



UTPL
La Universidad Católica de Loja

Modalidad Abierta y a Distancia

Research Methods in ELT

Guía didáctica



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Facultad de Ciencias Sociales, Educación y Humanidades

Departamento de Filosofía, Artes y Humanidades

Research Methods in ELT

Guía didáctica

Carrera	PAO Nivel
▪ Pedagogía de Los Idiomas Nacionales y Extranjeros	VI

Autor:

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Asesoría virtual
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Universidad Técnica Particular de Loja

Research Methods in ELT

Guía didáctica

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ISBN digital -978-9942-39-083-7



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1. Informative data

1.1. Course presentation



1.2. Generic competences of UTPL

- Critical and reflexive thinking
- Communication in the English language
- Ethical behavior, organization and planning

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1.3. Specific competences of the program

Organizing curricular and English learning management models focused on the experience of learners, the interaction with institutional, community, and family contexts through practice, service to society, research, production and innovation with the purpose of promoting inter-culturality, inclusion, democracy, and methodological flexibility in education processes, in personalized learning and virtual, face-to-face, and/or tutorial interaction.

1.4. Issues addressed by the course

The course Research Methods in ELT attempts to address the following issues:

- Limited methodological and didactic knowledge, as well as the development of critical and reflexive thinking.
- Limited knowledge of design, application and evaluation of educational resources and strategies for the adaptation, flexibilization and integration of personal learning experiences.

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2. Learning methodology

The methodology of the course is based on the UTPL distance student-centered approach. The Competency-based methodology, which will be used all throughout the semester in this course, has the purpose to allow learners be independent in their learning process under the guide of the tutor. One of the advantages of this methodology is that as all students have different needs, it gives them the opportunity to acquire the new knowledge at their own pace when it comes to time management. Furthermore, each student counts on with the support of his tutor in order to facilitate the learning process as well as to reach the learning outcomes, which are addressed to developing reading and writing skills at an academic level and will be fulfilled progressively.

It is worth mentioning that by using this methodology, learners become a key factor in the learning process. Hence, the responsibility and commitment from both, the professor and students, make a fundamental part in the development of this course. Thus, collaborative work and integral support are mandatory, not only by working on the assignments but also by receiving and delivering feedback, which will contribute to reaching the competencies required in the professional profile and real educational environment. Therefore, this methodology offers multiple benefits to students of the distance modality, who need to strengthen their reading and writing skills academically autonomously.

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Three components make part of this methodology; these are the components of Teaching, Application and experimental, and Autonomous. In regards to the Teaching component, this will allow students to have the opportunity to interact actively with the tutor in order to clarify content and strengthen skills. Similarly, the component of Application and experimental practice implies a full practice of the contents studied in each unit; finally, we will find the Autonomous work component, in which students can demonstrate their skills acquired by participating in self-assessment and formal assessment activities

The three components aforementioned will be monitored and guided by the tutor in order to guarantee the correct development of the skills and the achievement of the learning outcomes. Students can contact their tutor by telephone calls, weekly tutorial chat, e-mail, and all the communication means established by the university.

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3. Academic guidelines per learning outcome



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Learning outcomes 1

Identifies primary and secondary sources to write a Literature Review in order to understand and explain issues about English teaching and learning.

Contents, resources and recommended learning activities

The first learning outcome will be achieved by first reviewing the steps of the research process in the educational field and contextualizing the important of the literature review in the English teaching-learning process.



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Dear students, welcome to the first unit of the course “Research methods in ELT”. Here, you will review basic concepts of the research process as well as the main aspects of an important part of the research report: the literature review. Let’s begin the reading of this unit.



Unit 1. The research process and the literature review

We are going to begin the study of the course with unit 1. In this first unit, we will review the steps of the research process and contextualize the importance of reviewing the literature to carry out a research study. We will also study some aspects related to searching literature about a given research topic and writing the literature review. These aspects will be discussed below. For this reason, I invite you to read and learn the information, explanations, resources, and examples presented in this unit. Let’s start by reviewing concept and importance of research.

1.1. The concept and importance of research

First of all, it is worth mentioning that, in the field of education, several authors (e.g Creswell, 2015; Ary et al., 2018) agree on the fact that research in education is a process or a set of steps that must be followed in order to collect and analyze information that will be conducive to enhance our comprehension of an issue.

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As ELT (English Language Teaching) is closely related to the educational field, research is an important process that will lead to the solution of educational problems related to English language teaching. In this respect, I invite you to read the information on the following Power Point presentation: [Concept of research and importance of research](#), with the purpose of having a better understanding of the concept of research and its importance in the educational field. Start wondering: Why do you think research is important in fields such as ELT or English as a Foreign Language(EFL)?

Could you answer this question after checking the PPT above?

I am sure that you have an idea now of why research is important in your future professional field. As you can see, research is set of steps that you can follow to know more about a problem or issue in which you are interested.

Let's analyze the importance of research based on the following aspects proposed by Creswell (2015):

Research adds to knowledge

It is essential to enhance our knowledge and skills as educators, so we need to address problems or issues in order to find solutions.

When we say that research adds to knowledge, this means that we, as educators, have to conduct research related to a problem or issue to contribute to existing knowledge about such problem or issue in the teaching-learning field. As a starting point, we may have questions that require research to find and answer. The results of the research study will provide those answers, and we will gain a deeper understanding of the problem or issue.

A research report that results after finishing our research study (e.g. a study about mobile applications to teach speaking) may be a contribution in the following aspects:

- Filling a void in existing knowledge.
- Providing additional results to confirm or disconfirm results of previous studies.
- Adding to existing literature about practices in the educational field.
- Providing information about people or places that have not been studied.

EXAMPLE:

John wants to study the use of the tool Google Classroom to improve EFL reading skills . After reading literature related to this research topic, he realizes that there are some studies already done. However, he notices that none of these studies has worked with a large sample, so he decided to use a large sample for his study, thus, increasing the probability of obtaining generalizable results in his context and contributing to existing knowledge about this topic.

Research improves practice

Research is also important because it can lead to improvements for practice. Research results can help educators become better professionals, which means a more effective learning process for students. Furthermore, research offers practicing educators new ideas to consider in their profession. They can learn about new practices that have been tried in other settings or situations.

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Research also helps educators evaluate approaches that they hope will work with their students (e.g. the use of songs in the classroom to learn pronunciation). This process involves reading research reports about previous studies to determine which results will be most useful.

EXAMPLE:

Mary notices that her students are obtaining low grades in the EFL writing exam. After talking to some students, she realizes that students are not confident about their spelling and syntax. After reading some literature, she decided to try an innovative approach by using microblogging to improve her students' spelling and syntax. She later analyzed the results of this approach to see if this is actually an improvement in teaching practice.

After finishing this section, we will synthesize the importance of research in the following figure:

Figure 1.
The importance of research

Importance of research in elt

Research adds to knowledge

- Gaps in knowledge
- Expands knowledge
- Replicates knowledge

Research improves practice

- Improvements for practice
- Evaluation of new teaching approaches

Source: Creswell (2015)

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Another important aspect to review in this first unit is the steps of research.

1.2. The research process

Do you remember the steps of the research? If not, let's watch this video to learn about these steps: [Steps of the research process](#).

After watching this video, please answer the following questions:

- Why do you think they suggest to do a “literature map” in the video?
- What aspects can be included when you identify the purpose statement?
- According to the video, is it important to obtain permissions before collecting data?
- In which step does the video mention that you could do statistical analysis?
- What ethical considerations are mentioned in the video?

Were these questions difficult to answer? I hope not. Let's see if you can relate the information of the video to the following steps of research. According to Creswell (2015), there are 6 steps that the researcher can follow to conduct research. These steps can be observed in the following figure.

Figure 2.
The 6 steps of research



Source: Creswell (2015)

In order to review this research process, I invite you to read the information about these 6 steps that will be briefly described in the following resource.

[Study Resources](#)

After reviewing the steps of research, it is important to emphasize that research is an important process in our professional field of English teaching. We need to be clear about the research questions or objectives as well as the research topic that we are interested in. This will be essential when attempting to solve problems in the EFL classroom. In this respect, if you want to learn more about research questions and hypothesis, please read the following resource:

[Research questions and hypotheses 1.](#)

Likewise, we need to know how to evaluate if the research that we want to carry out is good enough to contribute to knowledge. For this purpose, we are going to learn about the characteristics of good research.

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1.3. Characteristics of good research

To start this part, we will analyze the content of a website to learn about the qualities of good and bad academic research. While you read this information, think about the properties of bad research presented in the following resource: [Qualities of good and bad academic research](#). How can you avoid them in your research study?

Did you identify the qualities of good and bad research? Make a table comparing good and bad research. Write the characteristics of good research in one column and the characteristics of bad research in the second column.

Once you have done the activity above, we are going to discuss some characteristics that can make a research study a respectable and excellent contribution to already existing research about a topic. We can learn about the following characteristics of good research established by McDonough and McDonough (2014), please read the following resource.

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After analyzing the examples and characteristics of good research in the resource above, you can see these characteristics synthesized as follows in the table below:

Table 1.
Characteristics of good research

Characteristics of good research		
Initiation and undertaking of research	Design and methodology	Applications to other situations
▪ Interest	▪ Sensitivity	▪ Replicability
▪ Originality	▪ Objectivity	▪ Generalizability
▪ Specificity	▪ Validity	▪ Utility
▪ Publication	▪ Reliability	▪ Ethics
	▪ Falsifiability	

Source: McDonough & McDonough (2014)

So, what do you think about these characteristics of good research? Are you going to consider them when you evaluate your own research studies? Do not forget that specific and well-defined research questions for your research study is a foundation for good research. In this respect, I invite you to work on the following suggested activity so you can learn more about this aspect.



Suggested activity

Strategies

- Study unit 1, specifically the part of “Specifying a purpose and research questions or hypotheses”.
- Pay attention to the definitions and the examples of research questions, hypothesis, objectives and purpose statements provided in the text and resources in this part.

- Do the following activity:

Please identify the following statements. Are they research questions, hypothesis, objectives or purpose statements?

1. What kinds of experiences have students had while improving their EFL speaking skills?
2. Students who have a higher exposure to the English language will also have a higher confidence to speak this language.
3. To examine the correlation between the use of online tools and improvement in EFL *pronunciation*.

Nota: conteste las actividades en un cuaderno de apuntes o en un documento Word.

Was this suggested activity difficult? It is important to read the definitions of research questions, hypothesis, objectives or purpose statements given above first. Based on those definitions you can see that statement 1 is a research question since it is written in the form of a question. In, statement 2 you will notice that the researcher is making a prediction or conjecture about the results of a study. Statement 3 is written in form of a specific goal that the researcher plants to achieve in a study, so this is a research objective.



Week 2

At this point in this unit, we need to acknowledge that one of the aspects that can help you achieve good quality research is a previous review of literature about the research topic of your interest. For this reason, we are going to study some aspects concerning the

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literature review that will help you write this essential section of your research report. Please read the information below.

1.4. The relevance of the literature review in the research process

A literature review is the part of the research report “where there is extensive **reference to related research and theory** in your field; it is where connections are made between the source texts that you draw on and where you position yourself and your research among these sources.” (Ridley, 2012, p. 3). In other words, you review previous research on a topic and explore the field related to your research problem in order to be aware of current literature and establish a connection of your study with the work of other researchers.

The importance of the literature review

A literature review has several advantages that will help you achieve a good quality in your research study. Oliver (2012) mentions the following purposes:

- One purpose of a literature review is to help readers see how your research study is related to previous studies in the issue or problem that you are researching. This means that the review will help your audience **understand how your research study fits into a broader context**.
- A literature review will also allow you to see **how your study adds something to the knowledge** about your research topic. In addition, you could identify areas that have not yet been studied and suggest topics for future research.
- Another purpose of the literature review is to help you find **justification** for choosing your research topic. If there are many

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studies about your problem, this indicates that your research problem is an important topic. However, if you are not careful when reviewing previous studies, there is a **risk of replicating research** that may not add to knowledge or is not original enough.

- The literature review provides the research you are conducting with an **intellectual perspective**, and it will help you **set your conclusions within a broader academic context**, relating your work to past and future studies.

Continuing with the study of this topic, we are going to synthesize the main points related to the purpose of the literature review. Thus, I invite you to watch the following video that summarizes the purpose of a literature review: [Purpose of the literature review](#). As you watch the video, take notes of the concept of literature review that they give. The video talks about 6 points related to why the literature review is important. Take notes of the explanation of these points so we can discuss the questions below. Did you finish watching the video and taking notes?

Well, I hope that you have taken notes of these points. Let's synthesize these aspects.

- The literature review provides a historical background for your research. Why is important to provide a historical background?
- The literature review gives an overview of the current context in which your research is situated by referring to contemporary debates, issues and questions in the field. Why is this point important?
- The literature review includes a discussion of relevant theories and concepts which underpin your research. What example does the video provide about this point?

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- The literature review introduces relevant terminology and provides definitions to clarify how terms are being used in the context of your own work. Why is this point critical?
- The literature review describes related research in the field and shows how your work extends or challenges this, or addresses a gap in work in the field. What is the explanation provided about this point?
- The literature review provides supporting evidence for a practical problem or issue which your research is addressing, thereby underlining its significance. What does this mean?

After discussing the importance of the literature review, it is also necessary to learn about writing a literature search since you will have to include this section in your research report. One of the first things that you have to do is to have a research topic of interest in order to do a literature search on this topic. Let's talk about this point.

Doing the literature search

To do this literature search, you can start by using databases such as Google Scholar (<https://scholar.google.com/>), ERIC (<https://eric.ed.gov/>), or WorldCat (<https://www.worldcat.org/>). You need to learn how to navigate the website of the online database that you have selected. You also have to bear in mind that navigating these databases to search for information could take a considerable amount of time and patience.

In order to learn more about searching literature on a database, we need to study aspects such as key terms to be used to search on the database, the operators (e.g. "AND", "OR"), the quotation marks, and other options to narrow your search on the database. For this purpose, please watch the following video [database search](#)

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strategies that mentions some database search strategies that will help you search for literature.

So, could you see how the key terms are being used to search on the database? You could see that, in the video, they also used "AND", "OR" and quotations marks to do more specific search. Now, tell me. What other options can help you narrow your search on the database?

Sometimes, on these electronic databases, you will have full access to some articles, but you may not have access to the full text of others. This lack of access to some sources could be a problem, but you have to try to work with the sources that are available. You can also try other databases for searching information (e.g. ERIC, Scopus and Google Scholar). In order to learn to search for information on Google Scholar I invite you to watch the following video: [Differences between Google and Google Scholar](#). After watching the video, you will also learn the differences between Google and Google Scholar.

Did you notice the differences between Google and Google Scholar? You can see that Google scholar is the best option of these two tools when it comes to search for academic publications. If you use Google, your main disadvantage is that you will find information that may not be reliable in academic terms. On Google Scholar, you can also find an option to see the citation of academic, but, are 100% of these citations correct? What do you think?

After doing your research, you will have some material to work on. From all of this information gathered, you will have to select the literature that may be more related to the purpose of your research study. Therefore, we are going to learn about the selection of information sources.

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Selecting literature

When selecting literature, you have to get an overview of the material, take notes about the articles selected, and analyze them. To learn more about the aspects to be considered about the evaluation criteria of an information source, take a look at the following resource: [Evaluating information sources](#).

You will see that the website above contains information about the evaluation of information sources, which is an essential part of the selection of literature. So, what are the questions that you can ask yourself when evaluating accuracy, authority, objectivity, currency and coverage in an information source?

It is time to discuss the aspects that you have to take into account when selecting the material for your literature review. In the following video: [selecting literature](#), the steps for selecting articles relevant to your topic are summarized. Please watch the video and take notes of the information about these steps.

What did you learn from your notes taken? The video above gives you some advice about what to do when you have a long list of research articles after doing a literature search. The first step says that you should start reading titles. They mention two reasons. What are these reasons?

It is worth mentioning here that the first parts that you notice from an article when you are doing your literature search are the title and then the abstract. For this reason, if you see a title of your interest, you should open it. Then, you will scan the abstract to see if the purpose, method and results have some relation to your research topic, but, what should you do if you can't find the abstract of an article? Maybe you should watch the video again if you do not have the answer to that question. Another recommendation is to sort the remaining full-text articles in order of relevance? What does this

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mean? And, of course, you will read the articles that you are actually planning to use. We will elaborate more on the process of selecting the literature below.

Overview of the material

You should start by seeing the titles of the articles and reading the abstracts of the material that you found. Then, it is necessary to do a prereading of material. This means that you can read the first few paragraphs of the article (i.e. introduction) and, after that, jump to the paragraph previous to the method section. In this paragraph, the researchers usually write their hypothesis, research questions, or objectives. Then, you can scan the rest of the article, paying attention to all heading and subheadings.

The purpose of this prereading is to get an overview of the articles. This prereading is also useful for grouping your material into categories. The most common way to classify the material is to organize it by topic and subtopics and then in chronological order within each subtopic. A grouping of articles into categories will facilitate the analysis and summary of the information since you will read articles about the same topic together and probably in chronological order (Galvan & Galvan, 2017).

Compiling notes after reading the articles

You should organize your material compiled. You can do this by highlighting notable sections of your articles and inserting comments. The parts marked can include different subtopics, different research methods, regarded authors, landmark studies or any other part that may help you organize your review (Galvan & Galvan, 2017).

After the organization of your material, you can start reading them and taking notes. An efficient method for recording your notes is

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to use a spreadsheet on your computer. You will be able to add or delete categories (if necessary) and reorder information. You should also use column headings (e.g. authors' names, title of the article, publication year, summary, method, findings, etc.) to facilitate a better view of the notes (Galvan & Galvan, 2017).

Deep analysis of articles

A deeper analysis of the articles can begin after you have collected detailed information about your sources. In this deeper analysis, you will obtain more specific details (e.g. definition of key terms, statistics, quotations) about your studies. This will be an essential step in the organization of your literature review.

It is time to do some literature search, so you can reinforce what you have learned. Please, work on this suggested activity.



Suggested activity

Strategies

- Study unit 1, specifically the part of “Doing the literature search”.
- Pay attention to the recommendations provided in the text and resources provided in this part related to searching literature in electronic databases.
- Do the following activity:

Now do your own search by using Google and Google Scholar. Use some key words related to a research topic that you are interested in. Did you obtain similar results?

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Remember that this activity will allow you to practice the contents learned in this section related to search information on databases. This practice will be useful when you want to find literature for your research topic of interest.

It is also important to remember that searching literature on Google can lead you to information (including websites) that may not be true or complete. Searching on Google Scholar offers more reliable results in this aspect. On Google Scholar you can find books and peer-reviewed articles written on your topic of interest. Google Scholar also presents the citation of these works (although these citations are not totally correct sometimes) and allows you to save your results in a personal library.



Week 3

Another important aspect of the literature review is to know its contents. What does a literature review contain? In what follows, we are going to learn about this topic.

The content of a literature review

First of all, we will say that the content of your literature review, must be related to the purpose or research questions of your research. This content will encompass aspects such as the categories of material that will be included and the length and subdivision of the literature review. We will summarize these points.

The categories of literature to include

First of all, it is necessary to differentiate between two types of sources from which you can obtain information for your literature

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review. In **primary sources**, the authors are usually the ones who collected and analyzed the data. On the other hand, **secondary sources** are analyses and interpretations based on primary sources, so it is literature that summarizes primary sources (Creswell, 2015).

In this respect, I invite you to read the following websites that will allow you to better understand the difference between primary and secondary sources: [Primary and secondary sources of information 1](#); [Primary and secondary sources of information 2](#) After reading these websites, please summarize the information using the following table:

Table 2.

Characteristics and examples of primary and secondary sources.

PRIMARY SOURCES	SECONDARY SOURCES
Characteristics: - - -	Characteristics: - - -
Examples: - - - -	Examples: - - -

Nota: conteste las actividades en un cuaderno de apuntes o en un documento Word.

Could you complete the table above? If not, I will help you. In the academic field, the most common primary sources are the **journal articles**. Most of these sources of information have a structure that includes an abstract (summary of the article), an introduction, a brief literature review, a description of the research design and methods used, a section destined to analyze and discuss the data collected,

and the conclusions. At the end of the articles, there is a list of references (sources of information consulted by the author(s) of the article), and even information for contacting the author(s) (Oliver, 2012). Other common primary sources include chapters in edited books, published or unpublished theses (masters and doctoral theses).

As for secondary sources, books are one of the most common. Books are not necessarily focused on newly collected data, but they can also be discussed in a literature review.

The length and subdivision of the literature review

Oliver (2012) establishes the following points about the length and subdivision of your literature review:

You need to define the length of your literature review in advance, generally in terms of number of words and pages. For this purpose, it is necessary to know the approximate length and type of research report. You also have to estimate the number of references that could be necessary to include in the literature review.

The planning of themes and subthemes for your review depends on the field of your research problem. This is basically a creative process.

Another important factor is to achieve approximately the correct word length. Sometimes, you will find that your topic has been so well researched that you will probably exceed the required word length. In this case, you will have to reduce the word length. On the other hand, if the word length that you obtained is not enough, you may have to look for more recent material to include and be more flexible as to the topics that are being covered.

If you wish to learn more about how to structure your literature review, please read the following resource: [Structure of a literature review](#) and answer the questions below:

- According to the website above, what should the introduction to your literature review contain?
- What do you include in the main body of your literature review?
- How should you write the conclusion of your literature review?

I think that these questions are easy to answer once you have read the information from the website above. Anyway, we will continue discussing another aspect of the content of the literature review: the relation between the content and the research aims.

Relating the content of your review to the research aims

The connection to the research questions or objectives is essential for a literature review. These objective or research questions can help you create the sections of your review, which will help readers understand the division of your literature review. If you refer back to the objectives or research questions in your research report, and they are linked to the literature review, the context of your report will be clearer for the audience.

For a better quality of your literature review, try to avoid the following problems:

- The use of very old literature (although some of these authors could be considered classics).
- Citation of internet pages or unpublished sources whose quality has not been assessed.
- Summary of studies that are not related to each other.

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- Insufficient discussion of studies cited.

Remember that a literature review is not just a list of works with brief comments. A literature review involves a creative process that establishes a relation of the literature included. You must write a coherent literature review. What is a coherent literature review? You will find the answer by reading the information in the following REA about [writing a coherent literature review](#). This resource will allow you to learn about the tasks that you need to do when putting together a literature review.

“Esta presentación es con fines informativos, de uso personal y podrán revisar en el presente enlace (Mjlobetos (2018). Lesson 14 writing coherent review of literature. [PowerPoint slides]. Slideshare.net. <https://es.slideshare.net/mjlobetos/lesson-14-writing-coherent-review-of-literature>)”

After reading the resource above, I am sure that now you are familiar with the concept of coherence in a literature review as well as the type of content that you should include in the introduction, body, and conclusion of a literature review.

Bear in mind that the literature review should have a clearly stated argument (main idea), and all of its elements have to work together to effectively communicate that argument. In this respect, it is necessary to address the academic aspects at the moment of writing the literature review.

Academic aspects of writing a literature review

As you already know, a literature review is not only written as a series of connected summaries of the literature you have analyzed. After writing the first draft of your literature review, there are elements that we need to address regarding the effective writing of

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your literature review. To learn about these elements, please read the following resource.

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As you could learn in the resource above, the academic aspects of writing a literature review are related to achieving coherence, using appropriate academic language, and avoiding plagiarism. To learn more about the use of appropriate academic language, please watch the following video [features of academic language](#) and find out about the formality of the academic language.

Could you see that the academic language is formal? And, of course, academic language should be impersonal, precise and well-organized. By now, you have understood these points, right?

With respect to avoiding plagiarism, after reading the information in the resource above, you are now familiarized with this aspect. If you want to know more about this aspect, please read the information in the following resource: [How to avoid plagiarism 1](#) that mentions ways to avoid plagiarism in research reports.

As you just learned in the resources above, one way of avoiding plagiarism is the use of direct and indirect quotations. To learn about the use of quotations, please read the information on the following resource: [Using quotation marks](#) to know more about this way of avoiding plagiarism.

Now, after reading this information, you know the answer to this question: What are the differences between direct and indirect quotations? If you haven't figured it out, please go back to the resources about avoiding plagiarism and using quotation marks.

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Now, in order to reinforce what you learned about the contents and academic aspects of a literature review, you are going to do the following suggested activities.



Suggested activity

Strategies

- Study unit 1, specifically the part of “The content of a literature review”.
- Read and learn the text and resources about the aspects mentioned in this part related to categories of literature to include, length and subdivision of the literature review, and relating the content of the literature review to the research aims.
- Do the following activity:

Consider the example below that shows an example of the structure of a literature review of a thesis:

The theme of the research is “Master’s and Doctoral Theses on Second Language Writing: A Survey of the Emerging Voices in China”

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Analyze the headings and subheadings for the work above. Do you think they are related to the title of the work?

What do you think? It looks like the first part “Historical background” contains some previous studies carried out in China abot EFL writing, so it appears that it is related to the topic (“Second Language Writing: A Survey of the Emerging Voices in China”). The rest of the subheadings are also related to writing, so the headings and subtitles seem related to the main theme of the research study.



Suggested activity

Strategies

- Study unit 1, specifically the part of “Academic aspects of writing a literature review”.
- Read and learn the recommendations, examples and resources about the aspects mentioned in this part related to achieving coherence in a literature review, using appropriate academic language and avoiding plagiarism.
- Do the following activity:

Paraphrase the following sentence:

Japan has long had deep misgivings about immigration and has tightly controlled the ability of foreigners to live and work here (Haralan, 2010).

How difficult was paraphrasing this sentence? I am sure you did not have problems while doing this activity. Remember that paraphrasing is a creative process and there are several ways to paraphrase a text. My suggestion is the following:

For many years, Japan has had second thoughts about people immigrating to Japan and has strictly regulated how they can work and live here (Haralan, 2010).

Could you notice that the meaning of the sentence is the same? Your version of the paraphrase must have the same meaning as the original as well.

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With these suggested activities, we have finished the study of this first unit. The aspects learned in this unit are useful to write the literature review of your research report. Of course, some of these aspects such as the academic aspects and the avoidance of plagiarism can also be applied when writing your research report (more about this will be studied in Unit 5).

It is time to assess what you have learned in this first unit, so you are invited to complete the following self-evaluation about unit 1. Good luck!

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Self- Evaluation 1

By completing this self-evaluation of unit 1, you will acquire and test your learning of the contents studied. You must review the contents of unit 1 before starting to answer the questions.

Self-evaluation 1

1. Select the correct option to answer the question:

What is the first step that you would usually take before starting the research process?

- a. Designing data collection instruments
- b. Writing the literature review
- c. Identifying a research problem

2. Select the correct option to complete the statement:

A good reason why research in ELT is important is that its results____

- a. allows us to read other studies.
- b. contribute to teaching practice.
- c. replicate research.

3. Select the correct option to complete the statement:

When specifying a research problem, we____

- a. establish the problem that can or should be examined.
- b. justify its importance in the research context.
- c. narrow down the topic and focus on an area of study.

4. Complete the following statement with the correct word:

You should avoid studying a research problem if the study lacks potential to _____ to knowledge.

5. Complete the following statement with the correct words:

The _____ in a research study is important because the review of pertinent theory and research allows researchers to see if their study will contribute to knowledge.

6. Complete the following statement with the correct word:

A disadvantage of searching the _____ for literature would be that there could be some unreliable sources of information.

Match the concept on the left with the example on the right. Write the correct letter on the blanks.

- | | |
|----------------------------|--|
| 7. In-text citation _____ | a. "The correction of grammar errors in EFL writing will have a detrimental effect on the students' foreign language learning process" |
| 8. On-line database_____ | b. What is the effect of grammar correction on the students' foreign language process? |
| 9. Research question _____ | c. Gass and Varonis (1984) found that the most important element in comprehending non-native speech is familiarity with the topic. |
| 10. Hypothesis _____ | d. ERIC |

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I hope that the self-evaluation above has been helpful to review what you learned. In the case of some doubt when completing it, you can refer to the answer key of this guide. Now, we have to start the next unit.

Answer Key

Learning outcomes 2 and 3

- Differentiates Quantitative, Qualitative and Mixed methods for data collection.
- Designs data collection instruments and analyzes data gathered for explaining or solving educational issues.

Contents, resources and recommended learning activities

In the second unit, we are going to discuss quantitative methods for data collection to be applied in the field of English language teaching. This will help you to accomplish learning outcome 2. Likewise, we will address the design of data collection instruments in quantitative research, which will be useful to accomplish learning outcome 3.



Week 4

Dear students, now we are going to begin the second unit of this course related to quantitative research. We will study aspects about this type of research such as characteristics, design of questionnaires, data collection, analysis and interpretation, as well as quantitative approaches. Please read the following information.

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Unit 2. Quantitative research

below, we are going to explain different aspects related to quantitative research. I invite you to read and learn the information, explanations, resources, and examples presented in this unit. We will begin with the concept and characteristics of this type of research.

2.1. Concept and characteristics

It is necessary to learn about the characteristics of this type of research, so you can have a better understanding of it. The following website not only provides a concept for qualitative research, but also presents its main characteristics. Please read the information on this resource to learn about these characteristics.

Study Resources

Could you find the main characteristics of quantitative research? I am sure you did. It is worth mentioning that, in quantitative research, you count data as a part of the task of processing the results. In an educational context, many types of data can be counted. For instance, a teacher might wish to look at student's scores on a test or examination, to evaluate responses to a questionnaire, to estimate the relative importance of items in a need analysis, or, to compare the frequencies of different teaching/learning exchanges in a classroom observation.

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The resource that you read also contains information about variables. To write quantitative purpose statements, research questions, and hypotheses, you need to understand the importance and use of variables. If you want to learn more about variables, you can read the information on the following website [variables](#) about two common types of variables used in quantitative research: independent and dependent variables.

