

CHAPTER III

RESEARCH METHODOLOGY

This chapter reviews the research methodology and describes the methods used in the present study. The chapter is divided into six main parts: the objective of the study and research questions; research types; sampling procedure; data collection method and procedures; data analysis; reliability, validity and generalizability of the research methods and findings; and ethical considerations.

Objective of the Study and Research Questions

The objective of this study is to examine the academic writing needs of students enrolled in the ESP program at Kasetsart University. The goals of the study are to answer two main research questions: 1) what are the needs of MA students at Kasetsart University regarding academic writing? ; and 2) what are the associated opinions and suggestions concerning instruction in academic writing? The data are also hoped to disclose problems ESP students face when studying in an ESP course.

These two research questions provide the scope for design of the research methodology for the study.

Research Types

Overview of Research Types and Their Characteristics

There are generally two types of research: qualitative and quantitative.

Qualitative research, broadly defined, means "any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification" (Strauss & Corbin, 1990: 17). Firestone (1987) states that qualitative methods are built on a post positivistic, phenomenological world view, and assume that "*reality is socially constructed through individual or collective definitions of the situation.*" He proposes that the purpose of such research is to understand the current situation from the participants' perspective. He concludes that it is important for the researcher to become "*immersed in the phenomenon of interest.*" Firestone (1987: 17) also states that "in quantitative research, the emphasis is on collecting data that lead to dependable answers to important questions, reported in sufficient detail that it has meaning to the reader. The proto-typical qualitative study is the ethnography which helps the reader understands the definitions of the situation of those studies."

Where quantitative researchers seek causal determination, prediction, and generalization of findings, qualitative researchers seek instead, illumination, understanding and extrapolation to similar situations. Thus, it can be implied that qualitative research is used to explore and understand people's beliefs, experiences, attitudes, behavior and interactions. It generates non-numerical data. In qualitative research, significant attention is placed upon the research assumptions, and the subjective views of respondents. This so-called "interpretive" approach emphasizes that people's individual and collective thinking and action has a meaning that can be made intelligible (Minichiello, 1995). Cook and Reichardt (1979) suggest that the characteristics of the qualitative research are phenomenological, inductive, holistic, subjective centered, process oriented, anthropological worldview, relative lack of control, dynamic reality assumed, discovery orientated and explanatory.

There are three main types of qualitative research methods: case studies, ethnographic studies and phenomenological studies. In a *case study*, the researcher explores a single entity or phenomenon ('the case') bounded by time and activity (e.g., a

program, event, institution, or social group) and collects detailed information through a variety of data collection procedures over a sustained period of time. The case study is a descriptive record of an individual's experiences and/or behaviors kept by an outside observer. In *ethnographic research*, the researcher studies an intact cultural group in a natural setting over a specific period of time. A cultural group can be any group of individuals who share a common social experience, location, or other social characteristics of interest. In a *phenomenological study*, human experiences are examined through the detailed description of the people being studied -- the goal is to understand the 'lived experience' of the individuals being studied. This approach involves researching a small group of people intensively over a long period of time. However, there are various techniques used in order to collect data.

The most common techniques used for data collection in qualitative research are in-depth open-ended interviews, direct observations, collection of written documents, focus groups, and case studies. The data that can be obtained from interviews are experience, opinions, feelings and knowledge. The data from observations consist of detailed descriptions of people's activities, behaviors, actions, interpersonal interactions, organizational processes and environment. The data from a content analysis of a collection of written documents consists of words, sentences and paragraphs, typically taken from material such as writing tasks, diaries, and reports.

Quantitative research is an inquiry into an identified problem, based on testing a theory, measured with numbers and analyzed using statistical techniques. The goal of quantitative methods is to determine whether the predictive generalizations of a theory hold are true. Moreover, quantitative methods attempt to explain social changes through the use of objective measures and statistical analysis. Cook and Reichardt (1979) state that the characteristics of quantitative research are positivistic, deductive, particularistic, objective-centered, outcome-oriented, natural science worldview, attempted control of variables, static reality assumed, verification orientated and confirmatory.

