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PART I

Introduction

Part I is an introduction consisting of two chapters. Chapter One addresses the questions “What is research?” and “How are different types of research classified?” Chapter Two introduces fundamental concepts involved in research. By studying this part, you will be able to:

- Understand the basic criteria for good research.
- Have an overview of the research process.
- Differentiate different types of research.
- Grasp the fundamental concepts involved in research.

1. What is research?

If someone asks you to make a cake, you should know what kind of cakes/he wants. To look for a key, you must know what a key looks like. Without a good understanding of the outcome you intend to obtain, you will experience a lot of frustrations and even failures. The extreme case is that you might have spent your lifelong time and efforts doing a piece of work but the eventual results you have obtained are not what you desired at all. Similarly, once you make up your mind to make a commitment to research, the first legitimate question you should ask is: “What is research?” The importance of such a question is well illustrated in the following parable:

A MAN LOOKING FOR FRUITS

There was once a man who lived in a country that had no fruit trees. This man was a scholar and spent a great deal of time reading. In his readings he often came across references to fruit. The descriptions of fruit were so enticing that he decided to undertake a journey to experience fruit for himself.

He went to the market and asked everyone he met if they knew where he could find fruit. After much searching he located a man who knew the directions to the country and place where he could find fruit. The man drew out elaborate directions for the scholar to follow.

With his map in hand, the scholar carefully followed all of the directions. He was very careful to make all of the right turns and to check out all of the landmarks that he was supposed to observe. Finally, he came to the end of the directions and found himself at the entrance to a large apple orchard. It was springtime and the apple trees were in blossom.

The scholar entered the orchard and proceeded immediately to take one of the blossoms and taste it. He liked neither the texture of the flower nor the taste. He went to another tree and sampled another blossom, and then another blossom, and another. Each blossom, though quite beautiful, was distasteful to him. He left the orchard and returned to his home country, reporting to his fellow villagers that fruit was a kind of much

overrated food.

Being unable to recognize the difference between the spring blossom and the summer fruit, the scholar never realized that he had not experienced what he was looking for.

—From Halcom’s *Evaluation Parables*

The scholar mistook a blossom for the fruit simply because he did not know in the beginning what fruit was. We hope you can bear this parable in mind as you learn about the nature of research.

DEFINITION OF RESEARCH

In *Collins English Language Dictionary*, “research” is defined as “a detailed study of a subject or an aspect of a subject. If you do research, you collect data and analyze facts and information and try to gain new knowledge or new understanding” (p. 1231). Although this is not a technical explanation, it gives readers a general picture about what research is. By this definition, you may know that research activities include data-collection and data-analysis, and their purpose is to obtain a better understanding of something. Now let us look at a technical definition offered by Hatch and Farhady (1982): Research is “a systematic approach to finding answers to questions” (p. 1). This definition is shorter than the one provided by the dictionary, yet it touches the nature of research. It implicitly tells us three essential elements of research: questions, a systematic approach, and answers. You may use “PPP” to stand for **Purpose** (questions), **Process** (a systematic approach) and **Product** (answers) (See Figure 1.1).

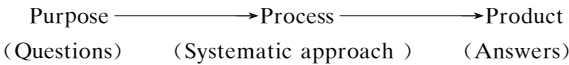


Figure 1.1: A simplified model of research

The above three elements are interrelated to one another. All research starts with questions. Without questions in the first place, there will be no research. Does a good question guarantee a systematic approach used in the research? No way. The selection and construction of an approach need another set of skills which are different from those required by developing good questions. Without them, the methods chosen are most likely inappropriate, and valid answers can never be

found. Even if researchers have good research questions and follow the procedures without errors, valid answers may not be natural results since the interpretation of the findings could be illogical or untenable. Therefore, each of the three elements in the definition should be paid equal attention to. If there is any flaw in one element, the whole piece of research will be ruined. The following sections will describe each of the three elements.

Having good questions

Good questions ensure that the research goes in the right direction, delimit the research boundary and keep you focused on what you intend to do. To have questions may not be that difficult, but to have good questions is not easy at all. What kind of questions can be qualified as good questions? The qualifying features can be illustrated by three adjectives: **significant**, **original**, and **answerable**.