After reading the information and examples from the resources above, you must be familiar now with the concept of dependent and independent variable. Remember that a variable can be measured. Let's watch this video [measuring a variable](#) to know more about the concept of measuring a variable. Did you see the examples of variables used in the video? After watching this video, you are now more familiar with the criteria to measure a variable.

Certainly, the explanation of the resources so far has shown the different characteristics of quantitative research, including how to write a research question in a quantitative study. Once you have your research questions ready, you need to think about the data that you are going to collect. In what follows, we will discuss the process of quantitative data collection.

2.2. Collecting quantitative data

The process of collecting quantitative data consists of more than simply collecting data. Creswell (2015) establishes five steps in the process of quantitative data collection. To learn about these steps, please read the following resource.

Study Resources

Steps for collecting quantitative data.

Now, we are going to apply some of the contents previously learned in this part by doing the following suggested activity.



Suggested activity

Strategies

- Study unit 2, specifically the part of concept and characteristics of quantitative research.
- Read and learn the aspects, examples and resources related to variables and writing quantitative research questions.
- Do the following activity:

Consider the following research question:

- **What are the differences in student's attitudes towards EFL grammar teaching when the teacher applies the inductive or deductive method?**

Analyze this research question and determine if it is a descriptive, comparative or relationship research question. Additionally, identify the dependent and independent variable in the research question.

Was this activity easy? Remember to review the section about variables and types of research questions in this unit. You can see that in the research question above, we are trying to examine the differences in attitudes towards the inductive and deductive method, so we are comparing the attitudes when two methods are applied. Therefore, this would be a comparative research question. As for

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the variables, you can see that one of the variables is the students' attitudes and the other variable is the method applied. The students' attitudes will probably differ depending on the method applied. For this reason, the students' attitudes will depend upon the method applied, so the attitudes would be the dependent variable. This means that the method applied is the independent variable.



Week 5

After studying the steps for collecting quantitative data, it is necessary to learn something about the design of instruments for collecting this type of data. Of course, there are many ways to collect quantitative data, but one of the most common instruments is the questionnaire. Thus, we will focus on the design of questionnaires for collecting quantitative data.

2.3. Designing questionnaires in quantitative research

First of all, it is important to say that designing a questionnaire is a complicated process. It is always better to have a questionnaire that has already been used. In other cases, we may adapt an instrument that has already been used, but if we cannot find an instrument that meets our needs, we will have to design a questionnaire.

In quantitative research, one of the most common ways of obtaining large amounts of data in a relatively short period of time in a cost-effective way is by means of standardized questionnaires. Questionnaire design requires a rigorous process if we want to produce an instrument that yields reliable and valid data.

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In order to design a questionnaire, there are several steps involved, including the decision of what content goes in it. We are going to learn something about these steps by reading the following resource: [Steps for designing a questionnaire](#).

So, will you follow the steps indicated in the resource above when designing your questionnaire? Those are good recommendations and questions that you should ask yourself when deciding on the question content for your questionnaire.

You could see in the website above that using close-ended questions in a questionnaire has some advantages and disadvantages. One of the advantages is that close-ended questions provide the respondent with an easy method of indicating his answer. In other words, the respondent does not have to think about how to structure his answer and has to rely less on memory in answering a question. These type of questions also allow the respondent to specify the answer categories most suitable for their purposes. Another advantage is that the responses given in the questionnaires can be easily classified and analyzed.

On the other hand, these disadvantages of close-ended questions are that they do not allow the respondent the opportunity to give a different response to those suggested. In addition, another drawback of close-ended questions is that they 'suggest' answers that respondents may not have considered before.

Some recommendations such as variety in the questions and the piloting of the instrument designed must also be taken into account. In this respect, Mackey & Gass (2015) give the following suggestions to design a questionnaire:

The first step in preparing questionnaire items is to specify their content. We do this by establishing an appropriate sampling of content and content areas for your questionnaire based on the

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purpose of your research. For this purpose, we can write down seemingly relevant questions without any rigorous procedure to ensure that the coverage is comprehensive. Then, you can select the questions that can be actually relevant.

In order to ensure an appropriate content sampling, do the following:

- Clarify the research problem and identify the critical concepts that important – these variables will need to be addressed by the questionnaire. (Consider the purpose of your study).
- Eliminate all the questions that are not really of your interest but not directly related to the variables and hypotheses that the questionnaire has been designed to investigate.
- Avoid making the questionnaire too long by covering every possible angle; focus on the key issues.

After learning about these recommendations, another factor that must be taken into account is the different types of questions that you can include in a questionnaire in order to obtain good quantitative data for your study.

Types of questionnaire items

The typical questionnaire is a highly structured data collection instrument, with most items either asking about very specific pieces of information or giving various response options for the respondent to choose from, for example by ticking a box or circling the most appropriate option. There are some types of questions that you can include in your questionnaire. We are about to see a resource that presents examples of close-ended questions that can be used in quantitative research. While you read the information on the following resource [Definition and examples of close-ended questions](#), consider the concept of a close-ended question as well.

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What do you think of the information provided on the website? Did you learn about types of close-ended questions? I think that you are familiar now with dichotomous questions and types of multiple choice questions.

Most professional questionnaires are mainly made up of “closed-ended” items, which do not require the respondents to produce any free writing. The most famous type of closed-ended item is undoubtedly the Likert scale, which consists of a characteristic statement accompanied by five or six response options for respondents to indicate the extent to which they “agree” or “disagree” with it by marking (e.g., circling) one of the responses ranging from “strongly agree” to “strongly disagree.”

For example:

Figure 3.

EFL teachers are genuinely nice people.

<i>Strongly disagree</i>	<i>Disagree</i>	<i>Neither agree nor disagree</i>	<i>Agree</i>	<i>Strongly agree</i>
------------------------------	-----------------	---------------------------------------	--------------	-----------------------

Another frequently applied way of eliciting a graduated response is the *semantic differential scale*, in which respondents are asked to indicate their answers by marking a continuum (with a tick or an “X”) between two bipolar adjectives at the extremes. For example:

Listening comprehension tasks are:

difficult ____ : ____ : ____ : ____ : ____ *easy*

useless ____ : ____ : ____ : ____ : ____ *useful*

We can also have the *numerical rating scales* that involve giving “so many marks out of so many”. For example:

Figure 4.*Example of numerical rating scale*

Please encircle one (and only one) number for each item, and please don't leave out any of them. Thanks.

5= very much 4= quite a lot 3= so-so 2= not really 1= not at all

1. How much do you like the TV programs made in the United States?	5	4	3	2	1
2. How much do you like knowing English would help your future career?	5	4	3	2	1
3. How much do you like English?	5	4	3	2	1
4. How much do you like the films made in the United States?	5	4	3	2	1
5. How much do you like pop music of the USA?	5	4	3	2	1
6. How much would you like to become similar to the people who speak English ?	5	4	3	2	1

Source: Mackey & Gass (2015)

It is also necessary to bear in mind some recommendation when writing items for questionnaires. In this respect, we are going to take a look at the following website to learn about these recommendations: [Guide to writing effective questionnaire items](#). Now that you read these recommendations, let me ask you some questions:

- What recommendations does the website give about question wording and structure?
- What do they mean by avoiding bias and loaded words?
- What recommendations does the website give about answer wording and structure?

- What do they mean by keeping the answers mutually exclusive?
- What do they mean by removing universal statements?

In order to learn the basics for structuring a questionnaire, we are going to refer to a resource that summarizes some useful recommendations for writing the items of a questionnaire posited by Mackey and Gass (2015). Please read the information in the following document.

Study Resources

Did you find these recommendations interesting? I hope you take into account these recommendations when you design your own questionnaire. After learning the contents of this section, you can work on the following suggested activity to reinforce your knowledge of designing questionnaires.



Suggested activity

Strategies

- Study unit 2, specifically the part of designing questionnaires in quantitative research.
- Read and learn the recommendations, examples and resources related to designing questionnaires, types of items and writing items.
- Do the following activity:

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Take a look at the following close-ended question for a questionnaire.

Do you like speaking and writing in English?

Yes () No ()

What type of close-ended item is it?

Do you think that the item is correctly constructed? Why or why not?

Did you find the suggested activity above difficult? If so, please review the resources that we shared above related to the types of close-ended questions. You will see there that the items which can be answered with a “yes” or “no”, or “true” or “false” are called dichotomous questions.

As for the design of the item, well, try to answer the question. How do you answer this question if you like speaking but you do not like writing in English? What happens if you like writing but you do not like speaking in English? Well, imagine if you include that question in your questionnaire. Your participants will be confused. They may leave the question unanswered, or they will probably choose one of the options at random just to complete the questionnaire. This means that the answers that you will obtain from this item will be unreliable.

The question for the questionnaire indicated in the suggested activity above is (as it was discussed in the contents of this section) what we call a “double-barreled” question. These types of questions might cause the respondent to not know how to answer, so they must be avoided in the design of a questionnaire. So, how can you fix this “double-barreled” question? The answer is easy. Just ask one question at a time (i.e. Do you like speaking in English? Do you like writing in English?).



Suggested activity

Strategies

- Study unit 2, specifically the part of designing questionnaires in quantitative research.
- Read and learn the recommendations, examples and resources related to designing questionnaires, types of items and writing items.
- Do the following activity.

Take a look at the following close-ended question for a questionnaire.

Complete the following statement with one of the options below.

The warm-up activities used in the classroom by my English teacher are_____

1. *Excellent!*
2. *Very good.*
3. *Great.*

What type of close-ended item is it?

**What type of error has been made when designing the question?
How would you fix it?**

After doing the previous suggested activity, I think that this activity will be easier for you. If you studied the contents related to the

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types of close-ended items, you will realize that the item above is a multiple-choice question. In this case, according to the instruction of the item, one option can be selected.

Could you detect the error in the design of the item? I think that you may have noticed that there is something wrong with the options provided. All of them are positive! What happens if the respondent believes that the warm-up activities are just OK or maybe boring? This is what we call a “leading question”, which is caused in this case by inappropriate response categories that do not allow the student to choose a fair response. The options of the item above are forcing the respondent to select a positive answer.

A way to fix this leading question would be to provide response categories that allow the student to like or dislike the warm-up activities to an equal degree (e.g. excellent, very good, good, OK, bad, awful, boring).

Well, I hope that these suggested activities have reinforced your learning on the different aspects related to the design of a questionnaire. Once you design the instruments and collect the information, it is time to analyze and interpret the information obtained from the respondents. That will be our next topic.



Week 6

2.4. Analyzing and interpreting quantitative data

First of all, one of the important aspects to analyze quantitative information is the use of statistics. Statistics can be challenging,

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Once you have learned these steps, you can see that there are three main steps:

1. *Preparing the data for analysis*

Preparing and organizing data for analysis in quantitative research consists of scoring the data (assigning numeric scores) and creating codes (coding), determining the types of scores to use, selecting a statistical program, inputting the data into the program for analysis, and cleaning up the database for analysis (clearing the data).

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In order to have a better idea of the process of data input into a statistical software, I invite you to watch the following video: [Data input using statistical software](#).

Could you see the process of inputting codes? Remember that a coding is related to scoring the data. Thus, in the coding process, you categorize non-numerical information obtained during the data collection into groups and assign numerical codes (refer back to “scoring the data” to review this part). It is also necessary to remark that the data in the video comes from surveys. You could also observe some example of variables used in the video such as gender, year in college, ethnicity, happiness scores, among others. After inputting the data, it is essential to clean and account for missing data.

2. *Analyzing the data*

This second step begins the data analysis. Typically, you conduct a descriptive analysis of the data by reporting statistics related to the data. You analyze the data to address each one of your research questions or hypotheses.

At this point, we need to be familiar with the measures of central tendency. Please watch the following videos [measure of central tendency 1](#); [measures of central tendency 2](#) to learn how we calculate the mean, median, and mode.

The following example will allow you to better understand the calculation of these measures of central tendency. Make sure to review the information above to remember how the results were calculated.

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EXAMPLE:

These are the scores of an English test from 20 students:

5, 3, 6, 5, 4, 5, 2, 8, 6, 5, 4, 8, 3, 4, 5, 4, 8, 2, 5, 4.

Mean= 4.8

Median= 5

Mode= 5 (it appears 6 times)

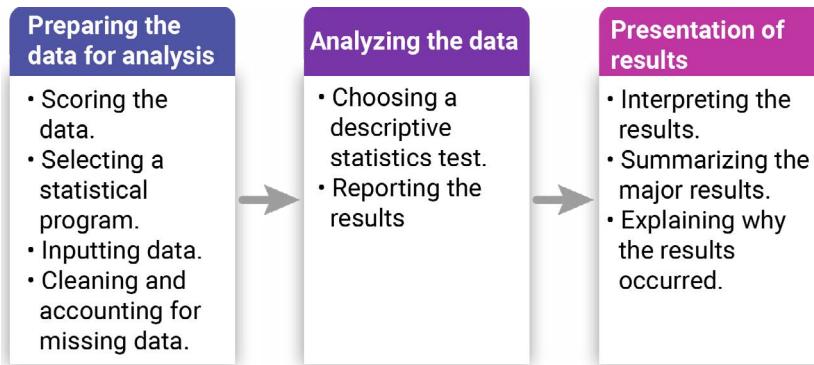
The results obtained also need to be reported. This will be done in a section of your research report typically called “Results”. Let’s learn about this part by watching the following video: [Reporting results](#). Once you have watched the video, you have realized that your data should support your predictions, but if the obtained data fail to support your predictions, you should include them anyway. You have also learned about the use of tables, graphs and body text of your analysis section.

3. *Presentation of results*

Although tables and figures summarize information from statistical tests, the researcher needs to describe in detail, the results of the statistical tests. According to Creswell (2015) in a [presentation of results](#), the researcher presents detailed information about the specific results of the statistical analysis, using language acceptable to quantitative researchers.

To conclude this section about the analysis and interpretation of quantitative data, please take a look at the following figure that summarizes this process.

Figure 5.
The process of analyzing and interpreting quantitative data



Source: Creswell (2015)

Now, to apply the contents learned above, we are going to work on the following suggested activity.



Suggested activity

Strategies

- Study unit 2, specifically the part of analyzing and interpreting quantitative data.
- Read and learn the aspects, recommendations, examples and resources related to the steps of quantitative data analysis.
- Do the following activity:

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Take a look at the information on the following data. These are the scores of 50 students in an English grammar exam:

5, 2, 4, 9, 7, 4, 5, 6, 5, 7, 7, 5, 5, 2, 10, 5, 6, 5, 4, 5, 8, 8, 4, 0, 8, 4, 8, 6, 6, 3, 6, 7, 6, 6, 7, 6, 7, 3, 5, 6, 9, 6, 1, 4, 6, 3, 5, 5, 6, 7.

First of all, calculate the mean, median, and mode of the scores above. Then, complete the table of distribution of frequencies below, indicating the percentages, too. The scores are out of ten points. Use the following format.

Scores	Frequency	Percentage (%)
0	1	2
1		
2		
3		
4		
5	11	22
6		
7		
8		
9		
10		
TOTAL	50	100

So, was this activity easy? I'm sure it was. If you obtained the following values: mode = 6, median = 6, and mean = 5.48, then, you have understood how to calculate these values. As for the

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Week 7

In quantitative research, we can apply many types of research designs. In the following section, we are going to discuss the most common quantitative designs that can be used in the field of ELT.

2.5. Types of research design in quantitative research

In this last part of this first bimester, we are going to focus on three types of quantitative research design that would be the most common to be applied in ELT: experimental, correlational, and survey designs.

Experimental designs

Experimental designs are procedures in quantitative research in which the researcher determines whether an activity or materials

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make a difference in results for participants. You assess this impact by giving one group one set of activities (called an intervention) and withholding the set from another group (Creswell, 2015). We are going to present resources to learn more about the characteristics of experimental design. Please read the information on the following websites and answer the questions below and find the main characteristics of experimental designs: [Experimental research designs](#).

After learning about experimental research designs by reading the information from the resources above, you must know now the main characteristics of experimental designs. Let me ask you a question: What is the difference between experimental and quasi-experimental research design? We will discuss the answer to this question later. Now, let's learn more about the experimental designs.

In an experiment, you test an idea (or practice or procedure) to determine whether it influences an outcome or dependent variable. You first decide on an idea with which to "experiment," assign individuals to experience it (and have some individuals experience something different), and then determine whether those who experienced the idea (or practice or procedure) performed better on some outcome than those who did not experience it. Before you consider how to conduct an experiment, you will find it helpful to understand in more depth several characteristics of experimental research provided by Creswell (2015). For this purpose, please learn these characteristics by reading the following resource:

[Study Resources](#)

After learning the characteristics of experimental design, we will discuss the definition and characteristics of correlational designs. For this purpose, we are going to read the information from these

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websites [Correlational research](#) to learn about the concept of correlation design, the positive, negative, and zero correlation as well as the main characteristics of this type of quantitative design.

Could you learn all of the aspects about correlational design mentioned above? If this was not easy for you, we are going to discuss the main points of this type of research design below.

Correlational Designs

Correlational designs are procedures in quantitative research in which researchers measure the degree of association (or relation) between two or more variables using the statistical procedure of correlational analysis. This degree of association, expressed as a number, indicates whether the two variables are related or whether one can predict another. I invite you to read the following resource to learn about the main feature of this type of research design along with some examples of the types of correlation that you could find.

Study Resources

Now that you are familiar with correlational designs, you have seen that we can have these types of correlation:

Positive correlation

Both variables change in the same direction.

EXAMPLE:

As height increases, weight also increases.

Negative correlation

The variables change in opposite directions

EXAMPLE:

As coffee consumption increases, tiredness decreases.

Zero correlation

There is no relationship between the variables.

EXAMPLE:

Coffee consumption is not correlated with height.

It is possible that you may not want to test an activity or materials (experimental design) or may not be interested in the association among variables (correlational design). Instead, you want to describe trends in a large population of individuals. In this case, a survey is a good procedure to use. Now, we are going to learn more about this type of research design by reading the information on the following resource [Survey Research](#).

After reading the website above, you must have learned about the main survey research methods based on the medium of conducting survey research (online/e-mail, phone, face-to-face survey research). Another aspect about this type of research design is that you will have longitudinal and cross-sectional survey research. Did you learn the difference between these two types of survey research? Finally, the information above addressed the implementation of a survey research as well as its benefits. We are going to discuss these points below.

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Survey designs

According to Creswell (2015), survey designs are procedures in quantitative research in which you administer a survey or questionnaire to a small group of people (the sample) to identify trends in attitudes, opinions, behaviors, or characteristics of a large group of people (the population). Now, we are going to learn about the characteristics and types of survey designs, by studying the following resource.

Study Resources

Do you know now the type of survey designs that you can apply in research? Well, we can talk about two basic types of research surveys: cross sectional and longitudinal.

Cross-sectional designs are useful to collect data about current attitudes, opinions, or beliefs.

EXAMPLE:

When middle school children complete a survey about EFL learning, they are recording data about their present views.

On the other hand, longitudinal designs are used to study individuals over time. We are going to learn more about these two types of survey designs.

EXAMPLES:

Research about high school graduates and their current occupation (e.g., student, food service

worker, insurance agent) 1, 2, and 5 years after graduation.

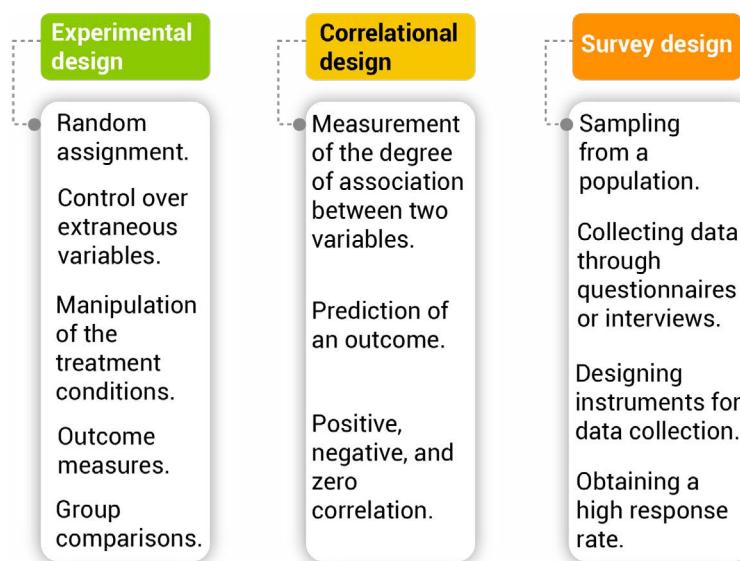
Another example of a longitudinal design would be a follow-up with graduates from a program or school to learn their views about their educational experiences..

Apart from these types of survey design, I am sure that you also learned about the characteristics of survey designs. This knowledge will also be useful so you can apply it on your research studies.

To sum up the information about this part, the following figure displays a synthesis of the experimental, correlational, and survey designs.

Figure 6.

Main characteristics of experimental, correlational and survey designs



Source: Creswell (2015)

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Once you have learned about the three types of quantitative designs presented above, I invite you to reinforce your knowledge about experimental, correlational and survey designs by working on the following suggested activities.



Suggested activity

Activity 1

Strategies

- Study unit 2, specifically the part of type of research design in quantitative research.
- Read and learn the aspects, examples and resources related to correlational research design.
- Do the following activity.

Read the following research question and results of a correlational study. Is there is a correlation between the variables?

RESEARCH QUESTION: Is there any correlation between EFL students' self-concept and their academic achievement in EFL classrooms?

RESULTS: The results obtained showed a correlation coefficient of 0.9.

So, what do you think? Is there a correlation? Well, it is important to remember here that one of the indicators in a correlational study is the correlation coefficient. As we have learned, this correlation coefficient can vary from -1.00 to $+1.00$, with 0.00 indicating no

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linear association at all. The minus sign (-) indicates negative correlation and the plus sign (+) indicates a positive correlation. You can see that the value of the correlation coefficient is 0.9, which is closer to +1.00 (when the value is positive, it is not necessary to use the + sign). This value indicates a high positive correlation, which means that the higher or better the student's self-concept, the higher the achievement is. So there is a correlation between these two variables.

Activity 2

Strategies

- Study unit 2, specifically the part of type of research design in quantitative research.
- Read and learn the aspects, examples and resources related to experimental, correlational, and survey research design.
- Do the following activity:

Read the following excerpt of an abstract of a study. Answer the following question: What type of quantitative design do you think the study is using? Why?

"The study analyzes how language learning motivation develops with exposure to different learning strategies. Data were collected six times over the course of two academic years from primary schools in fifth and sixth grades by means of a motivation questionnaire."

Well, was it difficult to determine what type of design it is? You can see that the instrument used is a questionnaire, so we can conclude that the study is using a survey research design. However, let me ask you a question is it a cross-sectional or longitudinal survey design? Check the concepts of these two types of survey studies above. Did you find them? Well, as you have seen, in a cross-sectional survey

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design, the researcher collects data at one-point in time. Conversely, a longitudinal survey design involves the survey procedure of collecting data over a period of time. You can see in the study above that the study examines how learning motivation develops over the course of two academic years, so this indicates that the study uses a longitudinal survey design.



Suggested activity

Strategies

- Study unit 2, specifically the part of type of research design in quantitative research.
- Read and learn the aspects, examples and resources related to experimental, correlational, and survey research design.
- Do the following activity:

Read the following excerpt of an abstract of a study. Answer the following question: What type of quantitative design do you think the study is using? Why?

"The population of this research was the all first semester undergraduate students of a university. Forty students were selected as the sample by using purposive sampling technique in which each group (control and experimental group) consisted of 20 students, respectively. The treatment was given for 14 meetings. This research was primarily concerned on the quantitative data in the form of the students' speaking and writing scores."

Well, I think that by identifying some clues, you must have figured out what type of quantitative research design is this study

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using. Yes, you can see that the study is using a control and an experimental group. You can also see that they have used purposive sampling to select the students. From this information, you can conclude that the study above is applying a quasi-experimental design. Finally, we will finish this second unit by completing the following self-evaluation about unit 2.

Self- Evaluation 2

By completing this self-evaluation of unit 2, you will acquire and test your learning of the contents studied. You must review the contents of unit 2 before starting to answer the questions.



Self- Evaluation 2

1. Decide if the following statement is true or false:

The term “quantitative” is generally associated to the field of ethnography.

- a. True
- b. False

2. Decide if the following statement is true or false:

The most common procedure to select participants in quantitative research is choosing a simple that is representative of the population.

- a. True
- b. False

Match the concept on the left with the definition on the right. Write the correct letter on the blanks.

- | | |
|---|--|
| 3. Data collection instruments in quantitative research _____ | a. Tools for measuring, observing, or documenting quantitative data. |
| 4. Coding_____ | b. Transferring information from the responses on instruments to a digital file. |

5. Test _____

c. Assigning a symbol or numeric value to the responses provided by the participants in the instruments.

6. Inputting data _____

d. Data collection instrument that contains items that are objectively scored and are typically used to measure students' performance.

7. Select the correct option to complete the statement.

_____ are summary numbers that represent a single value in a distribution of scores.

- a. Measures of variability
- b. Measures of position
- c. Measures of central tendency

8. Select the correct option to complete the statement.

The dependent variable is _____

- a. influenced by the independent variable.
- b. the one that influences the independent variable.
- c. a statement that predicts a relationship among attributes.

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9. Select the correct option to complete the statement.

The alternative hypothesis indicates that_____.

- a. there is no difference among the aspects to be compared in the research question.
- b. there is a difference among the aspects to be compared in the research question.
- c. it can be determined in advance that the variables in a research questions will be equal.

10. Select the correct option to complete the statement.

If you obtain a correlation coefficient of -0.8 after a statistical analysis of a correlational research study, this means that_____

- a. there is a low positive correlation.
- b. there is no correlation.
- c. there is a high negative correlation.

If there is any doubt while responding this questionnaire, please refer to the contents of unit 2 or the answer key of this guide.

[Answer Key](#)

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Final activities of the first bimester



Week 8

Activities:

The last week before the exam could be used to review units 1 and 2, including the reading of the resources and text of the virtual guide. It is also recommended to complete the suggested activities and self-evaluations of this first bimester. In this way, you can be fully prepared for the first bimester exam. Additionally, you can check the following REAs for a better comprehension of the following topics:
[Citing sources](#) ; [Quoting vs. paraphrasing](#); [Integration of sources in paragraphs](#)

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Second bimester

Learning outcomes 2 and 3

- Differentiates Quantitative, Qualitative and Mixed methods for data collection.
- Designs data collection instruments and analyzes data gathered for explaining or solving educational issues.

Contents, resources and recommended learning activities

The third unit of this guide discusses qualitative methods for data collection to be applied in the field of English language teaching. This will help you to accomplish learning outcome 2. We will also learn the design of data collection instruments in qualitative research, which will be useful to accomplish learning outcome 3.



Week 9

Dear students, we are going to start unit 3 of this course related to qualitative research. We will study aspects about this type of research such as characteristics, design of interviews, data collection, analysis and interpretation, as well as qualitative approaches.

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Unit 3. Qualitative research

In the following sections, we are going to learn different aspects related to qualitative research. I invite you to read and learn the information, explanations, resources, and examples presented in unit 3. First, we will discuss the concept and characteristics of qualitative research.

3.1. Concept and characteristics

There are many definitions of qualitative research, but basically, we can say that qualitative research is a type of research that collects and works with non-numerical data (e.g. text, images, or sounds) and that seeks to interpret meaning from these data. Typically, qualitative research focuses on meanings, interpretations, as well as social and educational issues.

After learning the definition of qualitative research above, it is necessary that you learn about the purpose, characteristics, as well as the advantages and disadvantages of applying it. The following resource [Qualitative research](#) contains some information about these aspects of qualitative research, please read the information from that resource and take notes of the previously mentioned aspects about this type of research.

Did you learn the pros and cons of qualitative research? I hope that you have also learned about the purpose and characteristics of it.

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We are going to learn about discuss the purpose and characteristics of qualitative research by reading the following resource.

Study Resources

Did you learn the main characteristics of this type of research? I am sure you did. At this point, it is necessary to discuss some differences between quantitative and qualitative research. To learn these differences, take a look at the information from the following resource. [Qualitative and quantitative research](#). Did you take notes of the differences between these two types of research?

By reading the information above, you have learned these differences regarding the expression and presentation of information, the collection and analysis of information in quantitative and qualitative research. The following figure summarizes the characteristics of quantitative and qualitative research:

Figure 7.

Main characteristics of quantitative and qualitative research

Quantitative research

- Describe something numerically.
- Assess the impact of variables on an outcome.
- Test theories or broad explanations.
- Apply results to a large number of people.

Qualitative research

- Work with non-numerical data.
- Learn about the views of individuals.
- Assess a process over time.
- Generate theories based on participant perspectives.
- Obtain detailed information about a few people or research sites.

Source: Creswell (2015)

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In summary, research problems best studied using the quantitative approach are those in which the issue needs to be explained; problems best addressed by the qualitative approach are those that need to be explored.

An important aspect in a qualitative research study is the central phenomenon to be researched. What is a central phenomenon in qualitative research? If you want to learn the answer to this question, please watch the following video: [Central phenomenon](#). After watching this video, I guess that you know more about the central phenomenon of a qualitative study.

Once you have defined your research questions, it is time to think about the process of data collection. We will talk about this process below.

3.2. Collecting qualitative data

Qualitative data collection is more than simply deciding on whether you will observe or interview people. You can follow some steps that are similar to the steps of collecting quantitative research, but they have some differences. In this respect, we are going to learn about the aspects to be considered when collecting qualitative data by reading the following resource.

Study Resources

After learning these aspects related to collecting qualitative data, you have seen that these aspects involve the following:

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1. *Identify your participants and sites*

In *qualitative* research, we try not to generalize to a population, but to develop an in-depth exploration of a central phenomenon. For this purpose, we identify our participants and sites on purposeful sampling, which means that we purposefully or intentionally select places and people that can best help us understand our central phenomenon. To learn more about purposeful and convenience sampling, please read the information on the following resource: [Qualitative sampling techniques](#).