There are three main types of quantitative research methods (Berg, 2001): experiments, quasi-experiments and surveys. *Experiments* are characterized by random assignment of subjects to experimental conditions and the use of experimental controls. *Quasi-experimental* studies share almost all the features of experimental designs *except* that they involve non-randomized assignment of subjects to experimental conditions. *Surveys* include cross-sectional and longitudinal studies using questionnaires or interviews for data collection with the intent of estimating the characteristics of a large population of interest based on a smaller sample from that population. However, there are various techniques used in order to collect data. The most common techniques used for data collection in quantitative research are questionnaires, interviews and observations.

In summary, qualitative research and quantitative research are both systematic but differ in concepts, approaches in collecting data, and goals. Quantitative research is thought to be objective, whereas qualitative research often involves a subjective element. Furthermore, quantitative research is inclined to be deductive. In other words, it tests theories. This is in contrast to most qualitative research which tends to be inductive. In other words, it generates theories. Quantitative is typically causation while qualitative focusing on meaning. Quantitative is usually a prediction, whereas qualitative is regularly an interpretation. Quantitative approach represents the population sample, but qualitative approach represents the perspective sample. Quantitative designs of research tend to produce results that can be generalized while qualitative research studies tend to produce results that are less easy to generalize. Lastly, the difference between quantitative research and qualitative research that is most easily recognized is structural. Quantitative research data is usually numeric, or data that is easily converted into a numeric format. If the data cannot be structured in a numeric format, they are considered qualitative.

Table 3.1: Present a Comparison of Quantitative and Qualitative Research
Characteristic as Compiled from Various Authors

Quantitative	Qualitative
Both are systematic in their approach	
Objective	Subjective
Deductive	Inductive
Causation	Meaning
Prediction	Interpretation
Representative population sample	Purposive/ representative perspective sample
Generalizable	Not generalizable
Numerical estimation (Numbers)	Narrative description (Words)

Type of Research in This Study

This exploratory case study used qualitative research methods to describe the particular phenomenon of needs analysis of the academic writing in the MA/ESP program at Kasetsart University. The main methodology was the use of interviews with MA/ESP students at Kasetsart University, in order to elicit the present need of writing in the MA/ESP program. The participants of the study were selected from a probability sampling procedure (see next section). The interview was used as the only instrument for data collection. However, text analysis was also conducted to cross check and confirm the participants' actual needs. The data were then analyzed based on a qualitative theory approach. Since this study is a qualitative research study, normally the result cannot be generalized.

Sampling Procedures

Types of Sampling Procedures

A population is the group of people or things that a researcher desires to investigate. A population might be the members of a class, all the Humanities students at Kasetsart University, all the people in Bangkok, all the people in Thailand, or all the people in the world. Cohen and Manion (1994) state that if the population is too large for the researcher to attempt to survey all of its members, a small, but carefully chosen *sample* can be used to represent the population. The sample reflects the characteristics of the population from which it is drawn. There are two standard types of sampling procedures: probability sampling and non-probability sampling.

Probability sampling method is any method of sampling that utilizes some form of *random selection*. The use of random selection allows the researcher to control for bias, and use probability theory in the analysis. Probability sampling can be divided into five categories: simple random sampling, systematic random sampling, stratified random sampling, cluster sampling, and stage sampling (ibid). *Simple random sampling* is taken by selecting elements randomly from a list of all members of a population. To use this method, researchers have to list all registered data according to similar numbers or names, and randomly select them using a table of random numbers or computer. *Systematic random sampling*, also called an *Nth* name selection technique, is usually used with large population sizes where simple random sampling is arduous. In this type of sampling, only the first element is randomly selected. Every second, third, fourth, fifth or tenth element is included in the sample. The list cannot be ordered in any predetermined way. *Stratified random sampling*, also sometimes called proportional or quota random sampling, is the sampling procedure that divides the population under study into mutually exclusive sub populations, and then selects a random sample from each of these sub populations. The sub populations are determined in such a way that