A **significant** question must be of practical and/or theoretical value. Consider, for example, this question: “Do proficient writers make fewer grammatical mistakes in L2 compositions than less proficient writers?” Surely proficient writers should make fewer grammatical mistakes than less proficient ones. Otherwise they cannot be called proficient writers. Therefore, the question is trivial since the answer is self-evident and the findings can neither help improve teaching and learning nor contribute to theory-building. However, if you change the question into “How do proficient writers differ from non-proficient writers in grammatical accuracy?” the answer will be of importance. From the practical point of view, the findings might help teachers understand specific differences between proficient and less proficient writers and thus they can help both less proficient and proficient writers to improve their grammatical accuracy more effectively. For theory-builders, the findings might provide evidence to construct a model for L2 interlanguage development in support of or against the existing model.

A research question is regarded as **original** when it is different from questions which have been asked by other researchers in one or more aspects, such as differing in learning contexts, or in types of learners, or in the methods used in data collection and in data analysis. In other words, an original question does not need to be totally new. In

reality, originality can be a matter of degree.

An **answerable question** is one that can be tackled by the researcher within the time and resources available. This requirement may appear to be unnecessary or the easiest to follow. However, almost all beginning research students fail to meet it because they tend to be over-ambitious and they lack the experience to anticipate difficulties.

To satisfy the above three criteria is invariably the most difficult part of research. Nevertheless, the importance of choosing appropriate questions is often under-estimated and the difficulty in doing so is usually not fully recognized. Doing research is like taking a long journey. Asking an ill-formulated question is the same as traveling in the wrong direction and can result only in wasted time and effort. In this sense, “it is worth spending as much time as is necessary to get the question right” (Nunan, 1992: 211). How you can develop good research questions will be further discussed in Chapter Three “Developing research questions”.

Employing a systematic approach

By using a **systematic approach**, we mean that research should follow a set of procedures which are clearly described and can be fully justified. The research procedures in some cases are predetermined in the sense that they are decided before the data-collection while in other cases they are developed during the research process. In either case, the procedures used for selecting subjects, data-collection and data-analysis should be recorded and reported to other researchers. Furthermore, the reasons why certain procedures are adopted should be explained in terms of established principles in the discipline. Being transparent and justifiable, the procedures thus can be easily replicated by other researchers.

One thing is worth mentioning here: no approach is perfect, particularly when the research is to study human beings. Thus a systematic approach should not be understood as an impeccable approach. Actually, it is common for researchers to admit that there are limitations in their studies.

Obtaining valid answers

The answer to a question, the last element in the definition but not

the least important, must be of high **validity**. Validity is an essential yet difficult concept that cannot be explained in one or two sentences. You will understand it gradually through reading this book. At this initial stage, I will explain it in a very simple way. When an answer is said to be valid, it means that the claimed answer is the only answer we can obtain. If there is any alternative answer, the validity of the study will be called into question. For example, one study attempted to find out whether there is a relation between L2 learners' vocabulary size and their reading amount under the assumption that the more L2 learners read, the bigger vocabulary size they have. The finding from this study said that the amount of reading did affect the size of vocabulary as expected, which appears to be reasonable and logical. However, an experienced researcher read the report very carefully and found that the vocabulary test was not scientifically designed. In this case, it is not sure the relation found was caused by the reading amount or due to the poorly-designed test. In this case, there are two competing explanations for the said relation. Therefore, people have the reason to say that the answer is not valid. Another study aimed to find out whether there was any gender difference in L2 learning. The study revealed that female English majors outperformed male English majors in an English proficiency test and thus it was concluded that females are more talented than males in L2 learning. Obviously we can find a dozen alternative answers to accounting for this fact, such as females spending more time learning than males; males being less serious about testing than females; the most talented males usually going to the science stream rather than majoring in foreign languages. Since all these alternative explanations are plausible, the validity of the answer is thus doubtful.

VISUALIZING THE RESEARCH PROCESS

Very often, people visualize the research process in various ways and from different perspectives. In this section, two alternative views are described. The first one is proposed by Rudestam and Newton (1992) who visualize the research process as a wheel. The second one is suggested by the author who depicts a research process as a flow chart in which a series of tasks are presented in a sequence.