Now, that you learned about purposeful and convenience sampling, it is important to mention that these procedures of sampling are essential to select the participants and sites for your study.

Before collecting data from the target sample, it is necessary to obtain permission from the participants. In this respect, the following article: [Access to information in qualitative research](#) talks about aspects related to the access to information in qualitative research. Please try to summarize the main aspects of the article focusing on the first steps to obtain permission from the participants, the access to research sites, the access levels, the personal appearance and manners when you access a site, and the ethical aspects to be considered.

As you have seen in the article above, it is necessary to obtain permission to contact the potential participants, find them, and build the type of relationship, which permits obtaining data. These would be the first to obtain permission.

2. *Permission to gain access to participants and sites*

Similar to quantitative research, gaining access to the site or individual(s) in qualitative inquiry involves obtaining permissions at different levels (e.g. the organization, the site, the individuals)

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due to the in-depth nature of extensive and multiple interviews with participants.

3. Types of qualitative data to be collected

Here, it is important to become familiar with your questions and topics, and to review them before deciding upon the types of qualitative data that you will collect. You can collect qualitative data through observation, interviews and questionnaires, documents, or audiovisual materials. In this respect, to learn more about observation and interviews, which are the most common forms of collecting data in qualitative research, you are going to read the following resources: [Qualitative observation](#); [Qualitative interview](#).

I hope that you have learned about observation and interviews. Remember that observation is the process of gathering open-ended, firsthand information by observing people and places at a research site. Observing in a setting requires good listening skills and careful attention to visual detail. The types of observation mentioned are four: complete observer, observer as participant, participant as observer, and complete participant. If you do not remember the characteristics of each type, you can read this part of the resource above again.

As for the interview, in qualitative research, we usually use unstructured and semi-structured interviews. Unstructured interview resembles a conversation more than an interview and is always thought to be a “controlled conversation”. In contrast, semi-structured interviews are those in-depth interviews where the respondents have to answer preset open-ended questions.

4. Issues when collecting qualitative data

When collecting data, researchers who engage in qualitative studies typically face field and ethical issues that they need to solve.

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To finish this section, we are going to work on two suggested activities with the purpose of reviewing the contents learned.



Suggested activities

Activity 1

Strategies

- Study unit 3, specifically the part of concept and characteristics of qualitative research.
- Read and learn the aspects, examples and resources related to the central phenomenon in qualitative research and qualitative research questions.
- Do the following activity:

What qualitative research question would you write with the following elements?

What is (the central phenomenon) for/by (participants) at (research site)?

Beginning word: "What"

Central phenomenon: process being used to provide feedback

Participants: English teachers

Research site: x High School

Taking into account the elements above and the structure of the research question, a good way to structure a qualitative research question would be the following:

What is the process being used by English teachers to provide feedback at x high School?

Activity 2

Strategies

- Study units 2 and 3, specifically the parts of collecting quantitative and qualitative data.
- Read and learn the aspects related to ethical issues regarding data collection in these two types of research.
- Do the following activity:

Review information about ethical issues when conducting quantitative research. Look for information on ethical issues when collecting qualitative research. Are these ethical issues similar or different? Support your answers.

To answer this question, you will have to review the ethical issues of the quantitative research in unit 2 as well. You will see that although some ethical issues are similar (e.g. informing participants of the purpose of the study, refraining from deceptive practices, sharing information with participants, being respectful, maintaining confidentiality), there are also differences. The main difference is that qualitative research is generally deeper and oriented to collect opinions and feelings from people, so the ethical issues may vary in the aspect that participants may be asked to discuss private details of their life experiences over a period of time. When you do this in qualitative research, you need to be closer to participants and sometimes establish rapport with them.



Week 10

The collection of qualitative data involves the design of instruments. We could see that there are several ways to collect qualitative information, and the interviews are the most common type of data collection method in qualitative research. In what follows, we are going to talk about designing and conducting interviews.

3.3. Designing and conducting interviews in qualitative research

One common way of obtaining qualitative information is the use of interviews. In this part, we are going to study some aspects related to designing and conducting interviews.

As we mentioned earlier, a qualitative interview occurs when researchers ask one or more participants general, open-ended questions and record their answers. These answers are later transcribed and typed into a computer file for analysis. In *qualitative* research, you ask **open-ended questions**. An **open-ended response** to a question allows the participant to create the options for responding. Let's take a look at the following example of open-ended question.

EXAMPLE OF OPEN-ENDED QUESTION

How do you think microblogging affect students' EFL writing skills?

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Interviews in qualitative research have both advantages and disadvantages. Creswell (2015) points out some advantages. For instance, providing useful information when you cannot directly observe participants, and allowing participants to describe detailed personal information. Some disadvantages are that interviews provide only information from the point of view of the interviewers. Additionally, similar to observations, interview data may be deceptive and provide the perspective the interviewee wants the researcher to hear. Another disadvantage is that the presence of the researcher may affect how the interviewee responds. Interviewee responses also may not be articulate, perceptive, or clear.

In addition, during the interview, you need to give some attention to the conversation with the participants. This attention may require saying little, handling emotional outbursts, and using icebreakers to encourage individuals to talk. With all of these issues, inexperienced researchers may be surprised about the difficulty of conducting interviews.

We have some types of interviews that you can choose, depending on a variety of factors. We are going to learn about the advantages and disadvantages of these types of interview by reading the information on the following resource: [Types of interviews](#). Could you identify the advantages and disadvantages of unstructured, semi-structured, one-on-one, telephonic, and e-mail interviews? Let's discuss the types of interview.

Types of Interviews

The information regarding this point will be useful so you can consider what form of interviewing will best help you understand the central phenomenon and answer the questions in your study. You need to choose the right interview approach to be used depending on the accessibility of individuals, the cost, and the amount of time

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available. Please read the following resource to learn about the types of interview that you can apply in research.

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Once you have learned the types of interview, it is time to think about conducting the interview. If you are going to conduct an interview to collect data for your qualitative study, it is necessary to know some basic aspects about conducting interviews. You can learn some recommendations about conducting interviews in the following resource: [Conducting interviews in qualitative research](#).

After reading the information from the website above, which of these tips do you consider the most important if you are going to conduct your interview? In the following lines, we will talk about these recommendations when conducting interviews.

Conducting Interviews

In all of the various forms of interviewing, several general aspects are involved in conducting interviews or constructing open-ended questionnaires. Creswell (2015) talks about the following aspects to be considered:

Figure 8.*Aspects considered when conducting an interview*

Identify the interviewees.

Determine the type of interview you will use.

Record the questions and responses during the interview..

Take brief notes during the interview.

Locate a quiet, suitable place for conducting the interview.

Obtain consent from the interviewee to participate in the study.

Have a plan, but be flexible.

Use probes to obtain additional information.

Be courteous and professional when the interview is over.

Source: Creswell (2015)

These aspects for conducting an interview will be explained in the following resource. Please read the information.

[Study Resources](#)

I hope that now you are familiar with the recommendations to conduct an interview. Remember that interviewers need to practice their skills in order to obtain ideal information from the respondents.

When conducting an interview, the interview protocol is an essential element. Let's watch the following video [The interview protocol](#) to learn what you can include in this protocol. You will see that the protocols for the semi-structured and unstructured interview will differ.

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Did you learn what a qualitative interview protocol is? You could see that it is a plan that contains a set of questions or items that the interviewer will address. Of course, this protocol will be different depending on the type of interview. In the case of a semi-structured interview, the protocol will include a list of questions and points to be addressed in the interview. In an unstructured interview, there will be an overall list of the aspects that you will cover in the interview. From these elements, you can infer that the unstructured protocol is not as detailed and specific as the semi-structured protocol. We are going to discuss more points about the interview protocol below.

An Interview Protocol

During interviewing, it is important to have some means for structuring the interview and taking careful notes. As already mentioned, recording interviews will provide detailed information of the interview. As a backup, you need to take notes during the interview and have the questions ready to be asked. An **interview protocol** is a form designed by the researcher that contains instructions for the process of the interview, the questions to be asked, and space to take notes of responses from the interviewee. This protocol will be useful for reminding you of the questions, and it provides a means for taking notes (Creswell, 2015). Let's read the following resource to learn about the typical elements that you should consider in an interview protocol.

Study Resources

Once you have learned the elements of the interview protocol, let's see the following example proposed by Creswell (2015) in order to clarify this point.

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Figure 9.
Example of interview protocol

Interview protocol

Project:

Time of interview:

Date:

Place:

Interviewer:

Interviewee:

Position of interviewee:

[Describe here the project, telling the interviewee about (a) the purpose of the study, (b) the individuals and sources of data being collected, (c) what will be done with the data to protect the confidentiality of the interviewee, and (d) how long the interview will take.]

[Have the interviewee read and sign the consent form.]

[Turn on the recorder and test it.]

Questions:

- 1.
- 2.
- 3.
- 4.

(Thank the individuals for their cooperation and participation in this interview. Assure them of the confidentiality of the responses and the potential for future interviews.)

Source: Creswell (2015)

Now, it is time to reinforce the learning of the points discussed above about designing and conducting interviews, so we are going to do the following suggested activities.



Suggested activities

Activity 1

Strategies

- Study unit 3, specifically the part of designing and conducting interviews in qualitative research.
- Read and learn the recommendations and resources related to types of interviews and conducting interviews.
- Do the following activity:

Watch the video (<https://www.youtube.com/watch?v=U4UKwd0KExc>) and try notice the errors that the interviewer makes while conducting the interview. What mistakes does she make?

What do you think about the video? Remember that we have to consider some issues when conducting an interview. For example, avoid speaking too fast and in a rushed manner, focus on the interviewee's answers, and treat the interviewee respectfully.

Activity 2

Strategies

- Study unit 3, specifically the part of designing and conducting interviews in qualitative research.
- Read and learn the recommendations and resources related to types of interviews, conducting interviews, and the interview protocol.
- Do the following activity:

Read the information in the following resource: <https://www.nngroup.com/articles/open-ended-questions/> and make a list of the recommendations to write open ended questions.

First of all, open-ended questions will allow the participants to freely express their opinions and views. Some recommendations to write an open-ended question include the following:

- Start open questions with “how” or with words that begin with “w”, such as “what,” “when,” “where,” “which,” and “who.”. These types of questions are useful for qualitative research and allow the interviewee to develop and elaborate a constructed and informative answer.
- If you want to avoid closed-ended questions, do not start questions with “are/was”, “did/do”, “will”, “won’t”, “didn’t”, “aren’t”, “would”, “if”.
- Aim to collect stories instead of one- or two-word answers.
- Use probes to obtain additional information. (e.g. “Tell me more.”; “Could you explain your response more?”; “I need more detail.”; “What does ‘not much’ mean?”; “Give me an example, please.”)
- Sometimes you will need to connect with people, so some open-ended questions will require more involved, personal answers. By asking “How are you feeling”, you invite a person to share their feelings with you.

With the contents that we have learned in this section and after completing the suggested activities, I am sure that you will design and conduct an interview in a good way when you decide to conduct a qualitative research study and use interviews to collect data. Remember that the researcher can design the interviews, but he/she is not the only one who conducts interviews. Depending on the case,

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a researcher may need the help of people who have experience in conducting interviews so they can be in charge of this activity.



Week 11

After collecting the data for your qualitative study, it is time to make sense of the data gathered. We will address this aspect below.

3.4. Analyzing and interpreting data

Analyzing qualitative data requires understanding how to make sense of text and images so that you can answer your research questions. In order to analyze and interpret qualitative data, according to Creswell (2015), we can follow the steps of preparing and organizing the data, exploring and coding the database, describing findings and forming themes, representing and reporting findings, interpreting the meaning of the findings, and validating the accuracy of the findings.

In order to learn about the steps for organizing and analyzing qualitative data, I invite you to read the following resource: [Organizing and analyzing qualitative data](#). So, after reading the resource, let me ask you this question: what are the steps for analyzing qualitative data? We are going to discuss these steps below. Please read the following information.

1. Preparing and organizing the data

Initial preparation of the data for analysis requires organizing the vast amount of information, transferring it from spoken or written words to a typed file and making decisions about whether to analyze

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the data by hand or by computer. We will learn about the process of preparing and organizing the data by studying the following resource.

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Well, now that you have learned about the process of preparing and organizing qualitative data, we are going to summarize these points as follows:

a. *Organizing data*

An early stage in qualitative analysis involves the organization of data into file folders or computer files.

b. *Transcribing data*

Transcription is the process of converting audio recordings or fieldnotes into text. The process of transcription is intensive and you will need time. See the following example of an excerpt of a transcription:

EXAMPLE:

Researcher: “So, tell me, how did you start using microblogging in your lessons?”

Teacher: “That was something that I found out by accident, but it fascinated me. First, I started using Twitter...”

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c. *Analyzing by hand or computer*

Researchers have a choice about whether to hand analyze data or to use a computer.

d. *Using qualitative computer programs*

A qualitative data analysis computer program is a program that stores data, organizes your data, enables you to assign labels or codes to your data, and facilitates searching through your data and locating specific text or words. One important process in the analysis of qualitative information is the use of coding, which is different to the one you studied in quantitative information.

Please watch the following video [Coding qualitative data](#) and find information about the process of coding qualitative data and defining themes.

As you can see, coding is a method used to analyze by identifying themes or codes that appear in our qualitative data. Coding is like putting things into categories. Codes are tags or labels for assigning units of meaning. Codes are usually attached to words, phrases, sentences, or whole paragraphs. On the other hand, a theme is a common recurring pattern across a data set, clustered around a central organizing concept. Before coding, it is important to organize and transcribe your data. We will address these points below.

e. *Exploring and coding the database*

After you have organized and transcribed your data and decided whether to hand or computer analyze it, it is time to begin data analysis.

f. *Exploring the general sense of the data*

A preliminary exploratory analysis in qualitative research consists of exploring the data to obtain a general sense of the data, taking

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notes, thinking about the organization of the data, and considering whether you need more data.

It is also important to mention that when you code the data, you need to find categories and themes of the data available. The following resource [Categories and themes in qualitative data](#) contains information that will allow you to learn about this process. Please find and read the information about inductive coding, categorization, and the determination of themes in qualitative data.

You can see in the video above that inductive coding is commonly used in qualitative research because many times you have to create your codes based on the data that you have; however, there will be cases in which the researcher may have a predefined set of codes before starting data analysis (deductive coding). Once you have created the codes, you put similar codes into the same categories so you will be able to detect themes for your data. In summary the categorization of codes leads to themes. We will explain this topic below.

g. Coding the data

Coding is the process of segmenting and labeling text to form descriptions and broad themes in the data. The purpose of the coding process is to make sense out of text data, divide it into text or image segments, label the segments with codes, examine codes for overlap and redundancy, and collapse these codes into broad themes.

This is a table of an example of coding and their descriptions.

Figure 10.

Example of coding and descriptions in qualitative research

Code	Description
1. Acceptance of TWF.	Expressing acceptance or agreement to written feedback.
2. Comprehension.	Showing understanding of TWF.
3. Difficulties in TWF.	Difficulties in understanding a particular written feedback.
4. Evaluation of draft/ class/self.	Expresses his/her evaluation of himself/herself, writting or class in general.
5. Evaluation of written feedback.	Giving evaluative expression or sentences of a written feedback he/she received.
6. Feeling.	Expressing his/her feelling to written feedback.
7. Lack of understanding of TWF.	Expressing his/her lack of understanding of written feedback he/she received.
8. Past experience.	Past experience of writing instruction.
9. Rejection of TWF.	Expressing his/her disagreement/rejection of teacher written comments or correction.
10. Suggestion for TWF.	Giving suggestions or a piece of advice for the improvement of written feedback.
11. Usefulness of TWF.	Identifying a particular feedback as useful.
12. Wants.	Expressing his needs/wants/preferences.

Source: Mahfoodh, O. H. A., & Pandian, A. (2011).

For an example of tabulation of themes and subthemes, please take a look at the table on the following resource: [Example of tabulation of qualitative data](#).

As you have seen in the examples above, the creation of codes and themes in qualitative data analysis is not an easy task. We will talk about the description of findings and the formation of themes.

h. Describing findings and forming themes

Describing and developing themes from the data consists of answering the major research questions and forming an in-depth

understanding of the central phenomenon through description and thematic development.

A description is a detailed rendering of people, places, or events in a setting in qualitative research. See the following example.

EXAMPLE:

You might use codes such as “seating arrangements,” “teaching approach,” or “physical layout of the room” to describe a classroom where instruction takes place.

As we have seen in the information learned so far, an important part of the data analysis is the reporting of findings, which will be a substantial part of your research report (see more about the research report in unit 5). Let’s talk about reporting findings in qualitative research.

2. Reporting Findings

The primary form for representing and reporting findings in qualitative research is a narrative discussion. A **narrative discussion** is a written passage in a qualitative study in which authors summarize, in detail, the findings from their data analysis. This narrative can vary widely from one study to another. Let’s look at the following example of narrative discussion.

EXAMPLE:

The way in which teachers provided written feedback had its influence on the students’ perception of and affective reactions to their teachers’ written feedback. Using symbols for providing written feedback was widely used by

these teachers without prior teaching of the meanings of those symbols to the students. For this reason, at the beginning of the course, the students had problems to understand the meanings of those symbols.

The last two steps of the analysis and interpretation of qualitative data involve the interpretation of the meaning of the findings and the validation of the accuracy of such findings. In the following lines, we will address these points.

3. Interpreting the meaning of the findings

Interpretation in qualitative research means that the researcher steps back and forms some larger meaning about the phenomenon based on personal views, comparisons with past studies, or both. Qualitative research is interpretive research, and you will need to make sense of the findings. You will find this interpretation in a final section of a study under headings such as "Discussion," "Conclusions," "Interpretations," or "Implications." This section includes:

- A review of the major findings and how the research questions were answered
- Personal reflections of the researcher about the meaning of the data
- Personal views compared or contrasted with the literature
- Limitations of the study
- Suggestions for future research

Let's see an example of a conclusion:

EXAMPLE:

EFL students' reactions to their teachers' written feedback are influenced by students' past experience, teachers' handwriting, teachers' wording of their written feedback, and students' acceptance of their teacher to control their written texts.

4. Validating the accuracy of the findings

Throughout the process of data collection and analysis, you need to make sure that your findings and interpretations are accurate. Validating findings means that the researcher determines the accuracy or credibility of the findings through strategies such as member checking or triangulation.

Triangulation is the process of corroborating evidence from different individuals (e.g., a principal and a student), types of data (e.g., observational fieldnotes and interviews), or methods of data collection (e.g., documents and interviews) in descriptions and themes in qualitative research.

Member checking is a process in which the researcher asks one or more participants in the study to check the accuracy of the account. This check involves taking the findings back to participants and asking them (in writing or in an interview) about the accuracy of the report. You ask participants about many aspects of the study, such as whether the description is complete and realistic, if the themes are accurate to include, and if the interpretations are fair and representative.

The following figure synthesizes the process of analyzing and interpreting qualitative data:

Figure 11.

The process of analyzing and interpreting qualitative data

Preparing and organizing the data.

- Organizing and transcribing data.
- Analyzing by hand or computer.
- Using qualitative computer programs.
- Exploring and coding the database
- Exploring the general sense of the data.
- Coding the data.
- Describing findings and forming themes.

Reporting findings.

Interpreting the meaning of the findings.

Validating the accuracy of the findings.

Triangulation.
Member checking.

Source: Creswell (2015)

In order to learn more about the contents of this section, we are going to do a suggested activity related to the use of software for analyzing qualitative data. Please work on the following activity.



Suggested activity

Strategies

- Study unit 3, specifically the part of analyzing and interpreting data in qualitative research.

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Week 12

We are going to finish this third unit by discussing types of qualitative research design that can be applied in the field of ELT. We will focus on ethnography, conversation and discourse analysis, and grounded theory.

3.5. Types of research design for qualitative research in ELT

Many qualitative researchers operate within a research tradition, that is, an established approach to research that utilizes a generally agreed upon methodology. In the field of ELT these qualitative approaches include ethnography, conversational analysis, discourse analysis and grounded theory.

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We will start by talking about ethnography.

Ethnography

At this point, I invite you to read the following article [Ethnography](#) in order to learn some basics of ethnographic research such as the aim of this type of research and the methods that can be used to collect data.

Once you have read the information above, you will see that ethnography is a qualitative research study looking at the social interaction of users in a given environment. It provides the researcher with an understanding of how those users see the world and how they interact with everything around them. To collect data in ethnography, we can use direct observation, diary studies, video recordings, photography and artifact analysis.

Now, we will learn about some aspects related to ethnography by reading the following resource.

[Study Resources](#)

Was Ethnography easy to understand? I don't think it is difficult. We will talk now about conversation and discourse analysis.

Conversation and discourse analysis

First of all, to learn about the concept and the study of talk-in interactions in conversation analysis, please read the information on the following resource [Conversation analysis](#) and take notes.

After reading the information above, I am sure you have learned that Conversation Analysis (CA) is an approach within the social sciences that aims to describe, analyze and understand talk as a

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basic and constitutive feature of human social life. In addition, CA is the study of recorded, naturally occurring talk-in-interaction. The aim of studying these interactions is mainly to discover how participants understand and respond to one another in their turns at talk, with a central focus on how sequences of action are generated.

Now, we will learn more about some features of conversation and discourse analysis, so I invite you to read the following resource.

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Was the information above easy to learn? I hope so. For a better understanding, we will synthesize the main points of these two types of research designs.

Conversation analysis

CA researchers are interested in what the talk means to participants, not to the researcher. This means that the researcher does not apply pre-determined categories to the data, but instead examines how participants orient to the talk and to each other through the talk.

Discourse analysis

Discourse analysis can refer to any procedure in which the analyst focuses on linguistic or structural features rather than content. The analysis of interaction in discourse analysis includes a few basic aspects.

As previously mentioned, conversation and discourse analysis are among the most common ways to analyze language. Now, we will study some characteristics of discourse analysis, including its academic and real-world applications, by reading the information on the following resource [**Discourse analysis**](#).

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So, what aspects are studied in discourse analysis? Well, after learning the characteristics of discourse analysis, we can see that discourse analysis studies running conversation involving a speaker and listener (or a writer's text and its reader). In discourse analysis, we consider the context of a conversation as well as what's being said. This context may include a social and cultural framework, including the location of a speaker at the time of the discourse, as well as nonverbal cues such as body language, and, in the case of textual communication, it may also include images and symbols.

Some academic applications may include discourse during a political debate, discourse in advertising, television, interviewing, and storytelling. When we study the context of language use, not simply the words, we can understand different meanings that are added by social or institutional aspects such as gender, power imbalance, conflicts, cultural background, and racism.

In the case of real-world applications of discourse analysis, the example mentioned in the website above is about specialists in the field that may help world leaders understand the true meaning behind communications from their peers. In the field of medicine, it can be used to help physicians find ways to ensure they're better understood by people with limited language skills, as well as guiding them in dealings when giving patients a challenging diagnosis.

Such research questions provide a general framework, but make no *a priori* assumptions about what the researcher will find or what specific phenomena to focus on. In this respect, there is a qualitative approach called *Grounded Theory* that can be used to develop a theory based on the qualitative data collected. We will address this type of research design.

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Grounded Theory

First of all, we will learn basic concepts related to this approach by reading the information in the following resource [Grounded theory](#). Once you have read this information, you can see that Grounded Theory is an approach for developing theory that is supported in data systematically gathered and analyzed. The common methods for data collection in this approach include participant observation, interviewing, as well as collection of artifacts and texts. Second, we will learn more about the main characteristics provided by Creswell (2015) about *Grounded Theory*: Please read the following resource.

Study Resources

Now that we are familiar with the characteristics of grounded theory as well, we are going to summarize the information about the qualitative approaches studied here. Take a look at the following chart.

Figure 12.

Main characteristics of ethnography, conversation and discourse analysis, and grounded theory.

Ethnography	Conversation and discourse analysis	Grounded theory
Studying practices of human social and cultural groups.	Analysis of naturally occurring talk-in-interaction.	Generating a theory that explains an education process of events, activities, actions and interactions that occur over time.
Longitudinal design.	Conversation analysis CA researchers are interested in what the talk means to participants, not to the researcher	It is applied when existing theories do not address your research problem or participants.
Observation, field notes, interviews, collection of artifacts, recordings.	Discourse analysis The analyst focuses on linguistic or structural features rather than content.	Characteristics include process approach, theoretical sampling, constant comparative data analysis, core category, theory generation, and memos.
Data analysis rich in details..		

Sources: Mackey and Gass (2011); Creswell (2015)

Well, we are about to finish unit 3. Did you find it difficult? I hope not. In order to reinforce the contents learned in this section, you are going to do the following suggested activity.



Suggested activity

Strategies

- Study unit 3, specifically the part of types of research design for qualitative research in ELT.

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- Read and learn the aspects, examples and resources related to ethnography, conversation and discourse analysis, and grounded theory.
- Do the following activity.

Read the following excerpts of an abstract of a study. Answer the following question: What type of qualitative design do you think the study is using? Why?

"The aim of the study is to know the reason behind students' fascination with the English language and to know where it leads the society specifically from the point of views of the parents and teachers. More and more people prefer to learn the language English as it is a status symbol, a key to success. Since parents and teachers are the important in a child's education, they were selected as the source of data. They were interviewed, and through a methodical analysis of data, a theory was generated. The researcher was given an opportunity to explore the possibilities to generate theory with the available data. This study pointed out what factors affect the students when they choose schools. Factors like 'parents', 'social pressure', 'study abroad' and 'jobs' play a major role in student's education and where they decide to study."

I am sure that the activity above was easy for you. Based on the information above, we can infer that the study is more likely using a grounded theory approach because of the parts that mention that a theory was generated by analyzing data and that the researcher explored the possibilities to generate a theory.

So after learning the contents of unit 3, I invite you to complete self-evaluation 3.

Self- Evaluation 3

By completing this self-evaluation of unit 3, you will acquire and test your learning of the contents studied. You must review the contents of unit 3 before starting to answer the questions.

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Self-evaluation 3

Select the correct option to answer the questions or complete the statements below:

1. Which of the following statements about the qualitative approach are correct? (Select two options)

- a. Qualitative research is a sequential process rather than a circular process.
- b. It is basically inductive (from specific to broad).
- c. The questions or hypothesis can be developed before, during or after data collection and analysis.

2. Select the correct option to complete the statement.

In a qualitative research study, there is a _____ that researchers attempt to understand from the perspective of the participants.

- a. dependent variable
- b. central phenomenon
- c. numerical correlation

3. Which of the following characteristics belong to qualitative research? (Select two options)

- a. The study of events and behaviors in the context in which they occur.
- b. The view of events, actions, values, etc. from the particular perspective of the researchers.
- c. The emphasis is on the comprehension of a social phenomenon as a whole and its meaning for the participants.

4. Select the correct option to answer the question.

Which of the following characteristics belongs to a qualitative approach?

- a. It produces descriptive data.
- b. It is applied to a large number of participants.
- c. It identifies relationships between variables.

5. Select the correct option to complete the statement.

Generally, in qualitative research, _____

- a. you use numbers to identify large-scale trends.
- b. ethnographic observation could be used.
- c. statistics is used to describe the tabulated data.

6. Which of the following are characteristics of purposeful sampling? (Select two options)

- a. There is an intentional selection of individuals and sites.
- b. Researchers choose participants who are interesting for their research.
- c. The selection of participants who are representative of the population.

7. Select the correct option to complete the statement.

_____ is the process of gathering open-ended, firsthand information by observing people and places at a research site.

- a. Observation
- b. Interview
- c. Questionnaire

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8. Decide if the following statement is true or false.

An interview protocol must contain the transcription of the interview.

- a. True
- b. False

9. Decide if the following statement is true or false.

SPSS is a software tools used to analyze qualitative data.

- a. True
- b. False

10. Order the following steps to analyze and interpret qualitative data. Write the number (1,2,3,4) on the blank according to the order.

_____ Interpreting the meaning of the findings

_____ Preparing and organizing the data

_____ Validating the accuracy of the findings

_____ Reporting findings

The self-evaluation questionnaire above is an important learning resources that will help you review what you learned in unit 3. If you wish to check your answers, you can refer to the answer key.

[Answer Key](#)

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Week 13

So far, we have talked about quantitative and qualitative research and different types of designs that can be used in these types of research. There are also designs that can combine quantitative and qualitative approaches, mainly with the purpose of gaining a deeper understanding of the problem. These designs that can combine quantitative and qualitative research will be the topic of unit 4. I invite you to read and learn the information, explanations, resources, and examples presented below about quantitative-qualitative approaches,



Unit 4. Quantitative-qualitative approaches

In this unit, we will talk about quantitative-qualitative approaches. These approaches, depending on the research topic, can combine these two types of research. In the case of ELT, the mixed-method design, the action research design, and the case study research are commonly used in this field.

First of all, we will start learning about the mixed-method design.

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4.1. Mixed-methods design

Please read the information on the following resource [Mixed-method research design](#) and pay attention to the concept and rationale for using this approach.

I am sure that after reading the information above, you are now familiar with the concept of mixed-method approach. As suggested by the name, mixed methods approach refers to the research mixing or integrating both qualitative and quantitative approach within a single study to produce a more complete account of the research problem.

There are some reasons that can lead you to select this approach for your research study. The first reason is methods triangulation, i.e. the use of more than one method while studying the same research question. Triangulation enables the researcher to look for a convergence of the collected data to enhance the research findings' validity.

The second reason is complementarity, which allows the researcher to gain a deeper and complete understanding of the research problem and/or to clarify a given research result. The combination of quantitative and qualitative data provides a better understanding of the research problem than either type by itself.