the parameter of interest is fairly homogenous within a sub population. By doing so, the variability of the population parameter within each sub population should be considerably less than its variability for the entire population. Often, there is a relationship between the characteristics of a certain population and the population parameter. *Cluster sampling* is the sampling procedure that randomly selects clusters of observations from the population under study, and then chooses all, or a random selection, of the elements of these clusters, as the observations of the sample. Often, cluster sampling is a cost efficient procedure for selecting a sample representative of the population; this is especially true for a widely scattered population. *Stage sampling* is an extension to cluster sampling. In a stage sample, the population is divided into a number of non-overlapping "first stage units". A sample is drawn, and then in the second and final stages individuals are taken from the sample. This can be repeated for three-stage, four-stage or multi-stage samples.

Nonprobability sampling is generally used when random sampling is unavailable because it is not possible to list the population, or the research being undertaken employs a qualitative approach. This methodology can be divided into five categories: accidental sampling, quota sampling, dimensional sampling, purposive sampling, and snowball sampling (ibid). *Accidental, haphazard or convenience sampling* is used in exploratory research where the researcher is interested in obtaining an inexpensive approximation of the truth. As the name implies, the sample is selected because it is convenient. *Quota sampling* approximates previously known characteristics of a population; however, the matching procedure is not mathematical nor based on a systematic sampling theory. Instead, rough approximations are made of the population's characteristics, and a sample is then created to match them. For example, a researcher might create a sample that roughly matches the age distribution of the study population. *Dimensional sampling* is an extension to quota sampling --a sampling technique for selecting small samples in a way that enhances their representativeness. There are two steps to dimensional sampling. First, the researcher

has to specify all the dimensions or variables that are important. Second, a sample is chosen that includes at least one case representing each possible combination of dimensions. *Purposive sampling* is a method where the participants are selected by the researcher subjectively. The researcher will pick a sample that he/she believes is representative to the population of interest. Respondents are not selected randomly but by using the judgment of the interviewers. *Snowball sampling*, also called network, chain or reputation sampling, is a special nonprobability method used when the desired sample characteristic is rare. It may be extremely difficult or cost prohibitive to locate respondents in these situations. Snowball sampling relies on referrals from initial subjects to generate additional subjects. While this technique can dramatically lower search costs, it comes at the expense of introducing bias because the technique itself reduces the likelihood that the sample will represent a good cross-section of the population.

Sampling Procedure in the Present Study

Although this study was qualitative, a mathematic formulae was also used to improve the degree of the ‘fuzzy generalization’ (Yamane, 1973), which makes generalization more acceptable.

The population for this study comprised MA/ESP students at Kasetsart University who enrolled in the program during 2004 (ESP 4) and 2005 (ESP 5). The study employed purposive sampling. The sample size was based upon a simplified formula for proportions used to calculate the finite population (Yamane, 1973).

$$n = \frac{N}{(1 + Ne^2)}$$

Based on Yamane's formula, n refers to the sample size, N refers to the population size, and e refers to the level of precision. In this study, the population (N) was 24 and the confidence level was 95%; thus, the level of precision (e) was (.05). The sampling size, $n = 24 / (1 + (24)(.05)^2)$ is 22.64, which comprised nearly the entire number of participations.

In order to validate the research, the investigator selected 23 out of 24 members of the ESP 2004 class and 2005 class. [Note: The entire population was initially selected but one participant was unavailable.]

Data Collection Method and Procedures

Needs analysis may be conducted using any of a variety of methods; however, the prevailing view among contemporary researchers is to use a combination of dissimilar methods. Nunan (1992) suggests use of the following established techniques for investigating needs.

Questionnaires

The questionnaire (also called survey) is a set of questions given to a sample population. The purpose is to gather information about their attitudes, thoughts or behaviors. The data are then compiled in order to determine the characteristics of the sample population as a whole. There are considered to be two general types of questionnaires (Fowler, 2001): open-ended questionnaires and close-ended questionnaires. An *open-ended* questionnaire allows individualized responses, while a *close-ended* questionnaire contains a set of response categories with each question.

