 3.5.1.1(a) above, that is from (a)i to (a)vi, 1 point each was given if any of the items was present and 0, if not present, whereas in 3.5.1.1(b), that is, from (b)i to (b)iv, 1 point each was given if any of the items was absent and 0, if any of the items was present. This was necessary in order to obtain some form of quantifiable matched pairs or sets of data for each of the subjects in the study, before and after using e-mail as well as those in the Final Assessment. By doing so, data were also transformed from those of dichotomous nature (Present-Absent or Yes-No) into ordinal scale. Marks for each student in each of the said exercises were determined and each condition was labelled (see Table 7). Since data had already been transformed into ordinal scale, which were actual marks for format in each exercise, the marks for CMIC<sub>1</sub> and CMIC<sub>2</sub> as well as EMIC<sub>1</sub> and EMIC<sub>2</sub> could be added and averaged, thus resulting in CMIC<sub>AV</sub> and EMIC<sub>AV</sub>. These labels would also be applicable in data analysis of the number of occurrences of spelling errors, which will be discussed in the next section.

Table 7: Labels in each condition for memo format

<table>
<thead>
<tr>
<th>Conventional Memos</th>
<th>Electronic Memos</th>
<th>Conventional Memos</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-Class Assessments</td>
<td>In-Class Assessments</td>
<td>Final Assessment</td>
</tr>
<tr>
<td>(without e-mail)</td>
<td>(with e-mail)</td>
<td>(without e-mail)</td>
</tr>
<tr>
<td>CMIC&lt;sub&gt;1&lt;/sub&gt;</td>
<td>CMIC&lt;sub&gt;2&lt;/sub&gt;</td>
<td>EMIC&lt;sub&gt;1&lt;/sub&gt;</td>
</tr>
<tr>
<td>Legend:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CM = Conventional Memos</td>
<td>1 = First assessment</td>
<td></td>
</tr>
<tr>
<td>EM = Electronic Memos</td>
<td>2 = Second assessment</td>
<td></td>
</tr>
<tr>
<td>IC = In-Class</td>
<td>AV = Average</td>
<td></td>
</tr>
<tr>
<td>FA = Final Assessment</td>
<td>FORM = Memo format</td>
<td></td>
</tr>
</tbody>
</table>

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In analysing the format, features in the spatial or visual arrangement of the text were determined in terms of whether they were present or absent, so that they could be coded in dichotomous Yes-No nature. The following coding was used, as explained earlier (pp. 65-66):

Table 8: Coding of data in the memo format

<table>
<thead>
<tr>
<th>Coding</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>a-i</td>
<td>The presence of the word &quot;Memo&quot; or equivalent</td>
</tr>
<tr>
<td>a-ii</td>
<td>The presence of the recipient’s name or designation</td>
</tr>
<tr>
<td>a-iii</td>
<td>The presence of the sender’s name or designation</td>
</tr>
<tr>
<td>a-iv</td>
<td>The presence of the date</td>
</tr>
<tr>
<td>a-v</td>
<td>The presence of the subject</td>
</tr>
<tr>
<td>a-vi</td>
<td>The presence of the message in proper intro-body-closing organisation</td>
</tr>
<tr>
<td>b-i</td>
<td>The absence of the sender’s address</td>
</tr>
<tr>
<td>b-ii</td>
<td>The absence of the recipient’s address</td>
</tr>
<tr>
<td>b-iii</td>
<td>The absence of salutation</td>
</tr>
<tr>
<td>b-iv</td>
<td>The absence of complimentary close</td>
</tr>
</tbody>
</table>

After data had been coded in dichotomous nature, a more quantifiable ordinal scale was established by adding the number of features that are supposed to have ‘Yes’ indication. Data for each individual were transformed from those of nominal scale into ordinal nature as shown in Table 9:
Table 9: Data transformation of scores in the memo format

<table>
<thead>
<tr>
<th>Scale</th>
<th>Score</th>
<th>Description/Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0 ‘Yes’ / 10 ‘No’</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1 ‘Yes’ / 9 ‘No’</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>2 ‘Yes’ / 8 ‘No’</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>3 ‘Yes’ / 7 ‘No’</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>4 ‘Yes’ / 6 ‘No’</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>5 ‘Yes’ / 5 ‘No’</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>6 ‘Yes’ / 4 ‘No’</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>7 ‘Yes’ / 3 ‘No’</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>8 ‘Yes’ / 2 ‘No’</td>
</tr>
<tr>
<td>9</td>
<td>9</td>
<td>9 ‘Yes’ / 1 ‘No’</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
<td>10 ‘Yes’ / 0 ‘No’</td>
</tr>
</tbody>
</table>

Later, individual scores for continuous in-class assessment and Final Assessment were calculated and the average individual scores were obtained for all the three stages. The mean scores for each subject and each condition were then calculated. Apart from descriptive statistics, the nonparametric inferential statistical Wilcoxon matched-pairs signed-ranks test was also used, as done by Biesenbach-Lucas and Weasenforth (2001), due to the small size of the sample as well as the transformation of data that took place. All descriptive and inferential statistics were computed with the help of statistical software package, *SPSS for Windows ver. 10.01*. 
3.5.1.2 Spelling errors