The third reason concerns with development. In this context, one form of data can help the researcher to develop the instrument needed for the next data collection (e.g. the statistical data collected from a quantitative method can help the researcher to shape an interview or panel discussion questions for the qualitative portion of his study).

The fourth rationale for using mixed methods is initiation. Sometimes, the results of a study contradict previous studies'

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findings so that new studies need to conduct to clarify the contradiction.

Finally, the rationale for doing mixed methods research is expansion, which is projected to extend the scope of the research study. The integration of quantitative and qualitative data provides richer and more detailed findings, and such findings facilitate future research undertakings and allow researchers to continuously employ different and mixed methods in their search of new or modified research questions.

Now, let's discuss more characteristics of the mixed-method design according to Creswell (2015). For this purpose, we will study the following resource.

Study Resources

You have seen in the resource above that some types of design have been mentioned (explanatory, exploratory, convergent, embedded). These are types of mixed-methods design that apply a different treatment to quantitative and qualitative data. Please read the information on the following slide [Types of mixed-methods designs](#) and take notes of the characteristics of the following types of mixed-methods design: explanatory design, exploratory design, convergent design, embedded design and multiphase iterative design.

I hope that you have identified the characteristics of these types of mixed-method design. As you can see there are different ways to treat quantitative and qualitative data in mixed-method research. In this respect, Creswell (2015) explains these types of mixed-method designs as follows:

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Explanatory sequential design

An explanatory sequential mixed methods design consists of first collecting quantitative data and then collecting qualitative data to help explain or elaborate on the quantitative results. The rationale for this approach is that the quantitative data provide a general picture of the research problem, and qualitative data provide further analysis to refine, extend, or explain the general picture.

Exploratory sequential design

In an exploratory sequential mixed methods design, the process is first gathering qualitative data to explore a phenomenon, and then collecting quantitative data to explain relationships found in the qualitative data. A popular application of this design is to explore a phenomenon, identify themes, design an instrument, and subsequently test it. Researchers use this design when existing instruments, variables, and measures may not be known or available for the population under study.

Convergent parallel design

The aim of a convergent (or parallel or concurrent) mixed methods design is to simultaneously collect both quantitative and qualitative data, merge the data, and use the results to understand a research problem. A reason to use this type of design is that a more complete understanding of a research problem results from collecting both quantitative and qualitative data.

Embedded design

The purpose of the embedded design is to collect quantitative and qualitative data simultaneously or sequentially, but one form of data supports the other form of data, so the reason for collecting the second form of data is that it extends or supports the primary form

of data. The supportive data may be either qualitative or quantitative, but most examples in the literature support adding qualitative data into a quantitative design.

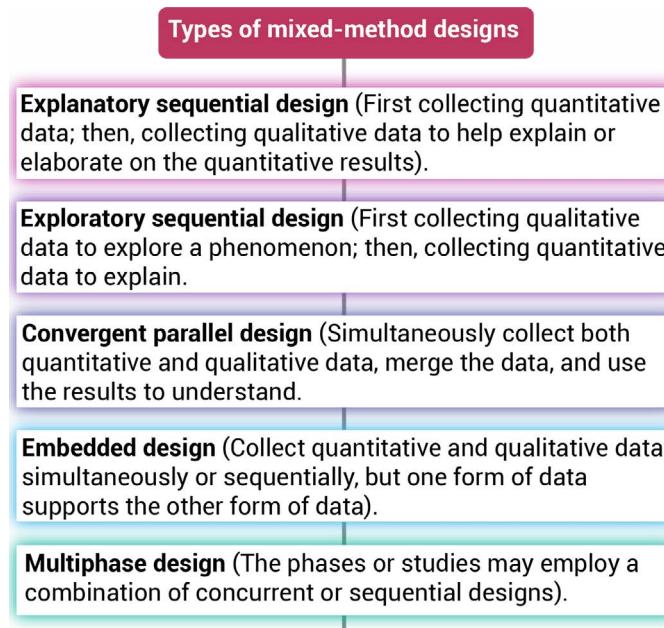
Multiphase design

In a multiphase mixed methods designs, the researcher examines a problem or topic through a series of phases or separate studies. The phases or studies may employ a combination of concurrent or sequential designs. The strength of this design lies in the use of multiple projects to best understand an overall program objective.

The following figure summarizes these different types of mixed-method designs:

Figure 13.

Types of mixed-method designs



Source: Creswell (2015)



Suggested activity

Strategies

- Study unit 4, specifically the part of mixed-method research designs.
- Read and learn the explanation and resources related to types of mixed-method designs.
- Do the following activity:

Read the following extract about a mixed-method study. What type of mixed-method research design (exploratory, explanatory, convergent, embedded or multiphase) is the study using:

"This article reports on the integrated findings of a mixed methods research design aimed to understand ELT challenges of faculty at a university in order to develop appropriate reading and writing skills in their students. The had an initial qualitative phase of data collection and analysis, followed by a phase of quantitative data collection and analysis, with a final phase of integration or linking of data from the two separate strands of data. As a result of the analysis, this study suggests four major areas of research for the university to address in these challenges: motivation, teaching strategies, time management, and feedback provided."

If you studied the concepts of the different types of mixed-methods designs, I think that this activity was easy for you. You can read in the extract above that the study had an initial qualitative phase of data collection and analysis, followed by a phase of quantitative data collection and analysis. This is a characteristic of an exploratory sequential mixed methods design, in which the process

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is first gathering qualitative data to explore a phenomenon, and then collecting quantitative data to explain relationships found in the qualitative data.



Week 14

A type of design that can use quantitative, qualitative or both approaches is the action research design. We are going to learn about the concept, steps and reasons to conduct an action research design by reading the information in the following resource: [Action research](#). Once you have learned about the aspects mentioned in that resource related to action research, you will see that action research is a process in which teachers investigate teaching and learning so as to improve their own and their students' learning. As for the steps, it can be observed that the main phases of this type of research include planning, teaching / acting, observing, and reflecting. Some reasons why teachers should do action research are the following

- To help them notice what they and their students really do, rather than what they think they do.
- To get feedback as to the success or failure of what they are doing.
- To help them tailor teaching and learning to their learners and their settings.
- So that they are able to justify the teaching and learning choices they make.

- To increase their knowledge of learning and teaching and become authorities on teaching.
- To become less dependent on decisions made by people who are far away from their learning and teaching sites, people like textbook writers and school administrators.
- To ensure that they don't become bored with teaching.

In the following lines, we are going to discuss more details about action research. Please read the information below.

4.2. Action research designs

According to Creswell (2015), action research designs are systematic procedures done by educators to gather information about, and subsequently improve, the ways their particular educational setting operates, their teaching, and their student learning. The main aim is to improve the practice of education by studying issues or problems that educators face. Then, there is a reflection about these problems, the collection and analysis of data, and the implementation of changes based on their findings. In other cases, researchers may address a local, practical problem, such as a classroom issue for a teacher.

You use action research when you have a specific educational problem to solve (e.g. assessing the difficulties faced by part-time teachers). Action research provides an opportunity for educators to reflect on their own practices. In a school environment, action research offers a means for staff development, for teachers' development as professionals, and for addressing problems in an educational institution. In fact, the scope of action research provides a means for teachers or educators in the schools to improve their practices of taking *action* and to do so by participating in research.

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At this point, we will learn about two types of action research designs. Please take a look at the following PPT and identify these two types. [Types of action research designs](#). Could you identify the two types of action research designs mentioned in the document? What are the characteristics of each one?

The types of action research described by Creswell (2015) are practical action research and participatory action research. Let's read the following information about these two types of action research design.

Practical action research

In this type of action research, teachers seek to research problems in their own classrooms so that they can improve their students' learning and their own professional performance. In these situations, educators attempt to improve the practice of education through the systematic study of a local problem.

The purpose of practical action research is to research a specific school situation with a view toward improving practice. Practical action research involves a small-scale research project, narrowly focuses on a specific problem or issue, and is undertaken by individual teachers or teams in an educational institution. We can mention the following examples of this type of action research:

EXAMPLES:

- A team composed of students, teachers, and parents studies the results of implementing a new English program in junior high school.
- A college instructor studies his professional development using technology in teaching.

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In these examples, action research is conducted in order to improve specific, local issues. In this respect, educators can test their own theories and explanations about learning, examine the effects of their practices on students, and explore the impact of approaches on parents, colleagues, and administrators within their educational institutions.

A disadvantage of practical action research is that although teachers seek to improve their classroom practices, they have little time to engage in their own research. Although teachers may be good at what they do, they may need help to become researchers. For this reason, educators can participate in training sessions to renew or develop their research skills for an action research project.

Participatory action research

Participatory action research (PAR) involves the participation of communities, industries and corporations, and other organizations outside of education. Rather than focus on individual teachers solving immediate classroom problems or schools addressing internal issues, PAR has a social and community orientation and an emphasis on research that contributes to emancipation or change in our society.

The purpose of participatory action research is to improve the quality of people's organizations, communities, and family lives. This type of action research embraces many of the ideas of teacher and school-based practical action research, but it has an emancipatory aim of improving and empowering individuals and organizations in education (and other) settings. Regarding the education field, the focus is on improving and empowering individuals in schools, systems of education, and school communities

Now, we will talk about the main characteristics of action research.

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Characteristics of action research

You will learn about these characteristics by reading the information on this resource: [Characteristics of action research](#).

After reading that resource, I am sure that you could identify the characteristics of action research. At this point, it is worth mentioning that despite differences between practical action research and PAR, both types of designs have common characteristics found in action research. According to Creswell (2015), these characteristics are a practical focus, the educator-researcher's own practices, collaboration, a dynamic process, a plan of action, and sharing research. We will elaborate on these characteristics below. Please read the following resource.

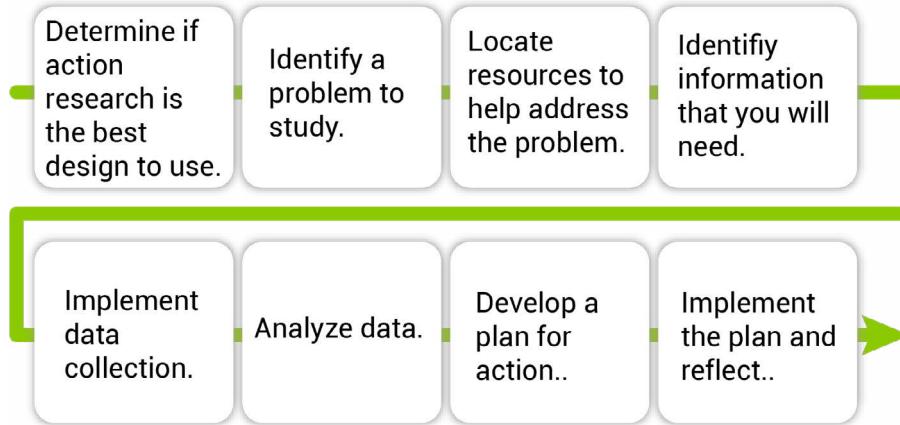
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I hope that the resource about the characteristics of action research is easy to understand. Remember that action research is a dynamic, flexible process and that there is not a fixed way to proceed. However, several steps in the process can illustrate a general approach for your use. That's the point that will be addressed below.

Steps of action research

The steps of action research are, in general, similar to the steps of research in general. One difference is that we have to develop a plan of action and implement it to solve an educational problem. In this respect, Creswell (2015) talks about the following steps of action research that will be discussed below:

Figure 14.
Steps of action research



Source: Creswell (2015)

We will learn more about these steps of action research by reading the information from the following resource.

[Study Resources](#)

After learning about the steps of action research, let's focus our attention on EFL. In the case of the EFL classroom, most of the time teachers might find useful to apply a simple action research model. You will learn some points about applying action research in the EFL classroom by reading the information in the following resource [Action research in the EFL classroom](#) and taking notes of the recommendations given for identifying the questions that you want to answer in a simple action research project in the EFL classroom.

After reading this information, what recommendations are given for identifying the questions that you want to answer in a simple action research project in the EFL classroom? What examples are provided?

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How could you take action in these types of action research projects?

Well, is it known that when you identify a problem in research, you do not have to be too general (e.g. the question 'how can I improve my students' motivation?' could have many different answers). On the contrary, you have to narrow in your focus of research by being more specific in your research questions. Of course, not too narrow because your research would be very short. A good recommendation is to try to make your question as factual as possible. See the following example about this aspect.

EXAMPLE:

If you ask 'why are my students so lazy in group work?' Your research will be just confirming what you already think. If you change that to 'what do my students do during group work activities?', then, you will be not only finding out more about reality but also testing your own opinions.

In this type of research, it is important to take action. For this purpose, once you have a better comprehension of what happens in your classroom, you can consider further research (your research has led you to more questions and you decide that it is important to find the answers to these in order to identify a strategy to address the situation.), a change of attitude (the change will come not so much in your classroom practice but in the way you see things as a teacher), or the implementation of a new strategy (probably trying something new as a result; for example our students might need more support for group work activities). Consider that action research can become a cycle of constant research regarding the issues that occur in our classrooms.

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So far you can see that in action research, you can use quantitative, qualitative or both approaches depending on the situation. We have a type of research design that typically uses qualitative approaches, but sometimes you may need to use quantitative approaches depending on the research problem; this is the case study research that we will address now.

4.3. Case study research

Sometimes, we as teachers might be interested in studying a case of a student for a period of time. We can call this type of research a case study. We are going to learn more about this type of research by reading the information on the following website [Characteristics of case study research](#) and take notes of the definition, characteristics and stages of this type of research.

Did you take notes of the aspects mentioned above related to case study research? I think that you are familiar now with this type of research that we will further discuss below. Please read the following resource.

Study Resources

Once you have read the resource, you have learned the characteristics of case studies. You have also learned in the document above about the steps that you can follow to conduct a case study. For a better understanding of these steps, we will summarize them in the following figure.

Figure 15.
Steps for conducting case studies



Source: Mackey and Gass (2011)

I hope that the information on the steps for conducting the cases was also useful. This information will surely help you when you want to conduct a case study in ELT. Remember that there is no set limit on how many cases can be part of a multi-case study, but eight or fewer focal cases per study are generally preferable.

To sum up the information about this unit, the following figure displays a synthesis of the mixed-method, action research, and study case designs.

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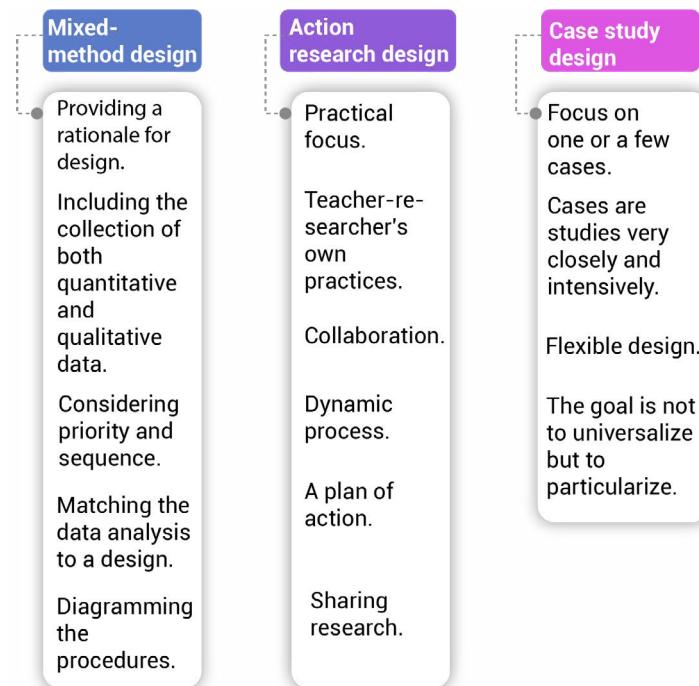
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Figure 16.

Main characteristics of mixed-method, action research, and study case designs



Source: Creswell (2015)

Before concluding this unit related to quantitative-qualitative approaches, I invite you to work on the following suggested activity that will help you in your learning process of this unit.



Suggested activity

Strategies

- Study unit 4, specifically the part of action research designs.

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- Read and learn the explanation and resources related to practical and participatory action research.
- Do the following activity:

How would you compare practical and participatory action research? Complete the table below.

Action research	Practical	Participatory
-	-	-
-	-	-
-	-	-

Nota: conteste las actividades en un cuaderno de apuntes o en un documento Word.

Could you find the aspects in which you can compare both types of action research? Remember that one of the aspects is what these two approaches study. Participatory research studies local practices, whereas PAR studies social issues. Practical action research involves individual or team-based research, focuses on teacher development and student learning, implements a plan of action, and leads to the teacher-as-researcher. On the other hand, PAR emphasizes equal collaboration, and focuses on life-enhancing changes.

I hope that you could have completed the suggested activity above by yourself. I think it was not complicated. Now, in order to evaluate the contents of unit 4, we will complete the following self-evaluation

Self- Evaluation 4

By completing this self-evaluation of units, you will acquire and test your learning of the contents studied. You must review the contents unit 4 before starting to answer the questions.



Self-evaluation 4

1. **Complete the following statement with the correct type of research design:**

In _____ research, we produce a more complete account of the you combine quantitative and qualitative data.

2. **Complete the following statement with the correct word:**

The _____ of data in a mixed-methods approach means comparing qualitative themes with statistics results.

3. **Select the best option to answer the following question:**

Which of the following research questions has the characteristics of a mixed-methods research question?

- a. What are the main themes or categories of the interviews regarding the students' problems to learn English?
- b. How does the information from the interviews provide a better comprehension of the statistics obtained from the students' surveys?
- c. Is there a significant difference in the results of the grammar tests after the use of comic strips?

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4. Select the best option to complete the following statement:

One of the main aims of action-research is to _____

- a. narrate stories in order to understand the central phenomenon of a cultural group.
- b. generate a theory that explains the correlation between variables in a participant of the research study.
- c. reflect on the current state of the teaching practice in a given educational context.

5. Select the best option to complete the following statement:

In general, the results of an action-research study_____.

- a. are not generalizable since it seeks immediate solutions to problems in an educational context.
- b. can be applied to any educational context since rigorous research methods are always used.
- c. are not very useful to suggest positive changes in the teaching practice in the classroom or school.

6. Select the best option to complete the following statement:

A dynamic process in action-research means that _____.

- a. we follow a sequential process from identifying the problem to finding the solution.
- b. the researcher “spirals” back and forth between reflection about a problem, data collection, and action.
- c. one action or solution is attempted after reflection on the teaching practice.

7. Decide if the following statement is true or false.

A case study involves the selection of participants to assign them to experimental and control group.

- a. True
- b. False

Match the type of research design on the left with the characteristic on the right. Write the correct letter on the blanks.

- | | |
|--------------------------------|--|
| 8. Mixed-method research _____ | a. This type of research involves a type of research design and written report that highlights cases. |
| 9. Action-research _____ | b. You can apply this type of research when one type of research (qualitative or quantitative) is not enough to address the research problem or answer the research questions. |
| 10. Case study research _____ | c. You can apply this type of research when you have a specific educational problem to solve. |

This self-evaluation questionnaire was surely helpful as a learning resource. You can check the answer key to see if you got your answers right.

After doing this activity, we finish this unit and go to the last unit of this course.

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Week 15

Dear student. This is the last unit of this course. We will focus now on how to structure a research report, which is an essential part in the research process. We have studied some points about reporting research in several parts of the previous units (e.g. the literature review, academic aspects of the literature review, and reporting results in the different type of research). Now, we will focus on aspects related to the structure and writing of the research report. Therefore, I invite you to read and learn the information, explanations, resources, and examples presented below in unit 5.



Unit 5. **Research reports**

After conducting your research, you will write a report and distribute it to select audiences (e.g. teachers, authorities, parents, students) that can use your information. Let's watch the following video [Reporting research](#) and answer the questions below to learn more about reporting research, specifically recommendations to write a thesis.

- What is a table of content?
- What should you include in an abstract?
- What elements are usually included in an introduction of a research report?

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- What should you include in the methods section?
- What should you include in the results section?
- What should you include in the discussion section?
- What should you include in your conclusions?

The video above presents general recommendations to write a thesis. You could see that one of the first steps is to design an outline of the contents that your research report will have. This is the table of contents. In this table of contents, the main parts that a research report (e.g. thesis) will include are presented in the following chart and discussed below.

Figure 17.

Main parts of a research report



Source: Creswell (2015)

For a better understanding of the parts of a research report mentioned in the figure below, please read the following resource.

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After reading this resource, I hope that now you are familiar with the main parts of a research report.

In the video above, you could see that these are recommendations to write a thesis, but there are other types of research report. The following graphic shows the most common types of research reports that will be described in the following resource.

Figure 18.

Most common types of research reports

Common types of research reports

- Dissertations and theses.
- Thesis proposals.
- Journal articles.
- Conference papers.

Source: Creswell (2015)

In order to learn more about the types of research reports mentioned above, I invite you to read the following resource.

Study Resources

The information in the resource above was easy to understand, right?. In order to write a research report, it is important to bear in mind how to structure the different sections of a report. To learn about these recommendations, let's read the information on the following resource: [Writing a research report](#).

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You can see on the resource above recommendations on how to establish the structure of the different sections of your research report when writing it. For instance, the abstract will consist of a basic summary of the report, including sample, treatment, design, results, and implications. The number of words of an abstract varies depending on the type of report or the requirements of the educational institution or the people in charge of the publication. It will usually contain between 100 and 200 words depending on the previously mentioned factors.

While writing your research report, you can ask yourself the following questions based on the suggestions of Mackey and Gass (2015) when structuring and evaluating the different sections of your research report. To learn these questions, please read the following resource.

Consider the questions learned in the resource above, when you want to evaluate the work that you have written. In addition, remember that, although the structure and organization of the sections of research reports can vary, a typical report includes: a title page, an abstract, an introduction, a literature review, the method section, results, discussion and conclusions, references (sources of information), and a section where you can include appendices, tables, and figures used. To practice these points, please work on the following activities.



Suggested activity

Activity 1

Strategies

- Study unit 5, specifically the parts of a research report. Read and learn the explanation, examples and resources related to this part.
- Do the following activity:

Please read the main parts of the information on the following website [Writing a research report](#) and complete the outline below:

In general, a research report contains the following parts (complete the blanks):

- Title page and abstract
- _____
- Literature review
- _____
- _____
- Discussion and conclusions
- References
- _____

Nota: conteste las actividades en un cuaderno de apuntes o en un documento Word.

Well, I think that after what you have observed on the website above, you must know now that a research report is divided into several sections. These sections may vary depending on the type of research report, but typically they will have a title page, an abstract,

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an introduction, a literature review, the method section, results, discussion and conclusions, references (sources of information), and a section where you can include appendices, tables, and figures used in your research work.

Activity 2

Strategies

- Study unit 5, specifically the questions proposed by Mackey and Gass (2015) that can be used when structuring and evaluating the different sections of your research report.
- Do the following activity:

Evaluate the following resource [Example of research report based on the questions used when structuring and evaluating the different sections of your research report proposed by Mackey and Gass \(2015\)](#).

In the example above, you can see how the different sections have been written. You have also observed that this thesis contains the sections that we have previously mentioned. Did you evaluate the thesis based on the questions above? It is important to take a look at the way in which the different sections of the thesis have been written, so you can have an idea of how to apply this to your own work. Of course, you can look for other examples of research reports so you can see how the different sections have been written. Finally, in order to review the contents of the last unit of this course, please complete the following self-evaluation.

Self- Evaluation 5

By completing this last self-evaluation, you will acquire and test your learning of the contents studied. You must review the contents of unit 5 before completing it.





Self-evaluation 5

Match the part of the research report on the left with the characteristic on the right. Write the correct letter on the blanks.

- | | |
|-----------------------|---|
| 1. Abstract _____ | a. It includes the characteristics of the participants of your study as well as the procedure followed to conduct the research study. |
| 2. Introduction _____ | b. It can briefly summarize purpose, method, findings, and main conclusions of the study. |
| 3. Method _____ | c. In this section, you question the findings of your research study and consider different interpretations for the data obtained. |
| 4. Discussion _____ | d. This section synthesizes the main points of your research study, providing a final answer to your research questions. |
| 5. Conclusions _____ | e. It establishes the scope, limitations and importance of your research work. |

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6. Order the following sections of a thesis. Write the number (1,2,3,4) on the blank according to the order they should be in the research report.

Results

Abstract

Method

References

7. Complete the following statement with the correct type of research report:

A _____ is basically a plan for a thesis or dissertation that is written before the research actually begins.

8. Complete the following statement by selecting the correction option:

An outline of the contents that your research report will have is called_____.

- a. a conclusion
- b. the method section
- c. a table of contents

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9. Complete the following statement by selecting the correction option:

In the _____ section, you will focus on data and interpretations of these data that answer your research questions with the help of tables, figures, narrative descriptions or other elements.

- a. references
- b. abstract
- c. results

10. Complete the following statement by selecting the correction option:

A journal article is____

- a. a previous plan of the research that will be conducted for a thesis.
- b. a research report that is submitted to a specialized journal, and it has to be approved by editors and reviewers before publication.
- c. a detailed and extensive research reports that will be read by thesis committees and advisors.

This self-evaluation questionnaire was surely helpful as a learning resource. You can check the answer key to see if you got your answers right.

[Answer Key](#)

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Final activities of the second bimester



Week 16

Activities:

The last week before the second bimester exam could be used to review units 3, 4 and 5, including the reading of the resources and text of the virtual guide. It is also recommended to complete the suggested activities and self-evaluations of this bimester. In this way, you will be fully prepared for the second bimester exam. Furthermore, you can have a better comprehension of the following topics by studying the following REAs: [Quantitative vs. qualitative research](#); [Writing a research report](#)



4. Answer key

Self-evaluation 1		
Question #	Correct answer	Feedback
1	c	In the research proces, it is important to know first the problema before moving on to the rest of the steps.
2	b	One of the reasons why research is important in ELT is that the results contribute to teaching practice rather than focusing on replication or read other research in the field.
3	c	Options "a" and "b" refer to the process of identifying a research problema. Thus, "c" talks about specifying the purpose of the research study.
4	Contribute	If a research study does not have potential to contribute to knowledge, it should not be conducted.
5	literature review	Although sometimes a literature review can help you know more about a topic or replicate research, the actual importance lies in the fact that reviewing literature will help you determine how the research study will contribute to knowledge.
6	Internet	The fact that you can find some unreliable sources of information is a disadvantage of searching the Internet for literature.
7	c	In an in-text citation, you can cite the authors as a part of the paraphrased text of the literature review or any other part of the research report.
8	d	ERIC is an example of an online database.

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Self-evaluation 1

Question #	Correct answer	Feedback
9	b	A research question is the question that needs to be answered after analyzing the results of the study. It has a question mark at the end like any question.
10	a	In a hypothesis, you make a prediction or speculation about a result. The statement has the characteristics of a hypothesis, especially in the part of "...will have a detrimental effect..."

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Self-evaluation 2

Question #	Correct answer	Feedback
1	False	The term “quantitative” is related to mathematics and numbers.
2	True	Random sampling is the most rigorous way to select a representative sample from the population. This type of sampling method is associated to quantitative research.
3	a	A questionnaire is an instrument to collect data.
4	c	Coding consists in assigning a symbol or numeric value to the responses provided by the participants in the instruments.
5	d	Tests are data collection instruments that contain items that are objectively scored and are typically used to measure students’ performance.
6	b	Inputting the data means to transfer data from the responses on instruments to a digital file for analysis.
7	c	Measures of central tendency are summary numbers that represent a single value in a distribution of scores.
8	a	The dependent variable depends on the independent variable. Thus, the independent variable has an influence on the dependent variable.
9	b	The alternative hypothesis states that a population parameter is smaller, greater, or different than the hypothesized value in the null hypothesis, so this type of hypothesis indicates that there is a difference among the aspects to be compared in the research question.
10	c	The minus sign (-) indicates a negative correlation. A correlation coefficient between 0.71 and 0.90 indicates a high correlation. Therefore, a coefficient of -0.8 means a high negative correlation.

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Self-evaluation 3

Question #	Correct answer	Feedback
1	b, c	Qualitative research is dynamic and is a circular rather than a sequential process that varies depending on the purpose of the study. This type of research is basically inductive and the questions or hypothesis can be developed before,, during or after data collection analysis.
2	b	The central phenomenon is the core of a qualitative research study. Variables and numerical correlations are typical of quantitative research.
3	a, c	In a qualitative research study there is a central phenomenon that we try to understand from the perspective of the participants rather than the particular view of the researchers.
4	a	A qualitative approach produces descriptive data, focuses on a reduced number of participants, and does not try to find relationships among variables.
5	b	Numbers and statistics are typical of quantitative research. In qualitative research, the ethnographic observation could be used if you apply the ethnographic approach.
6	a, b	The selection of individuals who are representative of the population is a characteristic of probability sampling.
7	a	Observation is the process of gathering open-ended, firsthand information by observing people and places at a research site.
8	False	The transcription of the interview is carried out after the interview is over and is not part of an interview protocol.
9	False	SPSS is used to perform statistical analysis of quantitative information.

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Self-evaluation 3

Question #	Correct answer	Feedback
------------	----------------	----------

10	3,1,4,2	The steps for analyzing and interpreting qualitative data are:
----	---------	--

- Preparing and organizing the data
- Reporting findings
- Interpreting the meaning of the findings
- Validating the accuracy of the findings

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Self-evaluation 4		
Question #	Correct answer	Feedback
1	mixed-methods	Mixed methods approach refers to the research mixing or integrating both qualitative and quantitative approach within a single study to produce a more complete account of the research problem.
2	integration	The integration of data in mixed-methods research involves comparison of qualitative (themes) and quantitative data (statistics).
3	b	The question "How does the information from the interviews provide a better comprehension of the statistics obtained from the students' surveys?" has characteristics of mixed-methods research because it integrates information from interviews (qualitative) and statistics (quantitative).
4	c	One of the main aims of action-research is to reflect on the current state of the teaching practice in a given educational context.
5	a	The results from a research-action are focused on problems in a specific educational context. Thus, the results are not generalizable in other contexts.
6	b	A dynamic process in action-research involves iterations of activities, such as a "spiral" of activities. The key idea is that the researcher "spirals" back and forth between reflection about a problem, data collection, and action.
7	False	Case study research involves a type of research design and written report that highlights cases. The use of an experimental and control group is a characteristic of experimental designs.
8	b	You can apply mixed-method research when one type of research (qualitative or quantitative) is not enough to address the research problem or answer the research questions.
9	c	You can apply action research when you have a specific educational problem to solve.