The core advantages of questionnaires are: 1) information can be collected from a large portion of a group which can be generalized to the population; 2) responses are gathered in a standardized way; and 3) they are easy to analyze. Conversely, the length and non-structural method of completing the questionnaire – i.e., participants are not required to complete them together in a classroom – may result in questionnaires being incomplete or not returned.

Interviews

The interview method of research typically involves a face-to-face meeting in which a researcher asks participants a series of questions. In general, interviews can be classified into structured, semi-structured, unstructured and group interview (Bryman, 1992). A structured interview is an interview in which questions to be asked, their sequence and detailed information to be gathered are all predetermined. *Semi-structured interviews* are conducted with a less rigid framework, allowing for focused, conversational, two-way communication. They can be used both to give and receive information. *Unstructured interviews* tend not to use prepared questionnaires or interview schedules. Rather, they contain a number of themes or issues that are to be explored. A *group interview*, also called *focus group*, is “a group of individuals selected and assembled by researchers to discuss and comment on, from personal experience, the topic that is the subject of the research” (Powell et al 1996: 499). In other words, a focus group is a small group (3 - 8 persons) whose members are brought together by the researcher for an in-depth discussion of a specific issue or topic. The researcher plans an interview schedule and organizes the time and place. A tape recorder is essential for the success of this methodology.

The advantages of the interview are: 1) researchers can give participants more explanation and clarification when a question is ambiguous or misunderstood; 2) interviews permit full exploration of ideas and beliefs; and 3) an interviewer has the

option to pursue responses further with follow-up questions. However, this method is time consuming and the answers are difficult to analyze

Observations

Observation is one of the basic methods for the collection of qualitative data. Observation is a systematic process of recording behavioral patterns without questioning or communicating -- basically watching for outcomes. There are generally four types of observation (Bryman, 1992): participant observation, non-participant observation, structured observation, and unstructured observation. *Participant observation* may require the observer to live or work in the field (i.e., within the environment where the data are found), and the observer participates actively for an extended period of time. *Non-participant observation* requires the observer to be an eavesdropper -- someone who attempts to observe people without interacting with them. *Structured observation* permits stronger generalizations and checks on reliability and validity -- more like a survey, where every respondent is asked the same set of questions. But in this case, questions are not asked. Instead, particular types of behavior are looked for and counted. *Unstructured observation* is used in the early phase of the research. It may become specific to when and where observations occur, the specific aspects of the setting or behavior are looked for, and how the observations are recorded.

The major advantages of this technique are that it affords an opportunity to understand situational factors that influence behavior, it is very helpful in validating data obtained by other methods, it enables behavior to be recorded in context, and it verifies what people do compared to what they say they do. However, the presence of an observer can affect the subjects' behavior and thereby bias the data. Also, the observer's bias in recording can affect the information obtained.

In conclusion, each method has its own advantages and disadvantages, and therefore is appropriate for certain situations. The selection of a particular method for collecting data is important in itself for ensuring the quality of the information.

The Method Used in the Present Study

The main method used to assess the academic writing needs of MA/ESP students at Kasetsart University was the focus group. Essay, which was a mid-term project writing assignment, was also supplementarily used in order to verify MA/ESP students' needs for academic writing.

The Construction of the Question for the Interview

The following procedures were used in the construction and development of the questions used in the interview for this study. First, the researcher reviewed numerous research studies related to needs analysis, English for Specific Purposes (ESP), and academic writing, and then studied examples of several questionnaires in order to determine their framework. Second, based on the information gathered and other guidelines for constructing the interview questions, the first draft of the questions was prepared (in English), based upon the study objectives and research questions. Third, the questions were translated into Thai. Lastly, the draft was checked for validity by the thesis advisor, the thesis committees and experts in the MA/ESP program.