In analysing the number of occurrences of spelling errors produced by subjects in the present study, similar procedure applied in analysing the students’ marks for the memo format was adopted. However, since data were already quantifiable, there was no need to make any data transformation. The formula used for calculating normalized counts for number of occurrences of spelling errors was as follows (Biesenbach-Lucas and Weasenforth, 2001):

\[
\frac{\text{The number of occurrences of spelling errors}}{\text{Text length}} \times 100
\]

The following coding was used to classify the spelling errors, according to major parts of speech (see p. 43):

Table 10: Coding of data in spelling errors

<table>
<thead>
<tr>
<th>Coding</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Nouns</td>
</tr>
<tr>
<td>b</td>
<td>Main verbs</td>
</tr>
<tr>
<td>c</td>
<td>Modifiers (adjectives and adverbs)</td>
</tr>
<tr>
<td>d</td>
<td>Determiners</td>
</tr>
<tr>
<td>e</td>
<td>Prepositions</td>
</tr>
<tr>
<td>f</td>
<td>Conjunctions</td>
</tr>
<tr>
<td>g</td>
<td>Others</td>
</tr>
</tbody>
</table>
3.5.2 Questionnaires

Questionnaires were distributed in two stages or phases. The first section in the primary-stage (First Questionnaire) consisted of 11 items comprising basic general questions with regard to the following:

(a) gender
(b) age group
(c) highest level of education
(d) working experience
(e) number of years as ESL student in formal education
(f) lower secondary English Language grade
(g) upper secondary English Language grade
(h) additional English Language proficiency courses attended
(i) previous history of tertiary level education at public institutions
(j) previous history of tertiary level education at private institutions
(k) knowledge of the basics of using e-mail

Meanwhile, 6 items in the second section in the primary-stage questionnaire attempted to gain further information with regard to the following:

(a) Students' perceptions on the benefits and limitations of the use of e-mail, before e-mail was used in memo-writing
(b) Students' opinions on what they thought about their performance in memo-writing before e-mail was used
In the Second Questionnaire or the secondary stage, the researcher attempted to get the students to tell more of what they thought of:

(a) their own performance in memo-writing before and after using e-mail
(b) the benefits and limitations of using e-mail in memo-writing, after e-mail was used
(c) their own interest in learning memo-writing with the incorporation of e-mail into the memo-writing learning process

Data analysis of students’ responses from the questionnaires was also done with the help of SPSS for Windows ver. 10.01 except for the last item in the Second Questionnaire where it was an open-ended question which had to be analysed qualitatively. Qualitative data analysis is explained in the next section.

3.5.3 Interview transcripts

Data analysis of interview transcripts was different from the one explained earlier. This time, it had to be done qualitatively by using open coding approach adopted by Frizler (1995). This approach is based on Grounded Theory methodology established by Strauss and Corbin (1990), who differentiate between three types of coding: open, axial and selective. Open coding is the stage when the text is reviewed line by line in order to break down the data analytically. “The purpose of open coding is to help the analyst gain new insights into the data by breaking through standard
ways of thinking about (interpreting) phenomena reflected in the data” (Strauss and Corbin, 1990: 424). Later, in axial coding, the relation between categories and sub-categories are identified and tested against the data. Finally, in selective coding, categories are unified around a central ‘core-code’. These ‘core-codes’ form the basis of the developing theory (Dausien, 1996 as cited in Alheit, Herzberg & Kammler, 1997).

In short, qualitative data were analysed as follows:

(a) reading through all the text,
(b) reading the text for the second time, to identify common categories and sub-categories,
(c) comparing the common categories and sub-categories in (b) above with the original categories of inquiry and finding ways to lead to answering the research questions prior to data collection, and
(d) exploring points that are brought up by students which are initially not thought of but still within the context of the study.

The findings from this instrument were later compared to those from other instruments and this will be discussed further in Chapter Four.

3.5.4 Instructor’s notes

The instructor’s notes comprising her experiences, impressions and observation as researcher-cum-instructor, included daily accounts of what happened in and outside the classroom that were related to the use of e-
mail in memo-writing. These documented accounts involved factors that were concurrently associated such as the condition of available facilities, co-operation and comments from colleagues, management team, administrative and technical support staff, the availability of teaching materials as well as learners' attitudes and their capacity in handling the demands of the programme of study. These notes were initially written manually by the instructor in a journal, and later transferred into more manageable word processed documents. As in 3.5.3 above, similar qualitative data analysis method was used and likewise, the findings from this instrument were also compared to those from other instruments. Further details are provided in the subsequent chapter.

3.6 Conclusion

This case study, yielded both qualitative and quantitative data, resulting from combined methods employed in analysing the format and the frequency of spelling errors as well as exploring the benefits and limitations of using e-mail in memo-writing. Therefore each type of data had to be analysed accordingly and the findings from different instruments were compared. These combined methods were used in order to build triangulation of data and also triangulation of methods. Due to the nature of data yielded and the small size of the sample, the usual assumptions held in applying parametric methods could not be met, thus resulting in nonparametric methods being used for quantitative data analysis in this study. Although not as powerful as parametric methods,
nonparametric methods do provide an alternative for researchers who are not able to adopt parametric methods because the usual assumptions concerning sample size and level of measurement have been violated. In addition, researchers may also add some qualitative elements into their studies in order to have a better understanding of not only the matter under investigation, but also of the subjects who are involved in their studies. By combining these two methods, researchers would be able to not only be aware of what is taking place from the way they see it, but also to focus on the people who are involved and gain in-depth views from them.