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Self-evaluation 4

Question #	Correct answer	Feedback
------------	----------------	----------

10	a	Case study research involves a type of research design and written report that highlights cases.
----	---	--

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Self-evaluation 5		
Question #	Correct answer	Feedback
1	b	The abstract briefly summarizes purpose, method, findings, and main conclusions of the study.
2	e	The introduction establishes the scope, limitations and importance of your research work.
3	a	The method includes the characteristics of the participants of your study as well as the procedure followed to conduct the research study.
4	c	In the discussion section, you question the findings of your research study and consider different interpretations for the data obtained.
5	d	In the conclusions, you synthesize the main points of your research study, providing a final answer to your research questions.
6	3,1,2,4	The abstract is placed at the beginning. Before talking about the results, it is necessary to clarify the method used in the study. The references is one of the final sections of a thesis.
7	thesis proposal	A thesis proposal is basically a plan for a thesis or dissertation that is written before the research actually begins.
8	c	A table of contents is an outline of the contents that your research report will have.
9	c	The results help you to understand the research problem from several perspectives. In this section, you will focus on data and interpretations of these data that answer your research questions with the help of tables, figures, narrative descriptions or other elements.
10	b	Journal articles are usually summaries of research that was already conducted, so they are not plans or extensive reports.

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6. Study resources

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Summary

Characteristics of experimental research

Creswell (2015) mentions the following steps of the research process.

1) Identifying a research problem

You begin a research study by identifying a topic to study, which can be an issue or problem that needs a solution. In this first step, it is essential to specify an issue to study, justify the reason why you are studying it, and highlight the importance of the study for the people who will read your research report. When you specify a problem, you limit the subject matter and focus attention on a specific aspect of study.

2) Reviewing the literature

Reviewing the literature involves consulting summaries, books, journals, and indexed publications on a topic. Then, you have to select which literature to include and summarize in your literature review. In this respect, it is important to know who has studied the research problem that you plan to explore. By doing this, you can avoid conducting a study that merely replicates previous research. Another concern is that a researcher can plan a study that does not contribute to existing knowledge, so the literature review is a step in the research process that could help your study add to knowledge on a topic.

3) Specifying a purpose and research questions or hypotheses

One of the most challenging aspects of conducting research is a clear identification of the issue that leads to a need for your study. You need to pay enough attention to the reason why you are conducting your study. Just because a problem exists and an author can clearly identify the issue does not mean that the researcher can or should investigate it. In this respect, the review

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EXAMPLE:

The purpose of this study is to examine the effect of using microblogging on 130 high-school students' EFL writing skills. The main focus was the analysis of spelling and syntax in the texts written by the students using microblogging tools.

Research questions are questions in quantitative or qualitative research that narrow the purpose statement to specific questions that researchers need to be answered in the research study. You will typically state two or more research questions to fully explore a topic. Research questions are found in both quantitative and qualitative research, but their elements differ depending on the type of research you are conducting. See the example below.

EXAMPLE:

What is the effect of microblogging on students's EFL writing skills?

Hypotheses are statements in quantitative research in which the investigator makes a prediction or a conjecture about the outcomes of a research study. These predictions are not simply an “educated guess.”; they are based on results from past research and literature where researchers have found certain results and can now offer predictions as to what other researchers will find when they repeat the study with new people or at new sites. See the following example.

EXAMPLE:

Students can improve their EFL writing skills through the use of microblogging tools.

A research objective is a statement that specifies goals that the investigator plans to achieve in a study. Researchers often subdivide objectives into major and minor objectives. See the example below.

EXAMPLE:

To examine the effect of microblogging on students's EFL writing skills.

Let me ask you a question. Why are these statements and questions important? Well, they are important because they guide readers (and yourself) throughout your study. The purpose and the questions can also help you identify the most appropriate methods for collecting data. They also provide key components for understanding the results of a project. They also help you link the purpose statement and questions to the main results of your research.

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4) Collecting data

You need to answer your research questions by collecting data that will provide evidence to help you solve your research problem. The collection of data involves the selection of sites and participants for your study. You should obtain accurate data from these people and places to have a collection of numbers (test scores, frequency of behaviors) or words (responses, opinions, quotes) that will be the evidence necessary to answer your research questions.

5) Analyzing and interpreting the data

Once you have collected data, you need to make sense of the information provided by the participants in the study. The analysis and interpretation of the information consists in drawing conclusions about it; representing it in tables, figures, and pictures to summarize it; and explaining the conclusions in words to provide answers to your research questions.

6) Reporting and evaluating research

After conducting your research, you will develop a written report that your audience (e.g. fellow teachers, administrators, parents, students) will read. Therefore, the audience will be a factor to be considered when you write your research report. The structure for the report will vary depending on the audience. The format could be formal (e.g. thesis and dissertations) or a less formal document (e.g. school report). In all types of research reports, you need to be respectful and to avoid language that discriminates on the basis of gender, sexual orientation, race, or ethnic group. As for the evaluation of your research, the audience for your report will have its own standards for evaluating

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Summary

Characteristics of good research

We can highlight the following characteristics of good research established by McDonough and McDonough (2014):

Characteristics related to initiation and undertaking of research

Interest .- You can make your research interesting by observing something unexpected, by establishing differences in some event, by making a prediction from an established theory, or by establishing a discrepancy from a normal assumption. See the following example:

EXAMPLE:

A difference in the reception of the same English lesson by two different groups could be an interesting aspect to be analyzed.

Originality can be achieved by obtaining a new question, new data, new analysis, new theory, or by evaluating a new teaching method. See the following example.

EXAMPLE:

A teacher/researcher wishes to try out the use of microblogging tools in an English lesson in a context where it had not been evaluated before..

Specificity – Observation of specific events to uncover general principles. You must be specific on what you want to research (e.g. specific research questions, a specific problem). Take a look at the following example.

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EXAMPLE:

A teacher is interested in studying how participation in class affects EFL learning. However, the teacher has to be specific about what type of classroom behavior can be considered participation, what signs of EFL learning to look for, and what indicators demonstrate the relation between class participation and EFL learning.

Publication – Research needs publication because most research requires the evaluation of others and there are audiences interested in the results of your research. See the following example.

EXAMPLE:

A group of teachers are interested in publishing the results of their research. This publication can be important because other teachers may be interested in knowing how other teachers think, how they solve certain educational problems, and what results they have obtained with the purpose of making decisions about the direction, methods, or probably the generalizability of their own research.

Characteristics related to design and methodology

Sensitivity – It refers to the capacity of obtaining good quality data in your research. See the following example.

EXAMPLE:

If a teacher applies an unreliable test to measure academic achievement in a study, the true gains in proficiency could be hidden by such unreliability. Therefore, the data obtained would not be of good quality.

Objectivity. In terms of research, objectivity means eliminating a bias. In order to obtain accurate and reliable results, you must remain objective, and focus on carrying out your studies without manipulating your methods to find a specific outcome.

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Objectivity is maintained by allowing evidence, and not personal bias or desires, to answer to scientific queries. Let's read the following example.

EXAMPLE:

If a teacher wanted to compare group discussions and the use of videos in the EFL classroom, and this teacher has a strong preference for using videos, his/her research might lead the students to prefer videos. In this case, the results could be biased.

Validity- The extent to which the results really measure what they are supposed to measure. You assess this research by checking how well the results correspond to established theories and other measures of the same concept.

Take a look at the following example.

EXAMPLE:

A researcher has obtained the results from observing students' learning in an EFL classroom. Two questions related to validity can be used to evaluate the description of these results:

- Does the interpretation of this data is related to the students' or classroom's reality?
- Could it be suggested that other students in similar situations might learn in the same way?

Reliability- The extent to which the results can be reproduced when the research is repeated under the same conditions. Take a look at the following example.

EXAMPLE:

If a teacher wants to do research about the use of diaries in EFL writing, there could be some problems such as students not cooperating, not being able to complete the entries, losing the diaries, etc. Thus, the results might not be reliable because the conditions were not the same as in related studies.

Falsifiability- Falsifiability is the capacity for some proposition, statement, theory or hypothesis to be proven wrong.

A classical principle in empirical work is that progress comes through finding evidence that tells us that a theory is wrong, not simply by finding evidence which confirms what was already thought. See the following example.

EXAMPLE:

The theory that grammar error correction improves students' EFL writing is something that has been proven wrong by some researchers.

Characteristics related to applications to other situations

Replicability- If you conduct the research again and obtain the same results, this would not contribute to knowledge. In this case, however, you could apply the research in a new situation or context. See the following example.

EXAMPLE:

If previous studies about grammar error correction have been applied in high-schools, your study could be applied in a university context.

Generalizability- It can be defined as the extension of research findings and conclusions from a study conducted on a sample population to the population at large. Let's read the following example.

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EXAMPLE:

Studies conducted regarding the conditions in which language learning generally occurs have attempted to establish general statements that could be applied to another group of students.

Utility- This feature is closely related to generalizability. The main question here is: Can the findings be used either in the future in the immediate context or applied to other contexts? See the following example.

EXAMPLE:

The general statements established by studies conducted regarding the conditions in which language learning generally occurs could be applied in the future to another context or situation.

Ethics – Some ethical issues include the access to the situation in which the research is to take place, protection of participants who will provide the data, protection of information, agreements about publication, etc. Take a look at the following example.

EXAMPLE:

According to the law in some countries, the data provided by the participants in social learning situations, an observation, or an interview, should be considered the property of the participants..

McDonough, J., & McDonough, S. (2014). *Research methods for English language teachers*. Routledge.

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Summary

Academic aspects of a literature review

Galvan and Galvan (2017) point out the following academic aspects of a literature review.

Achieving coherence in a literature review

A literature review must be written in the form of an essay and be organized to make a point. There should be a description of relationships among studies, strengths and weaknesses of the studies, explanations of gaps, and so on. This process involves creativity, so the integration of all of these elements to write it in form of a cohesive essay is up to the writer.

One of the aspects to be considered is the use of subheadings in your literature review, especially if your review is long. Subheadings will allow you differentiate the areas or subtopics of your work, and they will also be useful to guide your audience throughout the discussion of your points in your literature review. Of course, these subheadings will be based on your research topic and it will help you advance your argument (Galvan & Galvan, 2017).

Additionally, the use of transitional phrases (e.g. "first", "second", "finally", "the following example", "in a related study", "the most relevant study") in the correct places will provide your readers with textual clues that mark the progression of a discussion (Galvan & Galvan, 2017).

The presentation of your argument in the literature review should end with some kind of conclusion. This conclusion will depend on your purpose for writing the literature review. For example, a review in a thesis or journal article usually leads to the research questions of the research (Galvan & Galvan, 2017).

All of the elements mentioned above contribute to achieving coherence in your writing. However, evaluating your own writing for coherence involves a careful

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evaluation of rhetorical elements (e.g. subheadings, transitional phrases, etc.) of your work that tell your audience about the relationships among its parts. The evaluation of your own writing means editing your literature review. The writing process can be seen a negotiation between the writer and the audience. During the redrafting your literature review, you should approach your draft from a reader's perspective. This redrafting process means an evaluation and incorporation of feedback provided by other people (e.g. advisor, instructor, colleagues, etc.) or yourself (your own attempts to edit your work). This feedback will be very useful to improve the communication of your ideas to your audience. The following guidelines will help you in this process.

Using appropriate academic language

Although contractions (e.g. don't, weren't, won't, etc.) are part of everyday language use, they are not appropriate in academic writing. You must avoid the use of contractions in a research report and use the complete form instead (e.g. do not, were not, will not, etc.).

Since academic writing is formal writing, you must avoid the use of slang expressions (e.g., *cool*, *ain't*), colloquialisms (e.g., *thing*, *stuff*), and idioms (e.g., *rise to the occasion*, *to demolish the opposing theories*). Noncolloquial terms (e.g., *item*, *feature*) and formal expressions (e.g., *address the need*, *to disprove the other theories*) are much more appropriate in your literature review.

Academic language should be impersonal, precise and well-organized. Now, we will discuss some conventions that a formal academic context requires. These conventions include the following:

- Make sure that you have used complete sentences.
- Avoid the excessive use of the first person. Some academic documents can allow the use of the first person to a certain extent.
- Avoid excessive use of passive voice.

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- Avoid indirect sentence constructions (e.g., *In Smith's study, it was found that...*) and improve your sentences so they can be clearer (e.g., *Smith found that...*).
- Spell out a number when it is the first word or phrase in a sentence (e.g., *Seventy-five participants were interviewed...*). Sometimes you can rewrite your sentence so that the number is not at the beginning (e.g., *Researchers interviewed 75 participants...*).
- The numbers zero through nine are generally spelled out (e.g., *one, two, three, four*, etc.), except when you are referring to a number assigned to a table or figure (e.g., *table 9, figure 6*) or to measurements expressed in decimals or metric units. Numbers 10 and above are written as numerals (e.g., *23, 2019*, etc.).
- Spell-check, proofread, and edit your manuscript before asking anyone to read your paper. Although word processors and other online tools can be very helpful for these purposes, you should edit your own manuscript as well. Take into account that word-processors can overlook some spelling mistakes (e.g., *see* and *sea*).

Make sure that you have checked your draft based on the conventions above. Additionally, one essential factor when writing your research report (including the literature review section) is that you should avoid plagiarism. How can you avoid plagiarism? Let's address this point.

Avoiding plagiarism

"Plagiarism is using someone else's work without giving them credit for the information" (Creswell, 2015, p. 279). This means that you, as a writer, should not claim that the words and ideas that you use from others are yours.

According to Galvan & Galvan (2017), we can distinguish six types of plagiarism:

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1. Using another writer's words without proper citation.
2. Using another writer's ideas without proper citation.
3. Citing a source but reproducing the exact words of a printed source without quotation marks.
4. Borrowing the structure of another author's phrases or sentences without crediting the author from whom it came.
5. Borrowing all or part of another student's paper or using someone else's outline to write your own paper.
6. Using a paper-writing service or having a friend write the paper for you.

In an effort to avoid plagiarism, many universities use online tools that help instructors identify uncredited or improperly cited material in their students' assignments. Plagiarism is a very serious matter that in most cases results in tarnishing of your academic reputation, failing an assignment or an entire class, or even expulsion from a university or from a graduate program. Therefore, you should be very careful and use your own words to describe ideas and concepts that come from the works that you have analyzed for your literature review (Galvan & Galvan, 2017). In this respect, professional style manuals, including APA, give specific guidelines on how to credit another author's words in our own writing.

As you just learned, one way of avoiding plagiarism is the use of direct and indirect quotations. So, what are the differences between direct and indirect quotations? Let's discuss this point below.

Citations and quotation marks

When you decide to use words, phrases or even paragraphs from other authors, you should follow a style manual that allows you to cite other authors'

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ideas according to established guidelines. In our case, we are going to cite material in accordance with the guidelines of the 7th edition of *Publication Manual of the American Psychological Association* (APA).

The APA style handbook offers the author-date method of in-text citation in order to cite a reference in the narrative of your work. If you want to use another author's exact pattern of words, you must place them within quotation marks. You will also include the author's last name, the year, and the page number on which you found the material. See the following examples from Galvan & Galvan (2017).

Direct quotation with author as part of the narrative

According to Galvan and Galvan (2016), “under no circumstances should you forget to correctly cite your source’s words directly” (p. 101).

Direct quotation with parenthetical citation

President Harrison’s speech spoke openly to the idea that “under no circumstances should you forget to correctly cite your source’s words directly” (Galvan & Galvan, 2016, p. 101).

Note: When you cite two authors' names in parentheses, use the ampersand (&) instead of the word *and*. If the citation is in the narrative, use the word *and*. You should use semicolons to separate more than two citations in parentheses, as in this example: (Black, 2014; Brown, 2015; Green, 2016).

If you want to take another author's ideas and put them into your own words, you will only use the author's last name and year of publication in your intext-citations. See the following examples:

Indirect quotation as a part of the narrative

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Dudeny and Hockly (2008) claim that tape recorders are still used in classrooms around the world

Indirect quotation with parenthetical citation

Tape recorders are still used in classrooms around the world (Dudeny & Hockly, 2008).

You can use as many indirect quotations as necessary in your literature review. However, direct quotations should be used very sparingly in your review because their excessive use can interrupt the flow of the narrative. Try to use your own words most of the time.

Summarizing and paraphrasing

Discussing and describing the works that you have analyzed for your literature review involves summarizing and paraphrasing ideas. These strategies will help you avoid the risk of plagiarism. Summarizing means to reduce information to an appropriate length; while paraphrasing involves a significant change of the wording of a text without altering its meaning.

At the end of your research report, remember to include the section "References", which should start on a new page. This section will be the last element of your research report (except for appendices that you may want to add). This reference list will include only the works that were cited in the actual work that you have written.

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Summary

Quantitative research: Concept and characteristics

Creswell (2015) mentions the following characteristics of quantitative research:

Quantitative research can be defined as a systematic investigation of phenomena by gathering quantifiable data and performing statistical, mathematical, or computational techniques. Quantitative research collects information usually using structured instruments (e.g. questionnaires), the results of which can be depicted in the form of numbers. Of course, we interpret these numbers to obtain conclusions (Creswell, 2015).

At this point, it is worth mentioning that, in quantitative research, you count data as a part of the task of processing the results. In an educational context, many types of data can be counted. For instance, a teacher might wish to look at student's scores on a test or examination, to evaluate responses to a questionnaire, to estimate the relative importance of items in a need analysis, or, to compare the frequencies of different teaching/learning exchanges in a classroom observation.

Quantitative research has also some characteristics that differentiate it from qualitative research. According to Creswell (2015), its main characteristics are:

- The data is usually gathered using structured research instruments.
- The results are based on larger sample sizes that are representative of the population.
- The research study can usually be replicated or repeated due to its high reliability.
- Researchers have a clearly defined research question that is answered with objective answers.

- All aspects of the study are carefully designed before data is collected.
- Data are in the form of numbers and statistics, often arranged in tables, charts, figures, or other non-textual forms.
- Researchers use tools, such as questionnaires or computer software, to collect numerical data.

All in all, the main aim of a quantitative research study is to classify features, count them, and construct statistical models in an attempt to explain what is observed.

When specifying the purpose in quantitative research, it is important to consider that the questions relate attributes or characteristics of individuals or organizations. These attributes are called variables. To write quantitative purpose statements, research questions, and hypotheses, you need to understand the importance and use of variables. For a better comprehension of these concepts, we are going to present the definition of variable posited by Creswell (2015).

Variables

A variable is a characteristic or attribute of an individual or an organization that researchers can measure or observe. A variable varies among individuals or organizations studied.

In this concept, you can realize that a variable can be measured, and it varies among individuals. The characteristics of individuals refer to personal aspects about them, such as their grade level, age, or income level. An attribute, however, represents how an individual or individuals in an organization feel, behave, or think. For example, individuals have self-esteem. You can measure these attributes in a study.

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We need to consider what it means to “measure” these attributes or characteristics. Creswell (2015) states that measurement means that the researcher records information from individuals whether by asking them to answer questions on a questionnaire (e.g., a student completes questions on a survey asking about self-esteem) or by observing an individual and recording scores on a log or checklist (e.g., a researcher watches a student doing activities in the classroom and records their involvement in the activities).

In either case, student scores will probably vary. When variables vary, it means that scores will assume different values depending on the type of variable being measured. For example, gender varies by two possible scores: female = 2 and male = 1.

There are some types of variables, but, for the sake of simplicity, we will focus on two main types:

Dependent variable is an attribute or characteristic that is dependent on or influenced by the independent variable. To locate dependent variables in a study, examine purpose statements, research questions, and hypotheses for outcomes that the researcher wishes to predict or explain. Ask yourself, “What is the outcome in this study?

An independent variable is an attribute or characteristic that influences or affects an outcome or dependent variable. This type of variable is measured differently (or independently) from the dependent variable, and they identify these variables as worthy of study because they expect them to influence the outcomes.

Researchers study independent variables to see what effect or influence they have on the outcome. For instance, consider this research question:

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Do students who spend more instructional time in the English class on have higher

scores in the final exam than students who spend less time?

In the example of research question above, we have that the independent and dependent variables are the following:

Research question: *Do students who spend more instructional time in the English class on have higher scores in the final exam than students who spend less time?*

Independent variable: ***Time on English instruction***

Dependent variable: ***Scores in the final exam***

It is also important to have an idea about how to structure a quantitative research question, so we are going to read the information on the following websites [Quantitative research questions 1](#); [Quantitative research questions 2](#) that provide guidelines to write a quantitative research question.

I am certain that, after reading the information of the resources above, you have learned about how to write a research question. You could also notice on those websites that we can talk about three main types of research questions (descriptive, comparison, and relationship research questions). Well, there are some ways of structuring quantitative research questions according to Creswell (2015).

Writing quantitative research questions

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Research questions describe the participants' reactions to a single variable, compare groups on an outcome, or relate to variables. The basic steps in forming a research question are:

- Pose a question
- Begin with "how," "what," or "why"
- Specify the variables
- Use the words describe, compare, or relate to indicate the action or connection
- among the variables
- Indicate the participants and the research site for the study

In addition, three popular forms are available in quantitative research: descriptive questions, relationship questions, and comparison questions. See the following examples:

Descriptive questions

How frequently do (participants) (variable) at (research site)?

EXAMPLE:

How frequently do EFL students feel motivated in the classroom? (One variable)

Relationship questions

How does (independent variable) relate to (dependent variable) for (participants) at (research site)?

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EXAMPLE:

How does (the use of virtual platforms) relate to/influence (motivation) for (students) at (UTPL)?

Comparison questions

How does (group 1) differ from (group 2) in terms of (dependent variable) for (participants) at (research site)?

EXAMPLE:

How do school students and university students compare in their perceptions of ICTs?

Source: Creswell, J. W. (2015). *Educational research: Planning, conducting, and evaluating quantitative*. New Jersey: Upper Saddle River.

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Summary

Collecting quantitative data

Creswell (2015) mentions the following steps for collecting quantitative data:

1) Determining the participants to study

The first step in the process of collecting quantitative data is to identify the people and places that you plan to study. This involves determining whether you will study individuals or entire organizations (e.g., schools) or some combination. If you select either individuals or organizations, you need to decide what type of people or organizations you will actually study and how many you will need for your research. These decisions require that you decide on a unit of analysis (i.e. suppliers of information that may include students, teachers, parents, adults, some combination of these individuals, or entire schools.), the group and individuals you will study, the procedure for selecting these individuals, and assessing the numbers of people needed for your data analysis. The decision about what participants to select will depend on the research questions and/or hypothesis established (Creswell, 2015).

2) Specify the population and sample

If you select an entire school to study or a small number of individuals, you need to consider what individuals or schools you will study. In some educational situations, you will select individuals for your research based on who volunteers to participate or who is available (e.g., a specific classroom of students). However, those individuals may not be similar (in personal characteristics or performance or attitudes) to all individuals who could be studied.

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A more advanced research process is to select individuals or schools who are representative of the entire group of individuals or schools. Representative refers to the selection of individuals from a sample of a population such that the individuals selected are typical of the population under study, enabling you to draw conclusions from the sample about the population as a whole. Creswell (2015) differentiates the concepts of population and sample as follows.

A population is a group of individuals who have the same characteristic. For example, all teachers would make up the population of teachers. Populations can be small or large. You need to decide what group you would like to study.

In practice, quantitative researchers sample from lists and people available. A target population is a group of individuals (or a group of organizations) with some common defining characteristic that the researcher can identify and study.

Within this target population, researchers then select a sample for study. A sample is a subgroup of the target population that the researcher plans to study for generalizing about the target population. In an ideal situation, you can select a sample of individuals who are representative of the entire population.

For a better comprehension of these concepts, the figure below represents the concepts of population and sample along with some examples.

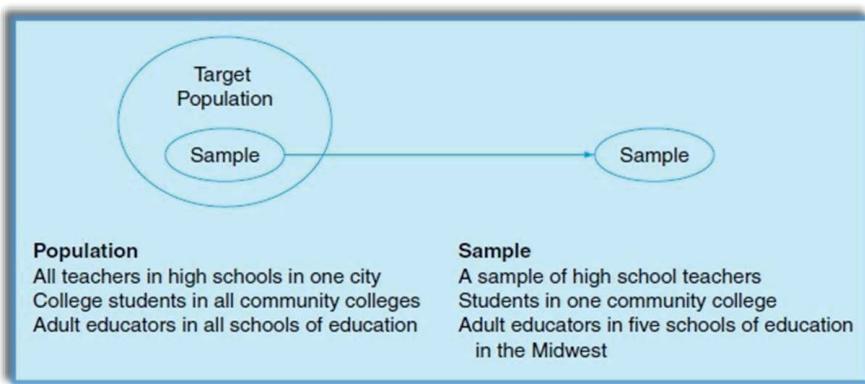


Figure 3. Population and sample

Source: Creswell (2015)

We have some sampling techniques that will be useful to determine the size of the sample. In the case of quantitative research, the most rigorous technique (and popular) is probability sampling, but we can also apply nonprobability sampling. The decision as to which sampling method to use will depend on the rigor of the study, the type of research, the characteristics of the population to be studied and the availability of the participants (Creswell, 2015).

For a better understanding of the two types of sampling mentioned above, the following video [probability and non-probability sampling](#) explains the difference between probability sampling nonprobability sampling. Please watch it and learn about the difference between these two types of sampling.

So, what is the difference between probability sampling nonprobability sampling? Let's summarize this difference. In probability sampling, the researcher selects individuals from the population who are representative of that population. This is the most rigorous form of sampling in quantitative research because the researcher can claim that the sample is representative of

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EXAMPLE:

A researcher wants to select the sample to know teacher's perceptions about the use of technological tools in EFL teaching. In probability sampling, if you had a population of 1000 teachers, each teacher would have odds of 1 out of 1000 of being chosen. With non-probability sampling, those odds are not equal. For example, teachers might have a better chance of being chosen if they live close to the researcher or have access to technology to teach EFL.

3) *Obtaining permissions needed from several individuals and organizations*

After identifying and selecting participants for your study, you need to obtain their permission to be studied. This permission will ensure that they cooperate in your study and supply data. Besides cooperation, their permission also acknowledges that they understand the purpose of your study and that you will treat them ethically.

In most educational studies, you need to obtain permissions from several individuals and groups before you can gather data. Permissions may be required from:

- Institutions or organizations (e.g., school district)
- Specific sites (e.g., the secondary school)

- A participant or group of participants
- Parents of participants (e.g., 10th graders' parents)
- The place in which you conduct the research (i.e., permission from your university)

Of course, you need to consider some aspects in order to obtain this permission such as ethics and consent forms. Consider the following questions.

- What aspects can be included in the code of ethics to protect the participants in a study?
- If you need a written consent to ask for permission from participants, what main points could be covered in this consent form?

At this point, it is important to remark that permission is often necessary before you can enter a site and collect data. This approval usually comes from authorities in organizations. It is important to contact organizational personnel before the start of a study and obtaining their permission to enter and to study their setting.

The best way to seek permission from the necessary individuals or groups is to ask for it formally in a letter (e.g. consent form). This formal letter will include the purpose of the study, the amount of time you will be at the site collecting data, the time required of participants, and how you will use the data or results. Additionally, you can mention the specific activities that you will conduct, the benefits to the organization or individual because of the study, and your commitment to protect the anonymity of study participants. The way to obtain permission could differ depending on the regulations of the institution or the laws in each country. It is important to be informed about these aspects before starting the process of obtaining permission. Let's continue with the discussion about this below.

4) Considering what types of information to collect from several sources available to the quantitative research

With the identification of participants and a procedure for gaining permission, you next turn to the specific forms of data that will help you answer your research questions or address your research hypotheses. This step involves identifying the variables in your questions and hypotheses, finding definitions for these variables, and considering types of information that will help you assess these variables. Consider the following example.

EXAMPLE:

A researcher wants to examine the effect of the use of microblogging tools on EFL students' spelling and syntax. The variables would be the following:

INDEPENDENT VARIABLE: the effect of using microblogging tools on EFL

DEPENDENT VARIABLE: EFL students' spelling and syntax.

Here, the researcher has to define what a microblogging tools is (i.e. an online tool that allows people to post a small amount of content in form of a blog) as well as spelling and syntax (i.e. the way in which a word is spelled and the correct arrangement of words and phrases.)

The researcher also has to consider the information that will help assess these variables. In this case, the researcher plans to collect information about the number of writing activities performed by the students using microblogging. As for spelling and syntax, these variables will be measured through the scores obtained in tests devoted to these two aspects.

5)Locating and selecting instruments to use that will net useful data for the study

Researchers collect data on instruments. An instrument is a tool for measuring, observing, or documenting quantitative data. Identified before the researchers collect data, the instrument may be a test, questionnaire, observation checklist, inventory, or assessment instrument. Researchers use instruments to measure achievement, assess individual ability, observe behavior, or interview a person.

In quantitative research, we can use some instruments. The following figures shows examples of instruments used to collected quantitative data:

EXAMPLES OF INSTRUMENTS TO COLLECT QUANTITATIVE DATA

Surveys/Questionnaires

Tests

Structured observation sheets

Structured interviews

Figure 4. Instruments to collect quantitative data

After seeing some examples of ways of collecting data, it is necessary to clarify something about the instruments to use when collecting data. According to Creswell (2015), three options exist for obtaining an instrument (e.g. questionnaire, observation checklist, test) to use: you can develop one yourself, locate one and modify it, or locate one and use it in its entirety. Of these choices, locating one to use (either modifying it or using it in its original form) represents the easiest approach. It is more difficult to develop an instrument than to locate one and modify it for use in a study. [Modifying an instrument](#) means locating an existing instrument, obtaining permission to change it, and making changes in it to fit your requirements.