The researcher then conducted a pilot study to test the validity and reliability of the questionnaire. The pilot study (described later) also helped to ensure that the interviewees fully understood and interpreted the questions consistent with the researcher's expectations.

The Question for the Interview

The interview method was used in this study to obtain required information from MA/ESP students at Kasetsart University. The interview schedule contained two main parts: general information and academic writing needs for the MA/ESP students at Kasetsart University.

Part I. General Information

A subset of questions at the beginning of the questionnaire addressed personal information concerning their gender, age, level, number of years they studying English, average grade in the English course(s), enrollment in writing courses before studying at Kasetsart University, enrollment in academic writing courses before studying at Kasetsart University, and enrollment in academic writing courses while studying at Kasetsart University. Participants were also requested to rank their perceived level of English proficiency, based on their background.

Part II. Academic Writing Needs for MA/ESP students

This second portion of the questionnaire concerned the academic writing needs of MA/ESP students at Kasetsart University for use in the ESP program. Questions also related to aspects of academic writing required in the MA/ESP course. The interview schedule also attempted to document the participant's level of knowledge of the English language, level of confidence in its use, and specific problems that the participant encounters. Questions were asked regarding the participant's opinions related to solutions to their personal needs for use of the English language, development of an academic program to address their needs, and specific questions regarding academic writing. The questions were the open-ended, allowing the participants to express their personal thoughts and provide comments, suggestions and opinions. The interview

schedule was drafted in English and then translated into Thai in order to avoid confusion, vagueness, and misinterpretation by the participants. The translated version of the questionnaire was checked and approved by the thesis advisor for language uniformity and originality. (See Appendix B for the Thai version and Appendix C for the English version)

Pilot Study

A one-week pilot study was conducted in January 2006 to test the effectiveness of the questions for the interview, and to identify and remove ambiguity. Five former MA/ESP students (academic year 2003) participated in the interview, consisting of one male and four females.

The results of the pilot study indicated that the majority of the participants were concerned about the adequacy of their English skills for writing their thesis. The majority stated that academic writing was the most important language skill because of its potential benefits to their future professional career. Their difficulties in academic writing were most obvious problematic in regard to the thought process, followed by the lack of academic writing experience and grammar. Overall, their confidence in academic writing was moderate.

The researcher encountered a few problems during the pilot study. This was limited to misunderstandings of various questions, requiring the researcher to provide clarification when requested.

The results of the pilot study, including opinions and suggestions of the participants, were helpful in preparation of the final draft of the interview schedule.

Main Study

The final draft of the interview questions was submitted to participants in the main study group, consisting of 23 MA/ESP students who entered the program during the 2004-2005 academic year.

The researcher collected data for the main study in the following steps. First, a letter was submitted to the ESP program requesting authorization to conduct the interview. Second, the researcher requested participants' consent for their participation in the interview. Finally, the researcher requested participants to divide into groups for group interviews.

Data Analysis

Qualitative Data Analysis Methods

Taylor et al (1995: 632) state that "Qualitative data covers a range of material from the descriptions of social life provided by participant observation and unstructured interviews to information from written sources, such as diaries, autobiographies and novels. Some researchers argue that qualitative data provides greater depth, a richer more detailed picture of social life."

Creswell (1998) states that qualitative research may be generally defined as a study conducted in a natural setting where the researcher, an instrument of data collection, gathers words or pictures, analyzes them inductively, focuses on the meaning of participants, and describes a process that is both expressive and persuasive in language.

Most methods of qualitative data analysis tend to share some similar processes. These involve the researcher perusing the data and identifying particular objects of interests. Charmaz (1995:37) states that this is typically referred to as coding: “The first major analytic phase of the research consists of coding the data. In short, coding is the process of defining what the data are all about. Unlike quantitative coding, which means applying preconceived codes (all planned before the researcher even collects data) to the data, qualitative coding means creating the codes as you study your data.”