The research wheel

According to Rudestam and Newton (1992), we may use a wheel as a metaphor to describe the stages of the research process. The metaphor indicates that a series of steps are repeated recursively over time. To be simplistic, the research process consists of at least two cycles and each cycle contains four stages (See Figure 1.2). The sequential activities within the first cycle include: empirical observation, **developing a proposition**, **constructing a theoretical framework** and generating specific research questions. Those within the second cycle are data collection, data analysis, referring the results back to the conceptual framework and generating further research questions for additional studies.

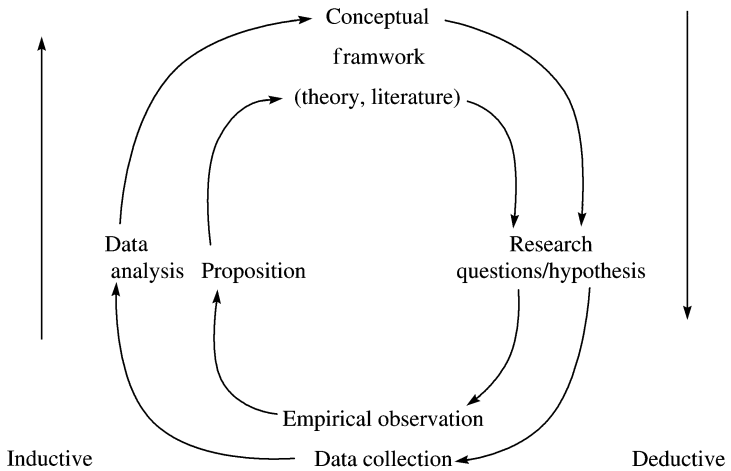


Figure 1.2: The research wheel

Rudestam and Newton maintain that both induction and deduction are essential for the whole research process. The activities on the left-hand side involve a process of inductive logic and the activities on the right-hand side, a process of deductive logic.

The first cycle

The first cycle starts with “empirical observation” through which the researcher chooses a topic. The next stage of the research wheel is to formulate a proposition, which describes an established relationship in the form of a statement (e. g. Learning purposes are related to the

choice of learning strategies). At the third stage, the researcher should relate the proposition to a conceptual framework. In other words, the researcher at this stage needs to propose a theoretical framework, based on relevant theories and previous studies, in which the proposition can be placed. The novice researcher usually finds this task the most demanding and taxing aspect of the thesis process. Moving forward around the wheel, the researcher is to **generate specific research questions**. Once the questions are specified and stated, the first cycle is finished.

The second cycle

The second cycle begins with collecting data that directly addresses the research questions. The data-collection process can also be regarded as a form of **empirical observation**. Once the data are gathered, the researcher needs to analyze the data according to the research purposes. Results yielded from the analysis are generalizations made through induction. Then the generalizations are linked to the conceptual framework and further research questions and implications for additional studies are recommended.

The wheel metaphor can successfully capture the dynamic aspect of research. However, it has been built up on only one type of research, that is quantitative in nature aiming at testing hypotheses. If a study is qualitative, the sequence is not the same as the one described above. This issue will be clarified later.

The flow chart

Compared with the research wheel described above, the flow chart (See Figure 1.3) is much simpler and less technical. It focuses on the activities a researcher must undertake rather than on how these activities interact in the process of research. It is particularly suitable for helping novice researchers understand what they are supposed to do in their research.

According to Figure 1.3, research involves six tasks: developing research questions, reviewing the literature, selecting a research design, collecting data, analyzing the data and writing up a thesis. The arrow that links the last task with the first one means that once you finish your thesis, you may develop new questions for further research.

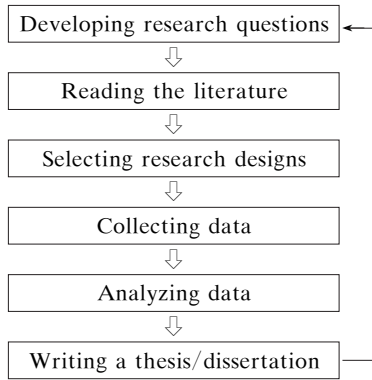


Figure 1.3: The flow chart for research

The six tasks each have their own role to play in the research process and none of them can be overlooked. If one task is not undertaken adequately, the whole study will be put in jeopardy. Furthermore, the tasks are logically interrelated and the sequential order cannot be changed in many cases. For example, data collection cannot be undertaken before the development of research questions. Similarly, a thesis cannot be written before the analysis of the data. However, the sequence is not always rigidly fixed. In some cases, there may be options. For example, developing research questions, reading the literature and selecting research designs are not necessarily sequential in practice as presented in the flow chart. You may have a rough idea about your research interest and then go to read the relevant literature. Based on the existing literature, you specify your research topic and narrow down the scope. Then you go to read the relevant literature again to develop general as well as specific research questions. The selection of research designs is determined not only by research questions but also by the methods used in previous studies. Therefore, at the stage of constructing your research design, you also need to read the literature. The above description clearly shows that the three activities presented in the flow chart are not happening in a linear fashion and always in a fixed order.