An instrument to measure the variables in your study may not be available in the literature or commercially. If this is the case, you will have to develop your

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EXAMPLE:

A researcher wants to use a questionnaire to determine the learning styles of a group of students in a EFL classroom. After reading some literature and finding the correct questionnaires, he/she sees that the existing questionnaires do not meet the needs of the context in which his/her students are receiving the lessons. For this reason, the researcher decides to select the most appropriate questionnaire and adapt it to the context under study. Of course, the researcher will have to pilot it to see if the modified items work and produce accurate information for the study.

6) Administering the data collection process to collect data

This process varies depending on factors such as the type of data to be collected and the instruments used. In any case, the instruments must be applied using standard procedures, considering ethical aspects (e.g. If you administer a questionnaire, you must do it in the same way for all the participants. If several people are going to administer the questionnaire, they must follow standard procedures and apply the questionnaire in the same way to all the participants.)



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Recommendations for writing the items of a questionnaire

Writing items that work

Most specialists also emphasize that item construction is not a 100% scientific activity, because in order to write good questions one also needs a certain amount of creativity. Indeed, it is generally recommended that when we write the actual items, we should let our imagination go free and should try and create as many potential items as we can think of. Apart from our own verbal creativity, according to Mackey & Gass (2015) we should consider the following aspects:

Qualitative, exploratory data gathered from respondents (e.g. notes taken during talks and brainstorming in focus or discussion groups; recorded unstructured/semi-structured interviews; and student essays written around the subject of the inquiry)

Borrowed questions from established questionnaires. Questions that have been used frequently before must have been through extensive piloting. Of course, we will need to acknowledge the sources precisely, and it is important to note that even if we adopt most items from existing instruments, our questionnaire will still need to be piloted for the specific population that we intend to use it for.

What are the main rules about writing good items? Mackey & Gass (2015) mention five key strategies for producing items that work:

- *Aim for short and simple items.* Whenever possible, questionnaire items should be short, rarely exceeding 20 words.
- *Use simple and natural language.* As a rule, in questionnaire items we should always choose the simplest way to say something.

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- **Avoid ambiguous or loaded words and sentences.** Any element that might make the language of the items unclear, ambiguous, or emotionally loaded needs to be avoided.
- **Avoid negative constructions.** Items that contain a negative construction (i.e., including “not,” “doesn’t,” or “don’t”) are deceptive because, although they read OK, responding to them – especially giving a negative response – can be problematic.
- **Avoid double-barreled questions.** Double-barreled questions are those that ask two (or more) questions in one, while expecting a single answer (e.g., Is the relationship with your parents good?).

The format of the questionnaire

Producing an attractive and professional design is important for motivating respondents to produce reliable and valid data. Here are some points that Mackey & Gass (2015) consider:

- **Length:** The optimal length of a questionnaire depends on how important the topic

is for the respondent. However, most researchers agree that anything that is more than 4–6 pages long and requires over half an hour to complete would be considered too long. For this reason, it would be better to stay within a four-page limit, which tends not to exceed the 30-minute completion limit.

- **Space economy:** We must not make the pages look crowded by economizing on the spaces separating different sections of the questionnaire. Effective ways of achieving this space economy involve reducing the margins, using a space-economical font, and utilizing the whole width of the page, for example by printing the response options next to each question rather than below it.

• *Mixing up the scales and items:* The items from different scales need to be mixed up as much as possible to create a sense of variety and to prevent respondents from simply repeating previous answers.

• *Factual (or “personal”) questions at the end:* Starting the questionnaire with a set of personal background questions may not be appropriate. These types of questions are best left to the end of the questionnaire.

Piloting the questionnaire

Piloting the questionnaire involves administering the instrument to a sample of participants who are similar to the target group of people for whom it has been designed.

The results of the pilot study are invaluable in helping the researchers to

- a) eliminate ambiguous, too difficult/easy, or irrelevant items;
- b) improve the clarity of the item wordings and the instructions;
- c) finalize the layout;
- d) rehearse the administration procedures;
- e) see whether the expected findings will potentially emerge from the data;
- f) time the completion of the questionnaire;

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Summary

Steps in the process of quantitative data analysis

There are several interrelated steps used in the process of analyzing quantitative data. Creswell (2015) establishes the following steps:

1)Preparing the data for analysis

Preparing and organizing data for analysis in quantitative research consists of scoring the data (assigning numeric scores) and creating codes (coding), determining the types of scores to use, selecting a statistical program, inputting the data into the program for analysis, and cleaning up the database for analysis (clearing the data).

Scoring the data

When you collect data on an instrument or a checklist, you will need some system for scoring the data. Scoring data means that the researcher assigns a numeric score (or value) to each response category for each question on the instruments used to collect data. This process is related to coding the data.

For instance, assume that students respond to a survey asking them to indicate their attitudes about feedback on writing. One question might be:

Please check the appropriate response to this statement:

“Feedback on my written work is important to improve my writing skills.”

_____ Strongly agree



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_____ Agree

_____ Undecided

_____ Disagree

_____ Strongly disagree

Assume that students check “Agree.” What numeric score would you assign to the response so that you will assign the same score to each person who checks “Agree”?

To analyze the data, you will need to assign scores to responses such as 5 = strongly agree, 4 = agree, 3 = undecided, 2 = disagree, and 1 = strongly disagree. Based on these assigned numbers, the students who check “Agree” would receive a score of 4.

Selecting a statistical program

After scoring the data, researchers select a computer program to analyze their data. Academic researchers generally use statistical programs available as software programs (e.g. SPSS, Minitab, SAS) for desktops or laptops, or available on campus computers. The hardest part is deciding which software package to use.

Before selecting the software, it is important to know their characteristics in order to determine if the program has the statistical procedures that we need to answer our research questions. It is also important to see if the software has the capacity of processing the amount of data that we want to input.

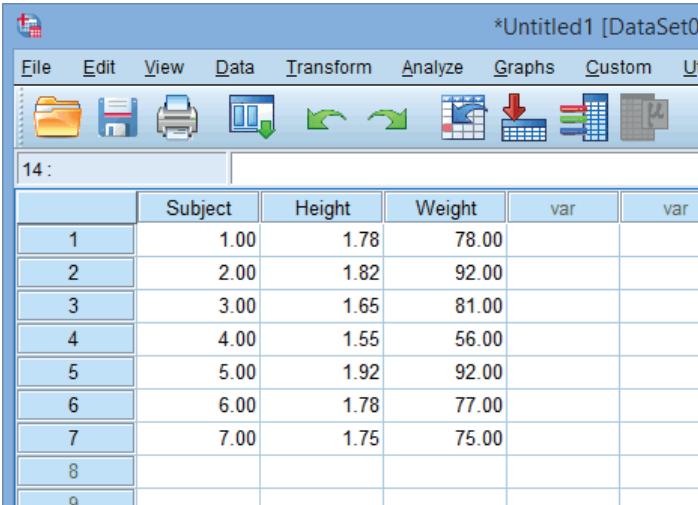
Other factors to consider are the cost, types of reports generated, and ease of use of the software.

Inputting data



After choosing a statistical program, your next step is to enter the data from your instruments or checklists into the computer program. Inputting the data occurs when the researcher transfers the data from the responses on instruments to a computer file for analysis. This grid is similar to a spreadsheet table used in many popular software packages (e.g., Excel).

Below you will see an example of a grid for inputting the data in SPSS (explain that the grid contains cells in rows and columns into which the researcher inputs data for analysis. The names for the variables are short and simple but descriptive.)



The screenshot shows the SPSS Data Editor window titled '*Untitled1 [DataSet0]'. The menu bar includes File, Edit, View, Data, Transform, Analyze, Graphs, Custom, and Utilities. The toolbar below the menu has icons for opening files, saving, printing, and other functions. The data view shows a table with 9 rows and 6 columns. The columns are labeled 'Subject', 'Height', 'Weight', and 'var' twice. The data entries are as follows:

	Subject	Height	Weight	var	var
1	1.00	1.78	78.00		
2	2.00	1.82	92.00		
3	3.00	1.65	81.00		
4	4.00	1.55	56.00		
5	5.00	1.92	92.00		
6	6.00	1.78	77.00		
7	7.00	1.75	75.00		
8					
9					

In order to have a better idea of the process of data input into a statistical software, I invite you to watch the following video: [Data input using statistical software](#). Could you see the process of inputting codes? Remember that a coding is related to scoring the data. Thus, in the coding process, you categorize non-numerical information obtained during the data collection into groups and assign numerical codes (refer back to “scoring the data” to review this part). It is also necessary to remark that the data in the video comes from surveys. You could also observe some example of variables used in the video

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such as gender, year in college, ethnicity, happiness scores, among others. After inputting the data, it is essential to clean and account for missing data.

Cleaning and accounting for missing data

After entering data into the computer grid, you need to determine if there are errors in the data or missing data. Errors occur when participants in your study provide scores outside the range for variables or you input wrong numbers into the data grid. Missing data may result when instrument data is lost, individuals skip questions, participants are absent when you collect observational data, or individuals refuse to complete a sensitive question.

In these cases, some software products can offer solutions by substitution of values (e.g. an average number for the question for all the participants of the study), or the researcher can eliminate the participants that have provided the wrong answers or those who have not responded the question.

Once you have followed the steps to prepare your data, you have to analyze the data obtained for your study. We are going to talk about this step.

2) Analyzing the data

This second step begins the data analysis. Typically, you conduct a descriptive analysis of the data by reporting statistics related to the data. You analyze the data to address each one of your research questions or hypotheses.

According to Creswell (2015), questions or hypotheses in quantitative research require that you:

- Describe trends in the data to a single variable or question on your instrument (e.g., "What is the self-esteem of high-school EFL students?"). To answer this question, we need descriptive statistics that indicate general tendencies in the data. How do we analyze the data to

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describe trends? You use statistics, which means the calculations of values based on numbers.

- Compare two or more groups on the independent variable in terms of the dependent variable (e.g., “How do boys and girls compare in their EFL reading skills?”). To answer this question, we need inferential statistics in which we analyze data from a sample to draw conclusions about an unknown population.
- Relate two or more variables (e.g., “Does self-esteem relate to a better learning?”). To answer this question, we also use inferential statistics.
- Test hypotheses about the differences in the groups or the relationships of variables (e.g., “Girls have better EFL speaking skills than boys”) To answer either of these questions, inferential statistics are also used.

In summary, we describe results to a single variable or question or we infer results from a sample to a population. In addition, from comparing groups or relating variables, we can make predictions about the variables. We can also test hypotheses that make predictions comparing groups or relating variables. In the next section, we are going to talk something about descriptive analysis in which we use descriptive statistics. In this respect, we are going to discuss the selection of a descriptive statistic test below.

Choosing a descriptive statistics test

Descriptive statistics will help you summarize the overall trends or tendencies in your

data, provide an understanding of how varied your scores might be, and provide insight into where one score stands in comparison with others.

In descriptive statistics, we have measures of central tendency. Measures of central tendency are summary numbers that represent a single value in a distribution of scores. They are expressed as an average score (the mean), the middle of a set of scores (the median), or the most frequently occurring score (the mode). Creswell (2015) explains these measures as follows:

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EXAMPLE:

These are the scores of an English test from 20 students:

5, 3, 6, 5, 4, 5, 2, 8, 6, 5, 4, 8, 3, 4, 5, 4, 8, 2, 5, 4.

Mean= 4.8

Median= 5

Mode= 5 (it appears 6 times)

The results obtained also need to be reported. This will be done in a section of your research report typically called “Results”. Remember that your data should support your predictions, but if the obtained data fail to support your predictions, you should include them anyway. You have also learned about the use of

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tables, graphs and body text of your analysis section. Now, we are going to discuss more aspects about reporting the results.

Reporting the results

The next step is to report the results that are found using tables, figures, and a discussion of the key results. When researchers conclude the statistical testing, they next turn to representing the results in tables and figures and reporting results in a discussion. You might include these results in a section labeled "Results."

This section should address or respond to each research question or hypothesis. A typical approach is to respond to each question or hypothesis one by one in the order in which they were introduced earlier in the study (more information about this in unit 5). In reporting the results, you stay close to the statistical findings without drawing broader implications or meaning from them. This section also includes summaries of the data rather than the raw data (e.g., the actual students' scores).

A results section can include:

- ◆ Tables that summarize statistical information
- ◆ Figures (charts, pictures, drawings) that portray variables and their relationships
- ◆ Detailed explanations about the statistical results

A table is a summary of quantitative data organized into rows and columns. Typically, tables for reporting results contain quantitative information, but they might contain text too. One advantage of using tables is that they can summarize a large amount of data in a small amount of space. For example, in

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Table 3. Example of table of frequencies.

Age	Frequency
0 - 9	7
10 - 19	5
20 - 29	4
30 - 39	6
40 - 49	1
50 - 59	2

A figure is a summary of quantitative information presented as a chart, graph, or picture that shows relations among scores or variables.

Tables are preferred to figures because tables convey more information in a simple form. Figures are ideal for visually presenting information in graphs and pictures in results sections of studies. For example, the figure below represents a pie chart that indicate the percentages of people who strongly agree, agree, are neutral, disagree and strongly disagree.

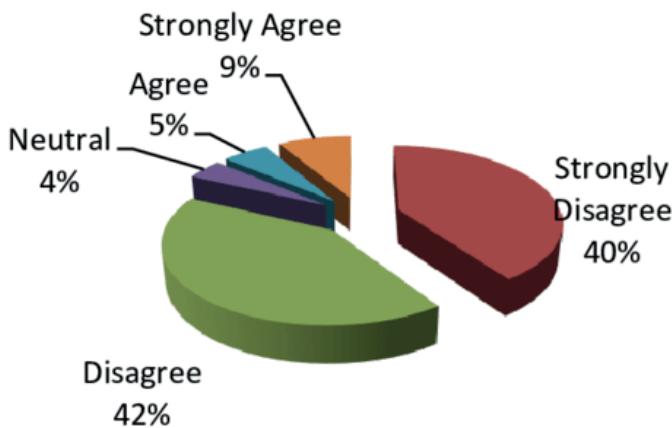


Figure 6. Example of pie chart.

Another important aspect of the analysis and interpretation of results that is related to reporting the results is the presentation of results. We are going to talk about this point now.

3)Presentation of results

Although tables and figures summarize information from statistical tests, the researcher needs to describe in detail, the results of the statistical tests.

According to Creswell (2015) in a presentation of results, the researcher presents detailed information about the specific results of the statistical analysis, using language acceptable to quantitative researchers. For the results to each statistical test, the investigator summarizes the findings in one or two sentences. These sentences should include sufficient statistics to provide a complete picture of the results. They should also include information necessary for reporting results to each statistical test.

Interpreting the results

Finally, you interpret the results from the data analysis. This may consist of summarizing the results, comparing the results with past literature and theories,

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advancing the limitations of the study, and ending with suggestions for future research. The following is an example of writing the interpretation of results.

EXAMPLE:

The results of the tests indicate that students from the control group obtained 45% in the questions for spelling, and 30% in the questions for syntax. These findings mean that, in general terms, students in this group were able to write in English at an intermediate reading level.

Summarizing the major results

In the process of interpreting results, researchers first summarize the major findings and present the broader implications of the research. A summary is a statement that reviews the major conclusions to each of the research questions or hypotheses. This summary is different from the results: It represents general, rather than specific, conclusions. The following is an example of summarizing the major results.

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EXAMPLE:

After the analysis of the results obtained in the questionnaire used with the experimental group, it was found that the majority of learners found microblogging helpful in the development of English writing skills. Most of the students agreed that they were motivated to write in English when they used a microblogging tool as part of the activities in the EFL classroom.

Explaining why the results occurred

After this summary, researchers explain the reasons why their results turned out the way they did. This explanation is often based on returning to predictions made from a theory or conceptual framework that guided the development of research questions or hypotheses. In addition, these explanations may include discussing the existing literature and indicating how the results either confirmed or disconfirmed previous studies. For this reason, you will frequently find previous research studies being presented in the discussion of the results. A conclusion of the discussion may contrast and compare results with theories or literature. The following example shows an explanation of why the results occurred and a discussion of existing literature.

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EXAMPLE:

The explanation for this increase in motivation might be that even though there is a high percentage of students who expect a prize, good results act as a reward and increase motivation in learners. Thus, motivation is a consequence of the learning process. In this respect, Skehan (1989) emphasizes the influence of external incentives (eg. rewards, punishment) on the learners' motivation to work in the EFL classroom. In other words, students need a reward to be motivated and work on the EFL classroom activities.

Source: Creswell, J. W. (2015). *Educational research: Planning, conducting, and evaluating quantitative*. New Jersey: Upper Saddle River.

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Summary

Characteristics of experimental research

Creswell (2015) mentions the following characteristics of experimental research:

Random assignment. As an experimental researcher, you will assign individuals to groups. The most rigorous approach is to randomly assign individuals to groups or to different groups in an experiment. The random assignment of individuals to groups (or conditions within a group) distinguishes a rigorous, “true” experiment from a less rigorous, “quasi-experiment”. You use random assignment so that any bias in the personal characteristics of individuals in the experiment is distributed equally among the groups. From this, we can conclude that the main difference between an experimental and quasi-experimental design is the way of sampling. In experimental designs, you use a random assignment of individuals to groups, whereas in quasi-experimental design, you do not use a random sampling.

Control over extraneous variables. In randomly assigning individuals, we say that we are controlling for extraneous variables that might influence the relationship between the new practice (e.g., use of mobile apps) and the outcome (e.g., improvement in English pronunciation). Extraneous factors are any influences in the selection of participants, the procedures, the statistics, or the design likely to affect the outcome and provide an alternative explanation for our results than what we expected.

To equate the characteristics of the groups, experimental researchers may use a pretest. A pretest provides a measure on some attribute or characteristic that you assess for participants in an experiment *before* they receive a treatment. After the treatment, you take another reading on the attribute or characteristic. A posttest is a measure on some attribute or characteristic that is assessed for participants in an experiment *after* a treatment.

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Manipulation of the treatment conditions. Once you select participants, you randomly assign them to either a treatment condition or the experimental group. In experimental treatment, the researcher physically intervenes to alter the conditions experienced by the experimental unit (e.g., a special type of classroom instruction, such as small group discussion).

Outcome measures. In all experimental situations, you assess whether a treatment condition influences an outcome or dependent variable, such as achievement on tests. In experiments, the outcome (or response, criterion, or posttest) is the dependent variable that is the presumed effect of the treatment variable. Examples of dependent variables in experiments might be the achievement scores on a test.

Group comparisons. In an experiment, you also compare scores for different treatments on an outcome. A group comparison is the process of a researcher obtaining scores for individuals or groups on the dependent variable and comparing the statistic results both within the group and between the groups.

Source: Creswell, J. W. (2015). *Educational research: Planning, conducting, and evaluating quantitative*. New Jersey: Upper Saddle River.

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Summary

Correlational designs

Creswell (2015) mentions the following characteristics of correlational designs:

Correlational Designs

Correlational designs are procedures in quantitative research in which researchers measure the degree of association (or relation) between two or more variables using the statistical procedure of correlational analysis. This degree of association, expressed as a number, indicates whether the two variables are related or whether one can predict another.

Creswell (2015) explains that Correlational designs provide an opportunity for you to predict scores and explain the relationship among variables. In correlational research designs, researchers use the correlation statistical test to describe and measure the degree of association (or relationship) between two or more variables or sets of scores.

A correlation is a statistical test to determine the tendency or pattern for two (or more) variables or two sets of data to vary consistently.

You use correlational research when you seek to relate two or more variables to see if they influence each other, such as the relationship between teachers who endorse developmentally appropriate practices and their use of the whole-language approach to reading instruction. This design allows you to predict an outcome, such as the prediction that ability, quality of schooling, student motivation, and academic coursework influence student achievement. You also use this design when you know and can apply statistical knowledge based on calculating the correlation statistical test.

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After applying the correlation statistical test, you can determine the direction of the association between variables. You can have a positive correlation (indicated by a “1” correlation coefficient. e.g. when X increases, so does Y or, alternatively, if X decreases, so does Y). In a negative correlation (indicated by a “–” correlation coefficient, e.g. when X increases, Y decreases, and when X decreases, Y increases). If scores on one variable do not relate in any pattern on the other variable, then no linear association exists (zero correlation).

Therefore, a correlational research design measures a relationship between two variables without the researcher controlling either of them. It aims to find out whether there is either:

Positive correlation

Both variables change in the same direction.

EXAMPLE:

As height increases, weight also increases.

Negative correlation

The variables change in opposite directions

EXAMPLE:

As coffee consumption increases, tiredness decreases.

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Zero correlation

There is no relationship between the variables.

EXAMPLE:

Coffee consumption is not correlated with height.

Correlational researchers determine the degree of association, which means that the association between two variables or sets of scores is a correlation coefficient of -1.00 to $+1.00$, with 0.00 indicating no linear association at all.

Given a coefficient for the strength of the association between two variables, how do we know if the value is meaningful? One way to find out is to use significance testing. In hypothesis testing, we are selecting a sample and drawing inferences from the sample to the population. For correlational research, the null hypothesis would be that there is no association or relationship among the scores in the population. Testing this hypothesis involves setting a level of significance, calculating the test statistic, examining whether the correlation coefficient value falls into the region of rejection, and rejecting or failing to reject the null hypothesis (Creswell, 2015). If the null hypothesis is rejected, then the alternative hypothesis (there is association or relationship among the scores in the population) is accepted.

Source: Creswell, J. W. (2015). *Educational research: Planning, conducting, and evaluating quantitative*. New Jersey: Upper Saddle River.

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Summary

Survey designs

According to Creswell (2015), we have the following characteristics and types of survey designs.

Survey designs are procedures in quantitative research in which you administer a survey or questionnaire to a small group of people (the sample) to identify trends in attitudes, opinions, behaviors, or characteristics of a large group of people (the population).

In this procedure of survey research, researchers collect quantitative, numbered data using questionnaires (e.g., mailed questionnaires) or interviews (e.g., one-on-one interviews) and statistically analyze the data to describe trends about responses to questions and to test research questions or hypotheses. They also interpret the meaning of the data by relating results of the statistical test back to previous research studies.

Survey designs differ from experimental research in that they do not involve a treatment given to participants by the researcher. Survey research has much in common with correlational designs. Survey researchers often correlate variables, but their focus is directed more toward learning about a population and less on relating variables or predicting outcomes.

You use survey research to describe trends (e.g. national trends about students' English proficiency). You also use survey research to determine individual opinions about an issue. Surveys help identify important beliefs and attitudes of individuals (e.g. students' beliefs about using technology for learning EFL writing). Surveys also provide useful information to evaluate programs in schools, such as the success of an English program in education.

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Types of survey designs

Despite the many applications of surveys today, there are still only two basic types of research surveys: cross sectional and longitudinal. Cross-sectional designs are useful to collect data about current attitudes, opinions, or beliefs. On the other hand, longitudinal designs are used to study individuals over time. We are going to learn more about these two types of survey designs.

Cross-sectional survey designs

The most popular form of survey design used in education is a cross-sectional survey design. In a cross-sectional survey design, the researcher collects data at one point in time. See the following example:

EXAMPLE:

When middle school children complete a survey about EFL learning, they are recording data about their present views.

This design has the advantage of measuring current attitudes or practices. It also provides information in a short amount of time.

Longitudinal survey designs

This type of survey designs is employed to collect data over time. A longitudinal survey design involves the survey procedure of collecting data about trends with the same population; the participants may be different or the same people. Take a look at the following examples.

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EXAMPLES:

Research about high school graduates and their current occupation (e.g., student, food service worker, insurance agent) 1, 2, and 5 years after graduation.

Another example of a longitudinal design would be a follow-up with graduates from a program or school to learn their views about their educational experiences..

There are some characteristics of survey design that will help you design a survey or read and evaluate a published survey study. Survey researchers engage in the processes of:

- Sampling from a population
- Collecting data through questionnaires or interviews
- Designing instruments for data collection
- Obtaining a high response rate

Sampling from a population

Survey researchers typically select and study a sample from a population and generalize results from the sample to the population. We need to first define three terms: the population, the target population or sampling frame, and the sample.

Questionnaires and interviews

Researchers typically collect data using two basic forms: questionnaires and interviews. A **questionnaire** is a form used in a survey design that participants in a study complete and return to the researcher. In *quantitative survey interviews*, the researcher uses a structured or semi-structured interview

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consisting of mostly closed-ended questions, provides response options to interviewees, and records their responses.

Several different types of questionnaires and interviews are used in quantitative survey research (e.g. mailed questionnaires, web-based questionnaires, one-on-one interviews, telephone interviews).

Instrument design

Designing good survey instruments is a challenging and complex process. You should first consider whether a survey instrument is available to measure your variables. You might also consider modifying an existing instrument. If neither of these approaches will work, design your own instrument.

Response rate

Survey researchers seek high response rates from participants in a study so that they can have confidence in generalizing the results to the population under study. When using interviews, the response rate is high because individuals interviewed typically consent to the interview in advance. However, when questionnaires are used, the number of responses returned (through mail or electronically) will vary. In either case, survey researchers place emphasis on obtaining a high response rate to their questionnaire or interview.

Source: Creswell, J. W. (2015). *Educational research: Planning, conducting, and evaluating quantitative*. New Jersey: Upper Saddle River.

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Summary

Creswell (2015) discusses the following characteristics of qualitative research.

Characteristics of qualitative research

Qualitative research is ideal to address a research problem in which you do not know the variables and need to explore. In this type of research, a central phenomenon is the key concept, idea, or process studied in qualitative research.

In qualitative research, the literature review plays a less substantial role at the beginning of the study than in quantitative research. In qualitative research, although you may review the literature to justify the need to study the research problem, the literature does not provide major direction for the research questions.

In qualitative research, the purpose statement and the research questions are stated so that you can best learn from participants. You research a single phenomenon of interest and state this phenomenon in a purpose statement.

In qualitative research typically you gather a text database, so the data analysis of text consists of dividing it into groups of sentences, called text segments, and determining the meaning of each group of sentences. Rather than using statistics, you analyze words or pictures to describe the central phenomenon under study.

At this point, it is necessary to discuss some differences between quantitative and qualitative research. So, how do you decide when to use quantitative or qualitative research? The answer to this question is that this decision depends of a variety of factors. The main factor is your research aims. For instance, if you want to understand a research problem with richness and depth, and you do not firm expectations regarding what you might find, you will probably need a qualitative research approach. Conversely, if you want to measure and describe something numerically, a quantitative approach will probably be best.



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In other words, your research approach should be chosen based on your broader research aims, objectives and research questions.

As you could also see, there are some differences between these two types of research. Quantitative and qualitative research also differ in the type of research problem studied. According to Creswell (2015), you may need to use *quantitative research* if your research problem requires you to:

- Measure variables
- Assess the impact of these variables on an outcome
- Test theories or broad explanations
- Apply results to a large number of people

On the other hand, you may need to use *qualitative research* if your research problem requires you to:

- Learn about the views of individuals
- Assess a process over time
- Generate theories based on participant perspectives
- Obtain detailed information about a few people or research sites

The following figure summarizes the characteristics of quantitative and qualitative research:

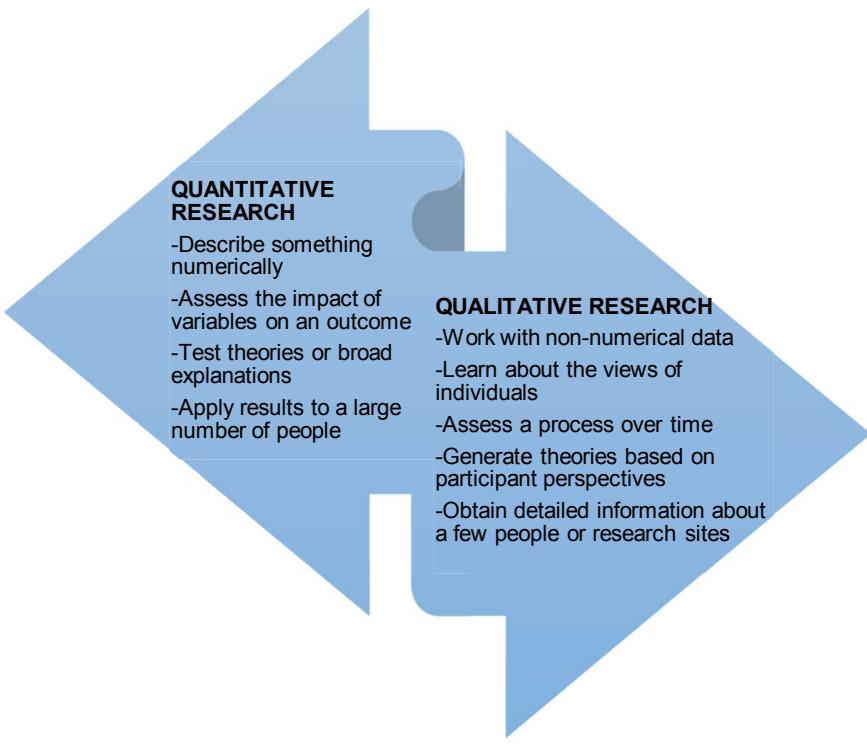


Figure 9. Main characteristics of quantitative and qualitative research

In summary, research problems best studied using the quantitative approach are those in which the issue needs to be explained; problems best addressed by the qualitative approach are those that need to be explored.