Coding is also referred to as categorizing or indexing. All terms define a critical method of data organization and analysis. According to Miles and Huberman (1994), analysis involves review, transcription and dissection of written/audio data, while keeping the relations between the parts intact. They state that coding is the part of analysis in which the researcher differentiates and combines the data retrieved, and reflects upon this information. They define the term "codes" as tags or labels for assigning units of meaning to the descriptive or inferential information compiled during research. Polgar and Thomas (1991) state similarly that coding is a process in which data obtained from interviews is systematically organized and classified. These codes are then attached to "chunks" of varying size; i.e., words, phrases, sentences, or whole paragraphs (Miles & Huberman, 1984).

Any information obtained from an interview should first be broadly studied to gain a general familiarity of the contents. During this process, dominant concepts, themes and issues should be noted to form categories; these categories become the codes with which the transcript will be interpreted and meanings developed. Thus, coding by using keywords is a tool of analysis used by researchers in order to categorize or classify the text (Sarantakos, 1993). During the coding process, keywords are applied to sections of the text, which give specific meaning to the text as well as provides a label for the section. Miles and Huberman (1984) state that these codes help to reduce and analyze data and direct the researcher toward trends, themes, patterns and causal processes.

There are many types of coding. Coding may be used at different levels of analysis, ranging from the descriptive to the inferential. Descriptive analysis entails ideas that lean more toward the concrete; e.g., actions, definitions, events, properties, settings, conditions or processes; whereas inferential analysis entails methods that enable the researcher to identify patterns and trends. It can also occur at different times during analysis (usually the descriptive first, then the inferential) and can reduce data, combining it for easier analysis (Miles & Huberman, 1994). However, the basis of coding is the reduction of large amounts of data into small amounts through the process of categorization.

There are two methods for categorizing narrative data: preset and emergent (Miles & Huberman, 1994; Crabtree & Miller, 1992). In the use of *preset* categories, the researcher may start with a list of themes or categories in advance, and then search the data for the topic. The themes provide direction for the researcher. The investigator identifies the themes before categorizing the data, and then peruses the data for text that matches the themes. In the use of *emergent* categories, the researcher peruses the text and identifies the recurring themes or issues in the data. These become the categories. They may be ideas or concepts that were not preconceived. This approach allows the categories to emerge from the data. Categories are defined after the researcher analyzed the data or as a result of analysis. Occasionally, the researcher may merge these two approaches, starting with preset categories and adding others as they become apparent. The researcher's primary list of categories may change as the analysis progresses. This is an iterative process. The investigator may have to adjust the definition of categories, or identify new categories to accommodate data that do not fit the existing labels. Main categories may be disaggregated into subcategories, requiring the researcher to recompile the data into the smaller, more defined categories. This allows for greater discrimination and differentiation.

After the narrative data are coded, the researcher systematizes the data into categories, either by question or by case, to identify patterns and connections both within and between the categories. Assessing the relative importance of different themes, or highlighting subtle variations, may be important in the analysis. The researcher may identify patterns and connections within and between categories by using *descriptions within categories* and *relative importance*. The use of description within categories is appropriate when the researcher summarizes the information relating to one theme, or identifies the similarities and differences in people's responses within a single category. This requires collection of all data pertaining to the particular themes. The application of relative importance is appropriate when the investigator determines the number of times a particular theme arises, or the number of unique respondents who refer to certain themes. These counts provide a very rough estimate of relative importance. They are not suited to statistical analysis, but they can reveal general patterns in the data. The final step of the data analysis is interpreting the data. The researcher will use themes and connection to explain the findings.

The Qualitative Data Analysis Method Used in the Present Study

The Analysis of the Interview

When the data were collected by the interview method, the researcher used the following steps to analyze the data: First, the researcher spent time to familiarize and understand the data by listening to the recording and transcribing the interview transcripts. Second, the researcher reviewed the purpose and identified key questions that the researcher was investigating. Third, all transcribed interviews were broken into coded segments and were organized into coherent categories. As the researcher classified the data into categories, connections both within and between the categories were identified. The last step was the interpretation. In this step, the researcher attached meaning and significance to the analysis.