As a would-be researcher, you are suggested to follow the sequence first. Once the cycle is on the track, you are encouraged to be flexible and move back and forth within the sequence. Remember that “real research is inevitably going to be a rather messy process” (Blaxter et

al., 1996: 7). In other words, these six tasks are recursive in nature. However, this recursiveness cannot be captured by this two-dimensional flow chart. One obvious advantage of the chart is its simplicity: it enables the reader to remember the tasks without much effort. Furthermore, the tasks described can be applied to both quantitative and qualitative studies.

CLASSIFICATIONS OF RESEARCH

When you read books on research methodology, you may come across various kinds of terms designating research. In this section, I will define some commonly-used terms along two classifying features: aims of research and source of data (See Table 1.1).

Classifying Features	Types of Research
Aims of research	Theoretical/Practical
Source of data	Primary/Secondary

Table 1.1: Classifications of research

Theoretical and practical

In terms of aims, two types of research can be identified: theoretical and practical. Theoretical research is primarily concerned with constructing theories or testing existing theories. Practical research is usually conducted by people who are directly involved in L2 teaching, such as L2 language teachers, L2 textbook compilers or L2 test writers. The major aim of practical research is to seek a practical solution to a problem in our daily life. In the following section, theoretical and practical research will be discussed one by one.

Theoretical research

Theoretical research aims at developing or testing theories rather than at resolving practical issues. For example, the work undertaken by Krashen (1985) for constructing the “Monitor” theory can be regarded as theoretical research. His model consists of five hypotheses as follows:

- (1) The acquisition-learning hypothesis
- (2) The natural order hypothesis

- (3) The monitor hypothesis
- (4) The input hypothesis
- (5) The affective filter hypothesis

The above theory was not invented by Krashen himself. For example, the Input Hypothesis was first proposed by MacNamara in 1972 (Krashen, 1985) and the Natural Order Hypothesis, by Corder (1967). Krashen constructed the theory by studying, analyzing, and synthesising the relevant literature coupled with his own empirical studies.

Examples of such research can be easily found in international journals such as *Language Learning*, *Applied Linguistics* and domestic journals such as *Linguistics and Applied Linguistics* and *Foreign Language Teaching and Research*. Let's look at some examples.

Example One

The study intended to measure the effects of cultural background knowledge on L2 reading comprehension. The researcher chose two passages which were based on different cultures but with similar linguistic difficulty. One passage is about the Chinese Mid-Autumn Festival and the other is about the Thanksgiving Day in the United States. Sixty second-year non-English majors read these two passages each at a time. Once the reading was over, the students took a comprehension test. Eventually, the scores on the two comprehension tests were compared. The results showed that the students displayed a better comprehension in reading a passage about the Chinese Mid-Autumn Festival (Ye, 1994).

Example Two

The study aimed at finding out to what extent students' pragmatic knowledge was related to their language proficiency. 90 second-year English majors were required to take a test of pragmatic competence. Then the students were divided into three groups according to their overall English proficiency: top, middle and bottom. A statistical procedure was taken to compare these three groups' pragmatic competence. The results indicated

that students' L2 proficiency was closely related to their pragmatic knowledge (Wu, 1998).

The above two examples both attempted to test the existing hypotheses. It is generally agreed by researchers that cultural background knowledge is an important factor affecting the quality of reading comprehension. In Example One, Ye tested this assumption in her study in which non-English majors were involved and the result confirmed the assumption. In Example Two, Wu examined the hypothesis that pragmatic knowledge and L2 proficiency are closely related to each other and her empirical data were in support of the hypothesis. Although the findings from the above two studies have implications for L2 teaching and learning, they are not direct solutions to any practical problems.