Literature review in quantitative and qualitative research

In a qualitative study, the **literature** has a slightly different purpose. Similar to quantitative research, the authors mention the literature at the beginning of the study to document or justify the importance of the research problem. However,

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authors do not typically discuss the literature extensively at the beginning of a study. This allows the views of the participants to emerge without being constrained by the views of others from the literature (Creswell, 2015).

Purpose statements and research questions in quantitative and qualitative research

There are some differences when you write purpose statements or research questions in quantitative and qualitative research. Creswell (2015) mentions the following differences:

-In *quantitative* research, hypotheses are used. In *qualitative* research, hypotheses are not used; instead, inquirers use only research questions. Because researchers test hypotheses using statistics, and statistics are not used in qualitative research, hypotheses in qualitative research are not appropriate.

-In *quantitative* research, the researcher identifies multiple variables and seeks to measure them. In *qualitative* research, the term *variable* is not used, and instead the inquirer seeks to gather information on a single concept—a central phenomenon—.

-In *quantitative* research, the researcher employs a close-ended stance by identifying variables and selecting instruments to collect data *before* the study begins.

-Quantitative research questions and hypotheses do not change during the study. In *qualitative* research, the researcher often changes the phenomenon being studied or at least allows it to emerge during the study. The research questions may change based on the participants' responses.

-In qualitative research, researchers do not compare groups or relate variables. Instead, we seek a deep understanding of the views of one group or single individuals.

An important aspect in a qualitative research study is the central phenomenon to be researched. What is a central phenomenon in qualitative research? Let's discuss this point.

The central phenomenon in qualitative research

A central component of both the purpose statement and the research questions in qualitative research is the central phenomenon. The central phenomenon is the concept or a process explored in qualitative research. For example:

- Experiences of English teacher during virtual classes
- Students' views about learning English with the help of videogames

Questions and purposes may change because the qualitative researcher allows the participants to set the direction, and in doing so, the researcher learns the participants' views rather than imposing his or her own view on the research situation.

Qualitative research questions

Qualitative research questions are open-ended, general questions that the researcher would like answered during the study.

When designing and writing this question, several strategies may be helpful:

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EXAMPLE:

How is (the central phenomenon) for (participants) at (research site)?

Beginning word: "How"

Central phenomenon: importance of native-like English pronunciation

Participants: students of 2nd year of Bachillerato (senior high school)

Research site: x High School

So, the question is: How important is native-like English pronunciation for students of 2nd year of Bachillerato (senior high school) at x High School?

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Summary

Creswell (2015) discusses the following aspects to be considered when collecting qualitative data.

Collecting qualitative data

Qualitative data collection is more than simply deciding on whether you will observe or interview people. You can follow some steps that are similar to the steps of collecting quantitative research, but they have some differences. In this respect, when collecting qualitative data, you need to identify your participants and sites, gain access, determine the types of data to collect, develop data collection forms, and administer the process in an ethical manner.

Some basic differences between quantitative and qualitative data collection are helpful to know at this point. For instance, Creswell (2015) points out the following:

- In *quantitative* research, we systematically identify our participants and sites through random sampling; in *qualitative* research, we identify our participants and sites on purposeful sampling, based on places and people that can best help us understand our central phenomenon.
- In both *quantitative* and *qualitative* research, we need permissions to begin our study, but in *qualitative* research, we need greater access to the site because we will typically go to the site and interview people or observe them.
- In both approaches, we collect data such as interviews, observations, and documents. In *qualitative* research, our approach relies on general interviews or observations so that we do not restrict the views of participants.
- Finally, studying people in their own environment creates challenges for the qualitative researcher that may not be present in *quantitative* research when researchers send anonymous questionnaires or bring individuals into the experimental laboratory.

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As you can see, the sampling techniques to identify participants and sites in qualitative research are different from those in quantitative research. In qualitative research, we typically apply purposeful and convenience sampling. These procedures of sampling are essential to select the participants and sites for your study. Thus, our next point to be discussed will be the identification of participants and sites.

1) Identify your participants and sites

In *quantitative* research, we systematically identify our participants and sites through random sampling (selecting representative individuals, and then generalizing from these individuals to a population). In *qualitative* research, we try not to generalize to a population, but to develop an in-depth exploration of a central phenomenon. For this purpose, we identify our participants and sites on purposeful sampling, which means that we purposefully or intentionally select places and people that can best help us understand our central phenomenon. This is a difference between quantitative “random sampling” and qualitative “purposeful sampling”.

In purposeful sampling, researchers intentionally select individuals and sites to learn or understand the central phenomenon. In other words, the participants or sites selected will be those who can provide the best data for our research study. In any given qualitative study, you may decide to study a site (e.g., one college campus), several sites (three high schools), individuals or groups (students from junior high school), or some combination (three high schools and students from junior high school on those sites). Let's see the following example of purposeful sampling.

EXAMPLE:

This qualitative study used the purposeful sampling technique to select 6 teachers from the English Language Department. The criteria of selection was based on the teachers' years of experience and their regular use of technology in the classroom so they could provide more and richer data for the research questions entertained in the present research study.

In qualitative research, you typically study a few individuals or a few cases because the researcher has to provide an in-depth study of the participants. In some cases, you might study a single individual or a single site. In other cases, the number may be several, ranging from 1 or 2 to 30 or 40. Because of the need to report details about each individual or site, the larger number of cases can become unwieldy and result in superficial perspectives. Moreover, collecting qualitative data and analyzing it takes considerable time, and the addition of each individual or site only lengthens that time (Creswell, 2015).

Before collecting data from the target sample, it is necessary to obtain permission to contact the potential participants, find them, and build the type of relationship, which permits obtaining data. These would be the first to obtain permission. It is also worth mentioning that the participants can stop participating in your study when they wish. Regarding the access to research sites, some places can be difficult to access because some people may show resistance to being asked questions and giving permission is not an obligation.

The levels of access are 1) access to the people in the institution who have "the key" for the group of participants and for the place of interest for the study; 2) access to potential participants; and 3) access the information itself, that is, to the data.

During the process of obtaining data, the way of dressing and the manners must be such that they facilitate the process. There should also be a negotiation process in which issues of reciprocity are present, that is, of mutual benefit and

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ethical issues, such as not causing damage to people or to the institution's good name for having granted access to the information. We are going to discuss these points below.

2) Permission to gain access to participants and sites

Similar to quantitative research, gaining access to the site or individual(s) in qualitative inquiry involves obtaining permissions at different levels (e.g. the organization, the site, the individuals) due to the in-depth nature of extensive and multiple interviews with participants.

For example, it might be helpful for you to identify and make use of a gatekeeper (a person who has an official or unofficial role at the site, provides entrance to a site, helps researchers locate people, and assists in the identification of places to study). This person may be a teacher, a principal, a group leader, or the informal leader of a special program. Identifying a gatekeeper at a research site and winning his or her support and trust may take time.

To gain permission, you might be required to submit written information about the project to proceed. According to Creswell (2015), such information might include:

- Why their site was chosen for study
- What will be accomplished at the site during the research study (i.e., time and resources required by participants and yourself)
- How much time you will spend at the site
- What potential there is for your presence to be disruptive
- How you will use and report the results
- What the individuals at the site will gain from the study

3) Types of qualitative data to be collected

Another aspect of qualitative data collection is to identify the types of data that will address your research questions. Thus, it is important to become familiar with your questions and topics, and to review them before deciding upon the types of qualitative data that you will collect.

In addition, you collect multiple types of information, and you may add new forms of data during the study to answer your questions. You will also conduct extensive data collection, spending a great deal of time at the site where people work, play, or engage in the phenomenon you wish to study. At the site, you will gather detailed information to establish the complexity of the central phenomenon.

We can see the varied nature of qualitative forms of data when they are placed into the following categories:

- Observations
- Interviews and questionnaires
- Documents
- Audiovisual materials

We are going to start discussing observations. For this purpose, we are going to read the information on the following resource: [Qualitative observation](#) and learn about the definition of qualitative observation, its characteristics and types.

I hope that you have learned the aforementioned aspects about observation. Remember that observation is the process of gathering open-ended, firsthand information by observing people and places at a research site. Observing in a setting requires good listening skills and careful attention to visual detail. The types of observation mentioned are four: complete observer, observer as participant, participant as observer, and complete participant. If you do not remember the characteristics of each type, you can read this part of the resource above again.

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The advantages of observation include the opportunity to record information as it occurs in a setting, to study actual behavior, and to study individuals who have difficulty verbalizing their ideas (e.g., preschool children). Some of the disadvantages of observations are that you will be limited to those sites and situations where you can gain access, and in those sites, you may have difficulty developing rapport with individuals.

Another way to obtain qualitative information is the use of interviews. Let's read the following article [Qualitative interview](#) to learn about some characteristics and types of the qualitative interview. After reading this information, let me ask you some questions about it.

- What is a qualitative interview?
- What is the main difference between a semi-structured and an unstructured interview?
- What is the best way to capture interview data, handwritten notes during the interview or recordings of the conversation?
- What is a focus group?

Well, in the information on the website above, you will see that a qualitative interview is a type of framework in which the practices and standards be not only recorded, but also achieved, challenged and as well as reinforced.

In qualitative research, we usually use unstructured and semi-structured interviews. Unstructured interview resembles a conversation more than an interview and is always thought to be a “controlled conversation.”. In contrast, semi-structured interviews are those in-depth interviews where the respondents have to answer preset open-ended questions.

Hand written notes during the interview are relatively unreliable, and the researcher might miss some key points. The recording of the interview makes it easier for the researcher to focus on the interview content and the verbal prompts and thus enables the transcriptionist to generate “verbatim transcript” of the interview.

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As for the focus groups, they can be defined as invited groups of people are interviewed in a discussion setting in the presence of the session moderator and generally these discussions last for 90 minutes. Now, let's talk about some characteristics of the interviews as well as other types of qualitative data to be collected, specifically, documents and audiovisual materials.

A qualitative interview occurs when researchers ask one or more participants general, open-ended questions and record their answers. In *qualitative* research, you ask **open-ended questions** so that the participants can express their experiences without the restriction of any perspectives of the researcher or previous research findings. An **open-ended response** to a question allows the participant to create the options for responding. The researcher often records the conversation and transcribes the information into words for analysis.

Documents consist of public and private records that qualitative researchers obtain about a site or participants in a study, and they can include newspapers, minutes of meetings, personal journals, and letters. These sources provide valuable information in helping researchers understand central phenomena in qualitative studies. They represent public and private documents.

Audiovisual materials consist of images or sounds that researchers collect to help them understand the central phenomenon under study. In qualitative research, sometimes we can obtain information from images or visual materials such as photographs, videotapes, digital images, paintings and pictures. The advantage of using visual materials is that people easily relate to images, which provide an opportunity for the participants to share directly their perceptions of reality.

At this point, it is important to mention that the collection of qualitative data involves some issues that will be addressed below.

4) ***Issues when collecting qualitative data***

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When collecting data, researchers who engage in qualitative studies typically face issues that they need to solve. Furthermore, because qualitative research involves going to the research sites of the participants, staying a considerable time, and asking detailed questions, ethical issues need to be taken into account.

Field Issues

- Before conducting a study, it is important to anticipate potential issues that might arise during data collection. For example:
- Anticipate the amount of time it will take to recruit participants to your study and the difficulty of recruitment.
- Prepare your equipment (for your interviews and observations) adequately.
- Conduct your interviews or observations appropriately.
- Anticipate the amount of time that may be required to locate, obtain permission for, and secure both public and private documents for your research.
- Remind participants a few days before data collection of the exact time and day you will observe or interview them.
- Stage the data collection so that they will feel comfortable responding, and schedule it at a time that is most convenient to them.
- Be realistic about the amount of time the data collection will take, and convey this time to the participants

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When collecting data for a qualitative study, a researcher seeks an in-depth description of a phenomenon. Participants may be asked to discuss private details of their life experiences over a period of time. This process requires a sufficient level of trust based on a high level of participant disclosure.

It begins with the identification of some guidelines for ethical practices, and then reviews key issues likely to arise, such as informing participants of the purpose of the study, refraining from deceptive practices, sharing information with participants (including your role as a researcher), being respectful of the research site, reciprocity, using ethical interview practices, maintaining confidentiality, and collaborating with participants.

Source: Creswell, J. W. (2015). *Educational research: Planning, conducting, and evaluating quantitative*. New Jersey: Upper Saddle River.

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Summary

According to Creswell (2015), we can have the following types of interviews.

Types of Interviews

You have to consider what form of interviewing will best help you understand the central phenomenon and answer the questions in your study. There are a number of approaches to interviewing. You need to choose the right interview approach to be used depending on the accessibility of individuals, the cost, and the amount of time available.

One-on-one interviews. Although this approach is popular in the education field, it is time-consuming and costly approach. The **one-on-one interview** is a data collection process in which the researcher asks questions to and records answers from only one participant in the study at a time. In a qualitative project, you may use several one-on-one interviews. One-on-one interviews are ideal for interviewing participants who are not hesitant to speak, who are articulate, and who can share ideas comfortably.

Focus group interviews. A **focus group interview** is the process of collecting data through interviews with a group of people, typically four to six. The researcher asks a small number of general questions and elicits responses from all individuals in the group. Focus groups are advantageous when you are likely to obtain the best information from the interaction and cooperation among the interviewees. They are also useful when the time to collect information is limited and people are hesitant to provide information.

When conducting a focus group interview, encourage all participants to talk and to take their turns talking. A focus group can be challenging for the interviewer who lacks control over the interview discussion. Also, when focus groups are recorded, the transcriptionist may have difficulty discriminating among the voices of individuals in the group. Another problem with conducting focus group

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interviews is that the researcher often has difficulty taking notes because so much is occurring.

Telephone interviews. It may not be possible for you to gather groups of individuals for an interview or to visit one-on-one with single individuals. The participants in a study may be geographically dispersed and unable to come to a central location for an interview. In this situation, you can conduct telephone interviews. Conducting a **telephone interview** is the process of collecting data using the telephone and asking a small number of general questions. One disadvantage of this approach is that the researcher does not have direct contact with the participant. This causes limited communication that may affect the researcher's ability to understand the interviewee's perceptions of the phenomenon. Also, the process may involve substantial costs for telephone expenses.

E-mail interviews. Another type of interview useful in collecting qualitative data quickly from a geographically dispersed group of people is the use of **E-mail interviews**, which consist of collecting open-ended data through interviews with people by using computers and the Internet. If you can obtain e-mail lists or addresses, this form of interviewing provides rapid access to large numbers of people and a detailed, rich text database for qualitative analysis. However, e-mail interviewing might involve complex ethical issues, such as whether you have permission for individuals to participate in your interview, and whether you will protect the privacy of responses. In addition, sometimes it may be difficult to obtain lists of e-mail addresses that are current or the names of individuals who will be well suited to answer your questions. Despite these potential problems, the use of e-mail interviewing as a form of collecting data will probably increase due to expanding technology.

Source: Creswell, J. W. (2015). *Educational research: Planning, conducting, and evaluating quantitative*. New Jersey: Upper Saddle River.

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Conducting an interview

According to Creswell (2015), the following recommendations can be followed to conduct an interview.

1. *Identify the interviewees.* Use one of the purposeful sampling strategies discussed earlier in this chapter.
2. *Determine the type of interview you will use.* Choose the one that will allow you to best learn the participants' views and answer each research question. Consider a telephone interview, a focus group interview, a one-on-one interview, an e-mail interview, a questionnaire, or some combination of these forms.
3. *During the interview, record the questions and responses.* This will give you an accurate record of the conversation. Use adequate recording procedures and equipment.
4. *Take brief notes during the interview.* Although you should record the interview, it is also a good idea to take notes in case something happens with the technology. You record these notes on a form called an *interview protocol*. Recognize that notes taken during the interview may be incomplete because of the difficulty of asking questions and writing answers at the same time.
5. *Locate a quiet, suitable place for conducting the interview.* If possible, interview at a location free from distractions and choose a physical setting ideal for recording.
6. *Obtain consent from the interviewee to participate in the study.* Obtain consent by having interviewees complete an informed consent form that includes the purpose of the study, the time the interview will take to complete,

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the plans for using the results from the interview, and the availability of a summary of the study when the research is completed).

7. *Have a plan, but be flexible.* During the interview, stick with the questions, but be flexible enough to follow the conversation of the interviewee. Complete the questions within the time specified (if possible) to respect and be courteous of the participants. Remember that a key to good interviewing is to be a good listener.

8. *Use probes to obtain additional information.* **Probes** are subquestions (e.g. "Tell me more.;" "Could you explain your response more?;" "I need more detail.;" "What does 'not much' mean?;" "Give me an example, please.") under each question that the researcher asks to elicit more information. Use them to clarify points or to have the interviewee expand on ideas.

9. *Be courteous and professional when the interview is over.* Complete the interview by thanking the participant, assuring him or her of the confidentiality of the responses, and asking if he or she would like a summary of the results of the study.

Source: Creswell, J. W. (2015). *Educational research: Planning, conducting, and evaluating quantitative*. New Jersey: Upper Saddle River.

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Elements of the interview protocol

According to Creswell (2015), the typical elements that you should consider in an interview protocol are the following:

- A header to record essential information about the interview, statements about the purpose of the study, a reminder that participants need to sign the consent form, and a suggestion to make preliminary tests of the recording equipment. Other information you might include in the header would be the organization or work affiliation of the interviewees; their educational background and position; the number of years they have been in the position; and the date, time, and location of the interview.
- The questions to be asked, which will include icebreakers (to relax the interviewers and motivate them to talk), core questions related directly to your research topic, and probes to encourage participants to clarify the points that they express or elaborate on their ideas. A pilot test of them on a few participants can usually help you decide which ones to use.
- You provide space between the questions so that the researcher can take short notes about comments made by interviewees.
- It is helpful for you to memorize the wording and the order of the questions to minimize losing eye contact. Provide appropriate transitions from one question to the next.
- Closing comments remind you to thank the participants and assure them of the confidentiality of the responses.

Let's see the following example in order to clarify the elements mentioned above.

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Interview Protocol

Project:

Time of Interview:

Date:

Place:

Interviewer:

Interviewee:

Position of Interviewee:

[Describe here the project, telling the interviewee about (a) the purpose of the study, (b) the individuals and sources of data being collected, (c) what will be done with the data to protect the confidentiality of the interviewee, and (d) how long the interview will take.]

[Have the interviewee read and sign the consent form.]

[Turn on the recorder and test it.]

Questions:

- 1.
- 2.
- 3.
- 4.

(Thank the individuals for their cooperation and participation in this interview. Assure them of the confidentiality of the responses and the potential for future interviews.)

Source: Creswell (2015)

Source: Creswell, J. W. (2015). *Educational research: Planning, conducting, and evaluating quantitative*. New Jersey: Upper Saddle River.

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Summary

According to Creswell (2015), we can follow the following steps for preparing and organizing qualitative data.

Preparing and organizing the data

Initial preparation of the data for analysis requires organizing the vast amount of information, transferring it from spoken or written words to a typed file and making decisions about whether to analyze the data by hand or by computer.

1) *Organizing data*

An early stage in qualitative analysis involves the organization of data into file folders or computer files. This stage is critical in qualitative research because of the large amount of information gathered during a study. For example, a 30-minute interview might result in about 20 pages of single-spaced transcription. The transcription and organization of this large amount of data requires a system of organization (e.g. a matrix or table of sources, organizing the materials by type, copies of all forms of data).

2) *Transcribing data*

Transcription is the process of converting audiotape recordings or fieldnotes into text data. During qualitative data collection, you will collect text or words through interviewing participants or by writing fieldnotes during observations. This needs to be converted to a computer document for analysis. Generally, it takes approximately 4 hours to transcribe 1 hour of tape. Hence, the process of transcription is labor intensive and you will need to allow adequate time for it. See the following example of an excerpt of a transcription:



EXAMPLE:

Researcher: "So, tell me, how did you start using microblogging in your lessons?"

Teacher: "That was something that I found out by accident, but it fascinated me. First, I started using Twitter..."

3)Analyzing by hand or computer

Researchers have a choice about whether to hand analyze data or to use a computer. The hand analysis of qualitative data means that researchers read the data, mark it by hand, and divide it into parts. A hand analysis may be preferred when you:

- Are analyzing a small database (e.g., fewer than 500 pages of transcripts or fieldnotes) and can easily keep track of files and locate text passages.
- Are not comfortable using computers or have not learned a qualitative computer software program.
- Want to be close to the data without the intrusion of a machine.
- Have time to commit to a hand analysis, since it is a labor-intensive activity to manually sort, organize, and locate words in a text database.

A computer analysis of qualitative data means that researchers use a qualitative computer program to facilitate the process of storing, analyzing, sorting, and representing or visualizing the data. Use a computer program when you...

- are analyzing a large database (e.g., more than 500 pages of transcripts or fieldnotes) and need to organize and keep track of extensive information.
- are adequately trained in using the program and are comfortable using computers.
- have resources to purchase a program or can locate one to use.
- need a close inspection of every word and sentence to capture specific quotes or meanings of passages.

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4)Using qualitative computer programs

Qualitative computer programs do not analyze the data for you. However, they do provide several convenient features that facilitate your data analysis. A qualitative data analysis computer program is a program that stores data, organizes your data, enables you to assign labels or codes to your data, and facilitates searching through your data and locating specific text or words.

Now, one important process in the analysis of qualitative information is the use of coding. This coding process is different to the one you studied in quantitative information.

Coding is a method used to analyze by identifying themes or codes that appear in our qualitative data. Coding is like putting things into categories. Codes are tags or labels for assigning units of meaning. Codes are usually attached to words, phrases, sentences, or whole paragraphs. On the other hand, a theme is a common recurring pattern across a data set, clustered around a central organizing concept. Before coding, it is important to organize and transcribe your data. We will address these points below:

5)Exploring and coding the database

After you have organized and transcribed your data and decided whether to hand or computer analyze it, it is time to begin data analysis. This consists of exploring the data and developing codes as first steps in analysis.

6)Exploring the general sense of the data

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The first step in data analysis is to explore the data. A preliminary exploratory analysis in qualitative research consists of exploring the data to obtain a general sense of the data, taking notes, thinking about the organization of the data, and considering whether you need more data. Writing notes (short phrases, ideas, or concepts that occur to you) in the margins of fieldnotes or transcripts, or under photographs, helps in this initial process of exploring the data.

It is also important to mention that when you code the data, you need to find categories and themes of the data available. Once you have created the codes, you put similar codes into the same categories so you will be able to detect themes for your data. In summary the categorization of codes leads to themes. We will explain this topic below.

7) Coding the data

The next step of analyzing qualitative information is to code the data. Coding is the process of segmenting and labeling text to form descriptions and broad themes in the data. The purpose of the coding process is to make sense out of text data, divide it into text or image segments, label the segments with codes, examine codes for overlap and redundancy, and collapse these codes into broad themes. Thus, this is an inductive process of narrowing data into a few themes. Furthermore, in this process, you will select specific data to use and disregard other data that do not specifically provide evidence for your themes.

Several steps are involved in coding data. Although there is no definite procedure, Creswell (2015) recommends the following steps:

1. Get a sense of the whole. Read all of the transcriptions carefully. Write in the margins some ideas as they come to mind.

2. Pick one document (e.g., one interview, one fieldnote). Choose the most interesting, the shortest, or the one on the top of the pile. Go through it. Consider the underlying meaning and write it down in the margin in two or three words, drawing a box around it.

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3. Begin the process of coding the document. This process involves identifying text segments, placing a bracket around them, and assigning a code word or phrase that accurately describes the meaning of the text segment. Sentences or paragraphs that all relate to a single code are called a text segment. Codes are labels used to describe a segment of text or an image. Codes can address many different topics (e.g. setting and context, participant's opinions, processes, activities, strategies, social structure, etc.).

Reduce the list of codes to get five to seven themes or descriptions of the setting or participants. Themes (also called *categories*) are similar codes aggregated together to form a major idea in the database. For this purpose, identify the five to seven themes by examining codes that the participants discuss most frequently, are unique or surprising, have the most evidence to support them, or are those you might expect to find when studying the phenomenon. The reason for the small number of themes is that it is best to write a qualitative report providing detailed information about a few themes rather than general information about many themes.

This is a table of an example of coding and their descriptions.

Table 4: Example of coding and descriptions in qualitative research.

Table 2. Coding scheme for students' interviews and think-aloud protocols

Code	Description
1. Acceptance of TWF	Expressing acceptance or agreement to written feedback.
2. Comprehension	Showing understanding of TWF.
3. Difficulties in TWF	Difficulties in understanding a particular written feedback.
4. Evaluation of draft/ class/self	Expresses his/her evaluation of himself/herself, writing or class in general.
5. Evaluation of Written feedback	Giving evaluative expression or sentences of a written feedback he/she received.
6. Feeling	Expressing his/her feeling to written feedback
7. Lack of understanding of TWF	Expressing his/her lack of understanding of written feedback he/she received.
8. Past experience	Past experience of writing instruction.
9. Rejection of TWF	Expressing his/her disagreement/rejection of teacher written comments or correction.
10. Suggestion for TWF	Giving suggestions or a piece of advice for the improvement of written feedback.
11. Usefulness of TWF	Identifying a particular feedback as useful.
12. Wants	Expressing his needs/wants/ preferences.

Source:

Mahfoodh, O. H. A., & Pandian, A. (2011). A Qualitative Case Study of EFL Students' Affective Reactions to and Perceptions of Their Teachers' Written Feedback. *English Language Teaching*, 4(3), 14-25.

As you have seen in the examples above, the creation of codes and themes in qualitative data analysis is not an easy task. We will talk about the description of findings and the formation of themes.

8)Describing findings and forming themes

In a qualitative research study, you need to analyze the data to form answers to your research questions. This process involves examining the data in detail to describe what you learned, and developing themes or broad categories of ideas from the data. Describing and developing themes from the data consists of answering the major research questions and forming an in-depth understanding

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of the central phenomenon through description and thematic development. Not all qualitative projects include both description and themes, but all studies include at least themes.

A description is a detailed rendering of people, places, or events in a setting in qualitative research. See the following example.

EXAMPLE:

You might use codes such as “seating arrangements,” “teaching approach,” or “physical layout of the room” to describe a classroom where instruction takes place.

In some forms of qualitative research design, the researcher provides a considerable description of the setting. Developing detail is important, and the researcher analyzes data from all sources (e.g., interviews, observations, documents) to build a portrait of individuals or events. In providing detailed information, description can transport the reader to a research site or help the reader visualize a person. It takes experience and practice to describe the detail in a setting.

In addition to description, the use of themes is another way to analyze qualitative data. Like codes, themes have labels that typically consist of no more than two to four words (e.g., “denial,” “campus planning”). Through initial data analyses, you may find 30 to 50 codes. In subsequent analyses, you reduce these codes to five to seven major themes through the process of eliminating redundancies.

You will see many qualitative studies that stop at reporting description and themes. However, you can add additional rigor and insight into your study by layering themes or interconnecting them.

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Summary

According to Mackey and Gass (2011), Ethnography has the following characteristics:

Ethnography

First of all, Ethnography studies the practices of human social and cultural groups. According to Mackey and Gass (2011), a recent trend is critical ethnography, which seeks not only to describe but also to critique classroom practices by situating them within larger political contexts (e.g., state language policies). Mackey and Gass (2011) also present the following characteristics of ethnography:

One of the basic principles of ethnography is its longitudinal design. The aim of ethnography is to understand what a group's practices mean to its members, and developing this understanding requires immersion in the research setting for an extended period of time. At the same time the researcher must maintain some degree of detachment in order to observe, describe, and analyze community practices.

Regarding data collection in this types of research design, the main methods include observation and field notes, interviews, collection of artifacts, and recordings of culturally salient interactions. In a classroom ethnography, a researcher would typically spend a semester or more at the research site (usually these types of studies could last one or more years), observe and record lessons on a regular basis, interview teachers, students, parents, and school staff, and collect materials such as textbooks, handouts, exams, and student records. Participant observation, in which the researcher participates directly in the community (e.g., as a teacher's aide), is often employed. Furthermore, ethnographers might also conduct observations outside of the classroom (e.g., in students' homes or in the local community) in order to situate classroom practices within a larger context.

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The stage of data analysis in ethnography is aimed to a description that is rich in detail and incorporates multiple perspectives, which is called thick description. This is done through triangulation, in which multiple methods, theories, viewpoints, and sources of data are applied to the analysis. For example, a thick description of an instance of error correction might include a micro-analysis of the correction sequence itself, comparisons with other error-correction sequences, perspectives of teacher and students on corrective feedback, analysis of how the textbook presents rules of usage, and attitudes of the local community regarding correct language.

In qualitative research related to language learning, the analysis of certain features of language is also conducted. Conversation and discourse analysis are among the most common ways to analyze language. We will discuss these types of qualitative approaches below.

Mackey, A., & Gass, S. M. (Eds.). (2011). *Research methods in second language acquisition: A practical guide* (Vol. 7). John Wiley & Sons.

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Summary

According to Mackey and Gass (2011), Conversation and discourse analysis have the following characteristics:

Conversation analysis

Mackey and Gass (2011) state that Conversation Analysis (CA) research can be divided into *pure CA*, which looks for instances of a phenomenon across different contexts in order to establish what interactional resources are available, and *applied CA*, which investigates how these resources are employed in specific instances of interaction.

CA researchers are interested in what the talk means to participants, not to the researcher. This means that the researcher does not apply pre-determined categories to the data, but instead examines how participants orient to the talk and to each other through the talk. For CA practitioners, *context* refers to the local interactional context, that is, the talk preceding and following a particular utterance. Factors that are outside of the interaction such as gender, social relationships, or the setting are not considered unless the participants show through their talk that these features are important.

In CA, data collection consists of audio or video recordings of naturally occurring talk. Recordings are transcribed with a high level of detail on the assumption that even seemingly minor phenomena (e.g., an audible intake of breath) can be important. Other forms of data collection, such as interviews or stimulated recalls, are not used in CA because the analytical focus is not on participants' subsequent accounts of what they thought or intended at a given point in the interaction. The central unit of analysis is the *sequence*, which is a series of turns at talk that implement a course of action. A CA analysis focuses on how turns are constructed and how they build upon one another to construct sequences. There can also be analysis based on video-recorded interactions that incorporate objects that participants orient to in the talk and paralinguistic features such as eye gaze and gestures.