The Analysis of the Essays

After the interview data were collected and analyzed, the researcher investigated the essays to determine the degree of relation with the interview response. [Note: This topic is a mid-term writing assignment for ESP students.] Next, the researcher classified the essays data into the related categories of the interview to support the interview data. Finally, the researcher used the themes and the connections to explain the findings.

Reliability, Validity, and Generalizability

Definitions of Reliability, Validity, and Generalizability

Reliability is the consistency in results of a measuring instrument, including the tendency of a measurement to produce the same results when repeated in reference to an entity or attribute believed not to have changed in the interval between measurements (Grinnell, 1990). In other words, reliability is the extent to which a test is *repeatable* and yields *consistent* scores. The most straightforward way to assess reliability is to ensure that they meet the following three criteria: test-retest reliability, inter-item reliability, and inter-observer reliability. *Test-retest reliability* is used when a researcher administers the same measurement tool multiple times by asking the same person(s) the same question and following the same research procedures. This is considered to be the simplest method for assessing reliability. If the answers are consistent, the measure has high test-retest reliability. *Inter-item reliability* is a dimension that applies to cases where multiple items are used to measure a single concept. In such cases, answers to a set of questions designed to measure some single concept should be associated with each other. *Inter-observer reliability* concerns the extent to which different interviewers or observers use the same measure to obtain equivalent results. If different observers or interviewers use the same instrument to score the same thing, their scores should match.

Validity is the extent to which a measurement instrument measures what it is supposed to measure, and measures it accurately (ibid.). There are three main ways of assessing the validity of a measuring tool: face validity, criterion validity and construct validity. *Face validity* refers to the extent to which a measure appears on the surface to measure what it is supposed to measure -- sometimes referred to as 'surface validity'. For example the questions were systematically conducted and the questions covered entirely content which based on the frameworks. It is probably the most commonly discussed type of validity. *Criterion validity* is a method of assessing validity by comparing the results with those of another measure. *Construct validity* is a method of assessing validity by investigating whether the measure is truly measuring the theoretical construct.

Generalizability within quantitative research leads to prediction, explanation and understanding, whereas generalization within qualitative research results in a 'fuzzy generalization'. The latter concept is advanced by Bassey (2001) and elaborated by Hammersley (2001) and Bassey *et al.* (2001). The idea, and associated processes, is being further developed by teachers, and provides a helpful way of generalizing the outcome from educational research that does not push the evidence too far. Bassey (2001) says, basically, that *x* activity worked in *y* circumstances, and therefore – if sufficient of the context is similar– may work in *z* circumstances as well. This approach does not negate the requirement for rigorous investigation to establish. A fuzzy generalization is neither likely to be true in every case, nor is it likely to be untrue. Rather, it is something that may be true. It is then necessary to assess the likelihood (i.e., probability) of a fuzzy generalization applying to a particular case.

Reliability, Validity, and Generalizability in the Present Study

Reliability

In order to verify the reliability of the research instrument, the researcher used *inter-item reliability* to check consistency of the results obtained from the study. In the pilot study, the interview questions were evaluated by checking for comprehension. A confidence interval of greater than 70 percent was achieved. The first draft of the interview questions was developed in consultation with the thesis advisor and an expert in the field. Validity was achieved by subsequently reviewing the interview schedule with both parties before it was given to the study group.

Validity

This study was conducted using *face validity*. The researcher constructed the research instrument (i.e., interview) based on the objectives of the study. To assure validity of the instrument, each question must have a logical link with the objectives. The decision whether an instrument correctly determined its intended target was based upon separate evaluations by the researcher, the thesis committees and the expert in the needs analysis study. Furthermore, the findings were verified by thesis advisor, ESP students, and one outside to quote part of the data. The verification process used in this study is described as follows. First, the interview transcripts were transcribed and then verified. Second, key words were selected for the interview transcripts. Third, the thesis advisor, ESP students, and one outsider were requested to complete the verification form using key words appropriate for each item. Fourth, responses from the thesis advisor, ESP students, and one outsider were analyzed to determine the degree of correlation. If the responses for each participant are 80% correct (i.e., 24 of the 30 items), the validity of this thesis was accepted (See Appendix D for the verification form)