For an M. A. or Ph. D. student, it is rare to write a thesis exclusively on theoretical research since this kind of research requires a profound understanding of the topic you are investigating.

Practical research

Practical research attempts to solve concrete problems in classroom teaching or learning or some other situations. The findings from such research usually can be directly tried out by practitioners. The following are the examples:

Example One

The study tried to see to what extent a language laboratory could be used to teach spoken English (Wen & Wu, 1998) in order to find a practical answer to the question: "How can we make 30 to 40 students active in a speaking class." 29 second-year students who participated in this experiment were from the same class. They had their speaking class in a language laboratory for four months. At the end of the semester, the students were asked to answer a questionnaire anonymously to make an evaluation of the speaking class. The questionnaire items concerned four aspects: (1) the students' attitude towards the speaking class in a language laboratory; (2) the amount of their participation in the language laboratory in comparison with the speaking class in an ordinary

classroom; (3) their degree of nervousness in the language laboratory in comparison with the speaking class before; (4) their rate of progress in spoken English this semester in comparison with their previous learning. Based on their responses to the questionnaire, we concluded that although the students noticed the limitations of the language laboratory setting, they made a positive evaluation of the speaking class in a laboratory.

Example Two

The study intended to see whether a spoken English test in a laboratory is feasible as a large-scale test format (Wen, 1999). The experiments were held for five years consecutively, in which several aspects were examined: (1) the content and the difficulty level of the test; (2) the administration of the test; (3) the evaluation of the tapes. The total number of subjects involved in the experiment was 3,300 second-year English majors from 60 different universities within five years. After each experiment, the researchers made modifications based on the students' and the teachers' responses to the test. Finally, such a test format has been adopted as the English spoken Test-Band 4 for English majors since May 1999.

The two exemplary studies mentioned above are primarily concerned with practical problems. In Example One, the researchers wanted to find a method to teach spoken English more effectively in a large class and in Example Two, the researcher aimed at developing a large-scale spoken English test for English majors who spread out in different parts of China. Although the results from the two studies all had a direct impact on actual teaching and learning or syllabus design, or testing, there is no theoretical basis for us to claim that teaching spoken English in a language laboratory, or testing spoken English in a language laboratory is better than other forms. Actually, the solutions are selected only due to practical constraints.

Aims of research: Discrete categories or a continuum?

In the above discussion, I tried to give you various examples to

illustrate the differences between theoretical and practical research according to their aims. You might get an impression that such a distinction is clear-cut and easy to identify. Actually it is not always true. In reality, such a theoretical-practical divide is defined only in a relative sense. They do not form discrete categories but a continuum. Moreover, in practice, one piece of research more often than not fulfils a double or triple purpose. It is not uncommon for theoretical research to have practical implications while practical research has theoretical value. The theoretical-practical distinction is sometimes blurred and they differ in degree rather than in kind.

Primary and secondary

The distinction between primary research and secondary research depends upon the source of data. By saying primary research, I mean the data are collected directly from our lived experiences. These data have not existed in any documents before. They are first-hand and original information. Secondary research is a kind of study which makes use of data in documents, books and journals. These data have been collected by other people for their own purposes.

Secondary research

Secondary research is often called documentary or library research. Let us first consider the following example of a term paper.

Suppose as a requirement of the course, MA students are asked to write a term paper on the topic “Select two learner factors which you think are most important in accounting for individual differences in L2 learning outcomes”. To accomplish the task, the students use libraries to search for the written wisdom of other scholars. Suppose the students select “motivation” and “learning strategies”. First of all, they may search the books which include these two variables and then find out the papers which have reported empirical studies on them. They then synthesize diverse views from these secondary sources and various findings related to the issue. The resulting work, if not too bad, can provide some useful ideas about the topic at hand and the best papers can develop creative and productive insights into a given topic.

A review paper is a typical example of secondary research. The researcher reviews the recent work in a defined area and then

summarizes, analyzes, evaluates, or synthesizes information that has already been published. Although the materials the researcher reviews are not new, the best review papers are insightful in the sense that they offer new syntheses, new ideas and theories. For example, a paper entitled “Research on language learning strategies: Methods, findings and instructional issues” written by Oxford and Crookall (1989) is a review which intends to “survey research on language learning strategies (LLSs)”. The authors describe and evaluate various primary research studies on LLSs according to the research methods used. Finally they put forward some valuable suggestions for future research on the topic.

Primary research

Primary research is also called empirical research because its data are derived from the primary source (e.g. students who are learning a second language or teachers who are teaching a second language), in contrast to secondary research, which depends on secondary sources (e.g. books about L2 learning and teaching). Primary research can be theory-oriented or practice-oriented. The following hypothetical studies are all primary research.

Example One

In order to find out how good learners and poor learners differ in reading strategies, the researcher asked 60 second-year non-English majors to answer a questionnaire which contained 25 statements with a five-point scale ranging from “This statement is never or almost never true of me” to “This statement is always or almost always true of me.” The responses were compared by statistical analysis.

Example Two

In order to find out how good learners and poor learners differ in reading strategies, 12 students, divided evenly between good and poor learners, were asked to read one passage while thinking aloud. The whole process was recorded individually and then transcribed. Their reading strategies that were thus identified were categorized based on the verbal protocols and the categories

were compared.

Example Three

The researcher aimed at examining to what extent second-year English majors used L1 in the process of L2 writing. 50 students were asked to answer a questionnaire that contained 15 items concerning whether L1 was used at different stages of writing. Each item was responded to on a three-point scale, i. e. never—sometimes—usually. The responses to the questionnaire were analyzed first by statistical procedures. Then the 8 students who were reported to use L1 most frequently and the least frequently were selected respectively out of the 50 for interviewing. In the interview, they each were asked to describe their L2 writing process in detail, and to explain how and why L1 was used in the process. The interview data were categorized and reported as supplements to the responses to the questionnaire.

Recently, due to the advancement of computer technology, quite a few linguistic corpora have been developed at home and abroad. These corpora can provide the researcher with recorded authentic speech or written texts. It is very convenient for a beginning researcher to work with an existing set of data since it is extremely difficult for any individual researcher to carry out large-scale data collection given that time and funding are limited. Do we call this kind of research primary or secondary? The data in these corpora were collected by other people. However, they contain raw data in the sense that they have not been analyzed. In my opinion, this kind of research is still primary by nature.

In the above discussion, I tried to explain to you how primary research is different from secondary research. Actually, they each can hardly be conducted in isolation. Secondary research can only exist on the basis of primary research, while primary research must start with secondary research.

Requirements for graduate students

As graduate students in applied linguistics, you might ask, “What kind of research are we expected to do?” You are expected to learn to

do all of the above: theoretical/practical research and primary/secondary research. For your theses, you have to carry out primary research that is supported by secondary research. In the case of writing a term paper, you usually do secondary research by searching the library, which may focus on findings from theoretical or practical research or both. One thing that has to be mentioned here is that a doctoral dissertation should report primary research which must have theoretical value.

SUMMARY

Research is defined as a systematic approach to finding answers to questions. For a piece of work to be qualified as research, it must meet three requirements: (1) questions that are significant, original and answerable; (2) explicit and transparent research procedures that can be justified in terms of established principles in the discipline concerned; (3) answers that address the questions being asked. The process of research may be metaphorically described as a wheel or a flow chart. The metaphor of a wheel emphasizes the dynamic aspect of research while the image of a flow chart stresses six distinct activities that have to be carried out in a sequence. A novice researcher is recommended to first follow the sequence of these activities and later show flexibility. Research can be classified in terms of aims as theoretical or practical or in terms of its sources as primary or secondary. Postgraduate students are expected to learn to do various types of research. However, in Master's or Doctoral theses for applied linguistic programs, primary research is usually the major component.

DISCUSSION QUESTIONS

1. How does the definition of research in this book differ from your own definition, and from the definitions you have read in other books?
2. Find out one research paper in a recently-published international journal and discuss the following questions with your classmates:
 - 1) What are the research questions listed in the paper?
 - 2) What are the procedures described in the paper?
 - 3) What are the answers to the questions?
3. What is the relation among the three components: questions, a

systematic approach and answers?

4. Compare the two graphic representations of the research process and identify their similarities and differences.
5. What tasks does a researcher have to accomplish if a piece of research is conducted effectively?
6. How does the author classify different types of research?
7. Use examples to show what is theoretical/practical research.
8. In what ways can primary research be supported by secondary research?
9. If you are asked to carry out secondary research, what are you expected to do?