Generalizability

Although the sample was derived from the application of a standard mathematic formula, the size of the sample was small; thus, fuzzy generalization is more appropriate in this study than just the generalization. Fuzzy generalization was used in this study and the results obtained could be applied to the target population: ESP 4 and ESP 5, the previous group and the following group of ESP students, and other similar circumstances.

Ethical Considerations

Ethical Issues in Research

In any research endeavor, researchers are expected to employ high standards of academic rigor, and to behave with honesty and integrity. By its very nature, qualitative research, is immersed in a “messy, chaotic reality of on-the-spot personal interaction....sensitivity and experience” (Holbrook, 1997:49). Rather than the objectivity and distance which characterize the more positivistic approaches, qualitative research brings with it a greater likelihood that ethical issues (e.g., those associated with informed consent and confidentiality) will arise, requiring the research to be valid. This can also be the catalyst for a complex array of highly charged interpersonal issues to emerge. All research, both qualitative and quantitative, should make provisions for obtaining informed consent from potential research participants. However, in some qualitative studies it may be more appropriate to gain consent verbally rather than in writing. This is relevant where the participant may feel particularly vulnerable, as in research related to sexual issues or illegal or stigmatized activities. Here, written consent is likely to result in significant harm to the participant in that they are potentially identifiable. In confidentiality, very few people would willingly express their most private details, opinions, and emotions in public documents knowing that their

names are publishable. Thus, confidentiality is a vital requirement for credible research. More importantly, mere anonymity is insufficient for confidentiality to be safeguarded (Berg, 1998).

Ethical Considerations in the Present Study

Ethical concerns in this study addressed in the interview. Requests for authorization and terms of the study would be included; i.e., permission of the participant, anonymity, confidentiality, sensitive issues and reporting requirements.

Permission of an organization was the first ethical issue considered. To collect data from ESP students, the investigator sent a formal letter to the Department of Foreign Languages of the Faculty of Humanities, Kasetsart University, requesting authorization to conduct the study. The letter explained the purpose of the research study and detailed how the data was to be collected.

Prior consent of the participant was essential in conducting research. Before the study commenced, the ESP students were briefed regarding the procedure to be used, the methodology, and the rights of the participants.

All data remained anonymous, in order to protect the privacy of the participants. References to specific data sets were made by code rather than name; e.g., Miss A or Mr. B. The entire data set was therefore kept confidential.

The study avoided questions that participants might deem to be personal, sensitive or intrusive. For example, “Do you think your English writing skills are unacceptable?” or “Do you think you need a lot of improvement?”

Validity in data collection was a major responsibility of the researcher. The researcher might never add or change any information previously recorded, in order that

the researcher understood the true needs of the participants. This also assured that the data set will be accurate for any follow-up studies at a future date.

The last ethical issue concerned the possibility of harming the participants. When conducting the interview, the tone of voice and gestures of the interviewer must not be negative or degrading; in other words, anxiety should not be created in answering the questions. Whenever the participants declined to answer or feel uncomfortable in giving a response, they might skip the question and move on to the next question.

This research study was conducted with the participation of ESP teachers and students. All research methods used followed the ethical guidelines provided by Kasetsart University. The data compiled remains anonymous. In instances where data refers to faculty in the ESP program, the researcher obtained prior permission from the ESP program for their participation. The data obtained from the study group represent their thoughts and opinions for purposes of conducting research. They should not be misconstrued as formal statements in reference to other students, faculty, the ESP program or University.

This chapter explains the research methodology and design used in this study. Also included are statements regarding the goals and objectives; the research question; research type; sampling; data collection method and procedures; data analysis; reliability, validity, and generalizability of the research methods and findings. The results of this study will be presented in Chapter 4.