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Now, we will see now what Mackey and Gass (2011) tell us about discourse analysis.

Discourse analysis

Discourse analysis can refer to any procedure in which the analyst focuses on linguistic or structural features rather than content. The analysis of interaction in discourse analysis includes a few basic aspects.

It is important to review the recording. Transcripts are useful tools; however, we analyze data, not transcripts. Reviewing recordings before beginning analysis often reveals details that were missed or inaccurately rendered during transcription and re-engages the researcher with the original data.

In order to establish a general picture, it is necessary to take notes of major features such as setting, participants and their relationships, activities in which participants are engaged, and what each participant is doing.

The researcher should also focus on structural features by looking at how the interaction is constructed. Questions to be considered include the following:
Does one person dominate? How do participants get a chance to take the floor?
How do turns relate to each other? What do objects or non-verbal features contribute to the interaction?

The analysis can begin by identifying patterns, recurrent features, or other notable aspects of the interaction. How the analysis develops beyond this preliminary stage will depend on the purpose of the research and the phenomena that have been selected as the main purpose.

Qualitative research typically begins with a broadly worded research question or statement of purpose that is refined as the research progresses and findings begin to emerge. For example, an ethnography might propose to “investigate



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Summary

According to Creswell (2015), Grounded Theory has the following characteristics.

Grounded theory

A grounded theory design is a systematic, qualitative procedure used to generate a theory that explains, at a broad conceptual level, a process, an action, or an interaction about a substantive topic. In grounded theory research, this theory is a “process” theory—it explains an educational process of events, activities, actions, and interactions that occur over time. Also, grounded theorists proceed through systematic procedures of collecting data, identifying categories, connecting these categories, and forming a theory that explains the process.

You use grounded theory when you need a broad theory or explanation of a process. Grounded theory *generates* a theory when existing theories do not address your problem or the participants that you plan to study. Since this theory is “grounded” in the data, it provides a better explanation than an already stated theory because it fits the situation, actually works in practice may represent all of the complexities actually found in the process. You also use grounded theory when you want to study some process (e.g. how students develop as writers). It also is used to explain actions of people (e.g. the process of participating in an adult education class), or an interaction among people.

Creswell (2015) talks about the following characteristics that grounded theory researchers use in their designs: process approach, theoretical sampling, constant comparative data analysis, a core category, theory generation, and memos.

A process approach

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Although grounded theorists might explore a single idea, they more frequently examine a process because the social world involves the interaction of people.

A **process in grounded theory research** is a sequence of actions and interactions among people and events related to an educational topic in this case (e.g. achievement assessment). In this topic, researchers can isolate and identify actions and interactions among people. Grounded theorists call these isolated aspects categories (themes of basic information identified in the data by the researcher and used to understand a process). A category for the process between a school counselor and student, for example, may be the student's understanding of "success" in the session.

Several types of labels or titles are used for themes or categories. In grounded theory research, a frequently used form is *in vivo* codes. **In vivo codes** are labels for categories (or themes) that are phrased in the exact words of participants, rather than in the words of the researcher or in social science or educational terms.

Theoretical sampling

The data collected by grounded theorists includes many forms of qualitative information. Researchers can collect observations, conversations, interviews, public records, respondents' diaries and journals, and the researcher's own personal reflections. Grounded theorists sample theoretically using a procedure involving the simultaneous and sequential collection and analysis of data.

Theoretical sampling in grounded theory means that the researcher chooses forms of data collection that will result in text and images useful in generating a theory. This means that the sampling is intentional and focused on the generation of a theory.

Constant comparative data analysis



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In this type of research, the researcher gathers data, divides it into categories, collects additional information, and compares the new information with emerging categories. This process of developing categories of information is the constant comparative procedure. **Constant comparison** is an inductive (from specific to broad) data analysis procedure in grounded theory research of generating and connecting categories by comparing incidents in the data to other incidents, incidents to categories, and categories to other categories. The purpose is to support the categories with the data obtained.

A core category

From among the main categories derived from the data, the researcher selects a core category as the central phenomenon for the theory. After identifying several categories, the researcher selects a **core category** as the basis for writing the theory. The researcher makes this selection based on several factors, such as its relationship to other categories, its frequency of occurrence, and its clear implications for development of theory. It is a category that can be the center or main theme of the process.

Theory generation

During the process of determination of a core category and the process categories that explain it, grounded theorists have generated a middle-range theory. The entire procedure leads to generating a theory based on data collected by the researcher. This **theory in grounded theory research** is an abstract explanation or understanding of a process about a substantive topic grounded in the data. This theory is close to the data, but it does not have wide applicability or scope in comparison to known theories that apply to many people and situations. This theory is not a “minor working hypothesis” that only applies to a given classroom either. Instead, the theory is a middle-range theory



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obtained from multiple individuals or data sources, which provides an explanation for a substantive topic.

Memos

In grounded theory, researchers create memos about the data. **Memos** are notes written throughout the research process to elaborate on ideas about the data and the coded categories. In these notes, the researcher explores hunches, ideas, and thoughts, and then takes them apart, always searching for the broader explanations at work in the process. Memos help direct the researcher toward new sources of data, and shape which ideas to develop further. However, grounded theory studies do not often report memoing, or if they do, they do not provide evidence of how it was used.

Source: Creswell, J. W. (2015). *Educational research: Planning, conducting, and evaluating quantitative*. New Jersey: Upper Saddle River.

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Summary

According to Creswell (2015), Mixed-methods design has the following characteristics.

Mixed-methods design

A **mixed methods research design** is a procedure for collecting, analyzing, and “mixing” both quantitative and qualitative methods in a single study or a series of studies to understand a research problem. The basic assumption is that the uses of both quantitative and qualitative methods, in combination, provide a better understanding of the research problem and question than either method by itself.

If you use this design, you need to understand *both* quantitative and qualitative research. This makes this type of design an advanced methods procedure. The procedures are time consuming, requiring extensive data collection and analysis. Furthermore, mixed methods research is not simply collecting two different types of data (qualitative and quantitative). It consists of merging, integrating, linking, or embedding these data.

Reasons for using a mixed-methods design

There are several reasons for using a mixed methods design to conduct a study. In general, you conduct a mixed methods study when you have both quantitative and qualitative data and both types of data, together, provide a better understanding of your research problem than either type by itself. Mixed methods research is a good design to use if you need the advantages of both quantitative and qualitative data.

Quantitative data (e.g. scores on instruments) result in specific numbers that can be statistically analyzed, can indicate trends, and can provide useful

information if you need to describe trends about a large number of people. On the other hand, qualitative data (e.g. information/words from open-ended interviews) offer many different perspectives on the study topic and provide a complex picture of the situation. The correct combination of quantitative and qualitative data can be effective. See the following example.

EXAMPLE:

By assessing both outcomes of a study (i.e., quantitative) as well as the process (i.e., qualitative), we can develop a complex picture of social phenomenon.

You also conduct a mixed methods study when one type of research (qualitative or quantitative) is not enough to address the research problem or answer the research questions. More data is needed to extend, elaborate on, or explain the first database. Let's see the following example.

EXAMPLE:

A researcher may want to first explore the data qualitatively to develop an instrument or to identify variables to test in a later quantitative study. He/she engages in a mixed methods study when attempting to follow up a quantitative study with a qualitative one to obtain more detailed, specific information than can be gained from the results of statistical tests.

You use mixed methods when you want to provide an alternative perspective in a study. Take a look at the following examples.

EXAMPLES:

An experimental study in which the experiment yields useful information about results, but the additional collection of qualitative data helps us to understand more how the experimental intervention actually worked.

Another example would be when you need both the “numbers” and the “stories” about an issue. These different sources of information provide both a general understanding of a problem as well as the detail.

Once we have learned something about when to use a mixed-method approach, it is also necessary to familiarize ourselves with some characteristics, strengths, and weaknesses of this type of research design. As you already know, this approach analyzes both qualitative and quantitative data, so there should be a collection of both open and closed-ended data (qualitative and quantitative data) by applying rigorous data collection procedures. These two type of data must be integrated by merging by merging, connecting, and embedding.

Strengths of the mixed-method approach include:

- Mixed methods research can be used to increase the generalizing of the results.
- The researcher can provide stronger evidence for a conclusion through convergence and corroboration of findings.
- The researcher can add insights and understanding that might be missed only a single method is used.
- The researcher can answer a broader and more complete range of research question because he is not confined to a single method or approach.
- Words, pictures and narrative can be used to add meaning to numbers and numbers can be used to add precision to words and narrative.
- Provides the strengths of both qualitative and quantitative research.

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- Lastly, qualitative and quantitative research used together produce more complete knowledge necessary to inform theory and practice.

Strengths of the mixed-method approach include:

- Researcher has to learn about multiple methods and approaches and understand how to mix them appropriately.
- It can be difficult for a single researcher to carry out both qualitative and quantitative research, especially if two or more approaches are expected to be used concurrently, it may require a research team.
- It is more time consuming.

Now, let's further discuss the characteristics of a mixed-methods design.

Main characteristics of mixed methods designs

Creswell (2015) reviews the following six characteristics, that you may consider incorporating if you plan to conduct a mixed methods study. These characteristics include providing a rationale for design, including the collection of quantitative and qualitative data, considering priority, considering sequence, matching the data analysis to a design, and diagramming the procedures.

Provide a rationale for the design

Mixed methods researchers include a justification or rationale for the use of both quantitative and qualitative data. One justification is that collecting quantitative data in a second stage is important to test the qualitative explorations of the first stage of the study (i.e., exploratory design).

Another reason for conducting a mixed methods study might be that you attempt to explain in more detail through qualitative research the initial quantitative statistical results (i.e., explanatory design) or one form of data plays a supporting role to the other database (i.e., embedded design). Another

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justification results from combining the “best” of both quantitative and qualitative research (i.e., convergent design).

Quantitative research will allow you to gather data from a large number of people and generalize results, whereas, qualitative research permits an in-depth exploration of a few individuals. All in all, you need to mention this rationale early in a study (e.g. the introductory section).

Include collecting quantitative and qualitative data

In a mixed methods study, you should clearly indicate that you are collecting both quantitative and qualitative data. Methods of data collection are typically associated with either numbers or numeric data and words or text and image data. Mixed methods researchers use different methods to collect different forms of data. In a mixed methods study, researchers include specific forms of both quantitative and qualitative data and incorporate this discussion into the methods or procedure section of the study.

Consider priority

Mixed methods researchers often advance a priority for the collection of quantitative and qualitative data. Three options are available to the researcher for prioritizing data:

- Quantitative and qualitative data are of equal weight.
- Quantitative data is of greater weight than qualitative data.
- Qualitative data is of greater weight than quantitative data.

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Priority means that in a mixed methods design, the researcher places more emphasis on one type of data than on other types of data in the research and the written report. This emphasis may result from personal experience with data collection, the need to understand one form of data before proceeding to the next, or the audience reading the research.

Consider sequence

Mixed methods researchers advance the sequence of data collection using concurrent

or sequential approaches or some combination. There are several options for the sequencing of data collection:

- Collecting both quantitative and qualitative data at the same time.
- Collecting quantitative data first, followed by qualitative data.
- Collecting qualitative data first, followed by quantitative data.
- Collecting both quantitative and qualitative at the same time as well as in sequence.

If the purpose of the study is to explain quantitative results further with qualitative data (i.e., explanatory design) or to develop an instrument from qualitative data (i.e., exploratory design), the procedures should clearly indicate this sequence. If the intent of the study is to converge the findings (i.e., convergent design), then the data are collected at the same time, and the researcher is explicit about this process.

Match the data analysis to a design

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One of the most difficult challenges for the mixed methods researcher is how to analyze data collected from qualitative and quantitative research. This is more than simply linking data and numbers, although this connection does present some challenges. To examine options for data analysis, reflect back on the type of design and the options for analysis within each design.

In your study, you can explain quantitative results further with qualitative data (i.e., explanatory design), or to develop an instrument from qualitative data (i.e., exploratory design), or converge the findings (i.e., convergent design)

Diagram the procedures

Mixed methods researchers often provide a visualization or diagram of their design depicting the procedures. A visualization is a figure, which consists of labeling the quantitative and qualitative data, indicating the sequence of activities (e.g. using arrows or plus signs), and emphasizing the priority (e.g. using lowercase or uppercase letters). By including this visualization, the researcher helps readers identify the sequence of data collection, an important aid when collecting multiple forms of data. We can see the following example of a diagram:

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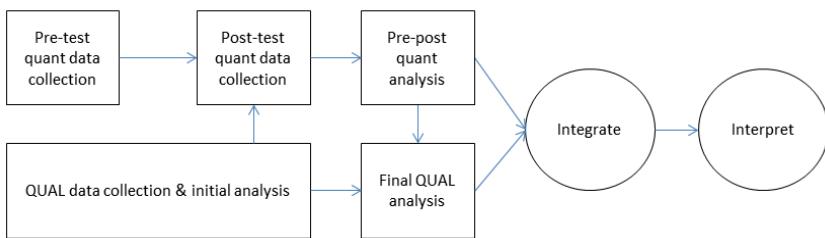


Figure 13. Example of a diagram in a mixed-methods study

Source: https://www.researchgate.net/figure/Diagram-of-mixed-methods-research-design_fig1_262451336

Source: Creswell, J. W. (2015). *Educational research: Planning, conducting, and evaluating quantitative*. New Jersey: Upper Saddle River.

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Summary

According to Creswell (2015), we can mention the following characteristics of action research.

Characteristics of action research

A practical focus

The aim of action research is to address an actual problem in an educational setting. Thus, action researchers study practical issues that will have immediate benefits for education. These issues may be a concern of a single teacher in a classroom or a problem involving many educators in a building, or a school–community issue. Action researchers do not conduct this form of research just to contribute to knowledge; they attempt to solve an immediate, applied problem.

The teacher–researcher's own practices

When action researchers engage in a study, they are interested in examining their own practices rather than studying someone else's practices. In this sense, the purpose is to get involved in participatory or self-reflective research in which researchers study their own educational classroom, school, or practices. As they analyze their own situation, they reflect on what they have learned and what they can do to improve their educational practices. Action researchers experiment with their own practices, monitor the actions and circumstances in which they occur, and interpret the action as a basis for future action. In this reflection, action researchers analyze different solutions to their problems and learn from testing ideas.

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Collaboration

Action researchers collaborate with others (coparticipants). These coparticipants may be individuals within a school or outside personnel such as university researchers or professional association groups. This collaboration involves establishing acceptable relationships, communicating in a sincere and appropriate way, and including all individuals, groups, and issues. Many people and groups may participate in an action research project. People may review results of findings with the researcher, help collect data, or help in the presentation of the final report. In the aspects of the research project that require collaboration, roles may vary and may be negotiated, but the concept of interacting is central to understanding one's practices.

A dynamic process

The process of action research does not follow a linear pattern or a causal sequence from problem to action. Action researchers engage in a dynamic process involving iterations of activities, such as a “spiral” of activities. The key idea is that the researcher “spirals” back and forth between reflection about a problem, data collection, and action. Reflecting, collecting data, trying a solution, and spiraling back to reflection are all part of the process of action research.

A plan of action

At some point in the process, the action researcher formulates an action plan in response to the problem. This plan may be simply presenting the data to important stakeholders, establishing a pilot program, starting several competing programs, or implementing an ongoing research agenda to explore new practices. It may be a formal written plan or an informal discussion about how to

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proceed, and it may engage a few individuals (e.g., students in a classroom) or involve an entire community (e.g., in a participatory research study).

Sharing research

In traditional research, we can report in journal and book publications. However, in action research, we can report our research to educators, who can then immediately use the results. Action researchers often share reports with local schools, community, and educational personnel. Although action researchers publish in scholarly journals, they are typically more interested in sharing the information locally with individuals who can promote change or enact plans within their classroom or building. Action researchers share results with teachers, the building principal, school district personnel, and parent associations. In addition, online journals, Web sites, and discussion blogs provide opportunities for action researchers to publicize their studies.

Source: Creswell, J. W. (2015). *Educational research: Planning, conducting, and evaluating quantitative*. New Jersey: Upper Saddle River.

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Summary

According to Creswell (2015), we can mention the following steps of action research.

Steps of action research

Determine if action research is the best design to use

You might use action research to address a problem, typically one in your work situation or community. You need to have the time to collect and analyze data and to experiment with different options for solving the problem. To help with the process of reflection, you ideally need collaborators with whom to share findings and who can potentially serve as coresearchers on the project. Action research also requires an understanding of the many types of quantitative and qualitative data collection to gather information to determine a plan of action.

Identify a problem to study

The most important factor in action research is that you need to solve a practical problem. This problem may be one that you face in your own practice or in your community. After reflection, you write down the problem or phrase it as a question to answer. In addition to starting with solving a problem, you might enter action research at other points. Action researchers may begin with identifying an area of focus, collecting data, analyzing and interpreting data, or developing an action plan.

Locate resources to help address the problem



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You need to explore several resources to help study the problem. Literature and existing data may help you formulate a plan of action. You may need to review the literature and determine what others have learned about solving the issue. Asking colleagues for advice helps initiate a study as well. Teaming with university personnel or knowledgeable people in the community provides a resource base for an action research project. People who have conducted action research projects can also help you during your research study.

Identify information that you will need

Plan a strategy for collecting data. This means that you need to decide who can provide data, how many people you will study, what people to access, and the rapport and support you can expect to obtain from them. Another consideration is what type of data you need to collect. Your choices are to collect quantitative or qualitative data, or both, so you need to understand the possibilities that exist for both forms of data.

The choice of data sources depends on the questions, time and resources, availability of individuals, and sources of information. In general, the more sources used and the more triangulation among them, the more you will be able to understand the problem and develop feasible action plans.

Implement the data collection

Implementing data collection takes time, especially if you gather multiple sources of information. In addition, your participants may have limited time to complete instruments or participate in interviews. Keeping an accurate record of the information collected, organizing it into data files for numeric or theme analysis, and examining the quality of the information are important data collection steps.

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Analyze the data

You may decide to analyze the data yourself or ask for help. You might show your results to others to find out how they would interpret the findings. In most situations, descriptive statistics will suffice for your action research data analysis, although you may want to compare some group data or relate several variables. The idea is to keep the data analysis manageable so that you can identify useful information when formulating a plan of action.

Develop a plan for action

A plan may be an informal statement about the implementation of a new educational practice. It might be a plan to reflect on alternative approaches to addressing the problem or to share what you have learned with others, such as teachers, individuals in district offices, or other schools and communities. You might formally design a plan or present it as an outline. You can develop it yourself or with the help of other educators. The important point is that you now have a strategy for trying out some ideas to help solve your problem.

Implement the plan and reflect

In many action research projects, you will implement your plan of action to see if it makes a difference. This involves trying out a potential solution to your problem and monitoring if it has impact. To determine this difference, you might see your original objectives or the research question established in the action research project. You also need to reflect on what you have learned from implementing your plan and sharing it with others. You may need to share your results with colleagues, school committees, researchers, or authorities. In some

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Summary

Case study research

Mackey and Gass (2015) mention the following characteristics of case study research.

This is one of the most common forms of qualitative research, but quantitative research can be integrated as well depending on the purpose of the study. The focus of case study research is a small number of research participants (e.g. language learners or teachers) and, sometimes, only one person (a focal participant or case) is involved. The person's behaviors, performance, knowledge, and/or perspectives are then studied very closely and intensively, often over an extended period of time, to address timely questions regarding topics related to a specific research topic (Mackey & Gass, 2015).

Case study research involves also a type of *research design* and *written report* that highlights cases. The design in case studies and other types of qualitative research is not fixed, however; it often changes as the study progresses. For instance, if you are conducting a longitudinal study and the learner moves to another city or country, the data collection might need to proceed differently (e.g. via Skype or email rather than face-to-face, by self-recorded digital audio files, or by the selection of a new local participant). If an aspect of language learning or use unexpectedly becomes relevant in the study, then new procedures for analyzing that aspect might need to be designed and others eliminated. One of the advantages of working with cases is that there is more flexibility in design that would simply be impracticable or unnecessary in larger-scale qualitative studies or quantitative studies.

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The “case” (person) in a case study is not normally the phenomenon itself being studied; it is a case of *something* (of a phenomenon of interest). Case studies can be of different nature (e.g. exploratory, descriptive, or explanatory). They can corroborate previous findings or disconfirm them. In the most relevant studies, new directions for the field may result from insights generated by the case. Case study research aims for depth rather than breadth in its scope and analysis. Its goal is not to universalize but to particularize and then provide insights of potentially greater importance and theoretical significance.

Case studies may involve different units of analysis (e.g., a country, a city, a child, the testing of an innovation). They may be highly analytical, technical, and experimental, providing relatively little information about the broader context (e.g., in linguistics, psychology, or language acquisition) or even the participants' lives, past or present. A case study can also be highly holistic and naturalistic (e.g., educational case study research), with a very detailed description of the case and context and less analysis of one particular area or attribute of the case (e.g., the grammar system) but a more global description and analysis of settlement, integration, and identity issues. In some work, the researcher's interpretations are favored; in other research, the participants may also play a central role in giving meaning to and interpreting their own experiences, sometimes in discussion with the researcher and other times more independently.

The general philosophy of a case study research is that we can learn a great deal by looking both holistically and in close detail at the behaviors, performance, knowledge, or perspectives of just a few rather than many participants at one time. The cases can reveal important patterns or perspectives that might be lost in a larger-scale study of populations or in larger sample sizes. These patterns or insights then contribute to theorizing about the phenomenon under study. By analyzing small numbers of research subjects, we can observe complex and dynamic interactions between the individual and the local social, cultural, and linguistic environment.

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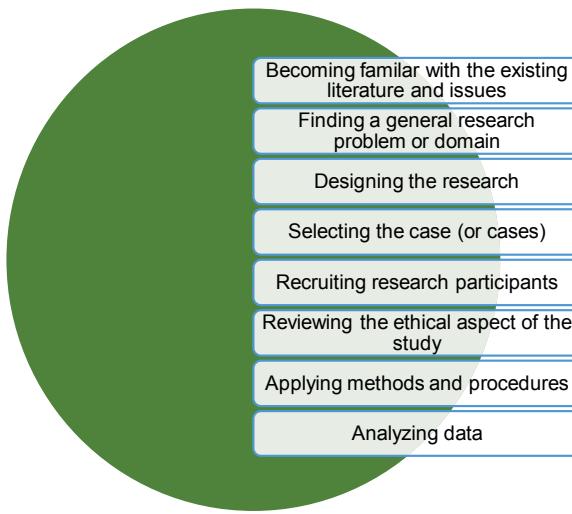


Figure 16. Steps for conducting case studies.

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Becoming familiar with the existing literature and issues

Case study research must be guided by a *conceptual framework* which includes “theories, beliefs, and prior research findings” directly relevant to the goals of the study in progress. For that reason, case study researchers need to be familiar with the field; the current issues, debates, methods, recent related research (case studies and other types); and relevant theoretical frameworks. Reading recent books related to your research topic can provide an overview of the field. Recent issues of journals should also be examined to see what other case studies have been published or to find topics of particular interest that may have been studied using other research designs (but not case studies). In addition, consulting recent books on case study research methodology in education is also very useful. Another strategy involves examining recent case studies (theses, dissertations, research articles) from across a number of areas. Nevertheless, being able to situate your research in the wider existing literature is important because this knowledge provides justification that your research is original, timely, and likely to contribute new knowledge to the field.

Finding a general research “problem” or domain

Another important step, informed by your literature review and your own experiences as an educator is to decide what it is you would like to learn more about through your research and how case study methods might facilitate that. Regardless of your research topic of interest, you need to identify the issues and theoretical constructs being studied. However, other research may already have been conducted, and normally researchers need to find an original new insight to be addressed. Once an area of research, a topic, and a population have been identified, very clear research questions must be entertained.

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Designing the research

When designing the research, you need to consider questions such as the following:

Will the case study serve as a pilot study for a larger study later? Will it be part of a mixed-method study, and, if so, will the quantitative portion precede, follow, or be concurrent with the case study? Will you study individuals at one primary point in time, over a relatively short time period, or is the design longitudinal, allowing you to track changes in proficiency, linguistic structures, attitudes, or experiences over six months to a year (or longer)? What kinds of methods for collecting and analyzing data suit the purposes, scope, and timeline of the study (a term paper vs. a dissertation) What is your expertise and training as a researcher? Do you plan to triangulate, or bring together, data of different types or from different sources, such as interviews, written data, test scores, and observational data, or do you plan to focus on just one type of data?

Selecting the case (participants)

This next step is a matter of design. In case study, it is especially important to consider the kinds and number of participants you wish to study closely, and the criteria for their recruitment and selection, since they are the very core of case study research. Your criteria and rationale for selecting participants will affect the kinds of descriptions and inferences you can make based on your data. The recommendation for a small-scale pilot study would be to choose one participant meeting your general target criteria (e.g., by proficiency level, years of EFL study, gender, or other categories that are relevant to your study). A single case might be sufficiently representative (or, rather, unique), fascinating, complicated, triangulated, longitudinal, and so on, for your purposes. On the other hand, for a larger study, such as a thesis, dissertation, or key research article, the recommendation is to recruit several participants (3 or 4 could be ideal to obtain a great deal of data). With more than one participant, you have

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the assurance that if one drops out of the study, for whatever reason, or is less suitable than expected, at least one other will remain.

All in all, having several participants gives you more options for sampling, for reporting on your findings, and for noting similarities and differences across cases. It may also yield a richer set of experiences or observations to draw upon than just one or two cases would. Your sampling may target participants who are similar in demographic or linguistic terms; alternatively, you can sample for contrasting cases or for variation, according to gender, proficiency level, attitudes toward the L2, or previous language learning experience, among other possible variables. Another option would be to sample for typicality or representativeness, that is, because these subjects are most typical of the wider population from which they are drawn and might assist with questions of (external) validity or generalizability or even relevance. You can also sample for extreme cases: one or two cases who are extremely successful, motivated, proficient, invested in their L2, or whatever you are interested in; and one or two at the opposite extreme.

Recruiting research participants

Once you have decided on your ideal participants, from both practical and theoretical standpoints, consider how you will recruit them. You need to consider some points. Do you already know people in the target demographic that you can approach? If so, you might be able to locate other possible participants by snowball sampling (word of mouth or referral) once you get your first participant. What is your relationship to the participant or the target population (or even the phenomenon being analyzed) and how might this influence your recruitment, analysis, and findings or interpretations? Your reflection about these aspects is also important to disclose in a case study, always respecting confidentiality agreements.



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Reviewing the ethical aspect of the study

In a case study you must consider ethical aspects because most of the time in the language learning field, you study human subjects. For instance, most universities require that you go through the procedures for a review of your research protocol – which normally includes specifying your research questions and methods, your recruitment procedures, whether participants can provide consent on their own behalf, what the possible risks and benefits are to participating, how you will maintain the anonymity of your participants, what kinds of time or other resources will be required of them, and how you might compensate or reward them. Beyond institutional requirements, case studies do raise various ethical questions because of the intensity of participants' involvement and the possibility that they will be identified in research reports.

Methods and procedures

This part is crucial for data collection and analysis in any type of study. What methods will be effective, valid, and suitable for addressing your research questions? What kinds of evidence (data) do you need? How do you plan to observe participants, and for how long? How will the data be recorded, transcribed, and analyzed? If you plan to interview participants, it is important to practice questions or prompts that will enable you to elicit the structures or perspectives you seek access to. Consider also how your role as interviewer will affect the data and findings.

In what language will interviews or instructions be given (participants' L1 or L2)? If the study is going to be longitudinal, how will you manage to keep in touch with your participants and talk about future data collection sessions and how will you track changes over time?



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Analyzing data

Once the methods for collecting data have been determined, consider how best to manage, organize, and analyze the data. Computers offer many advantages for the retrieval, organization, and sharing of data, and for transcribing, sorting, coding, and presenting the data and analyses as well. Ambitious case studies (those with multiple participants, multiple sources and types of data, and multiple data collection occasions as in longitudinal work) may require learning how to use sophisticated qualitative/quantitative data analysis software to assist with data management. These software tools also permit you to link various forms of data to the same individual or event and to see relationships among observations (e.g., occurrences of particular linguistic structures, themes, patterns). Learning to use the software effectively (e.g., NVivo, ATLAS-ti) takes some time initially but will be well worth the investment for a bigger study. However, for a less ambitious case study (e.g. a pilot study with just one or two participants being interviewed at one point in time), more traditional data transcription and manual or electronic coding via simple word processors may be more efficient. For coding data and quantifying occurrences of particular structures in bigger datasets, computers can be more efficient and accurate than humans.

There is no set limit on how many cases can be part of a multi-case study. However, if there are too many cases (e.g., 12–20), less intensive scrutiny and presentation of each one are possible and some of the main advantages of case study research can be lost. For that reason, eight or fewer focal cases per study are generally preferable.

Mackey, A., & Gass, S. M. (2015). *Second language research: Methodology and design*. Routledge.

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Summary

Parts of a research report

Abstract

An abstract is a summary of the complete research report. It briefly summarizes purpose, method, findings, and main conclusions. It should be written after writing the other sections of the research report.

Introduction

Your introduction establishes the scope, limitations and importance of your research work. In this section you do not include the results of your research, but you include an introduction to your topic, an explanation of the context of the research, a description of your problem (including objectives or research questions), and an explanation of the reasons why your research is relevant.

Method

In this section, you should include the characteristics of the participants of your study as well as the procedure (e.g. how you collected data, how you analyzed and interpreted data) that you followed to conduct your research. Of course, the basis of the method section is the literature review of your report since you have to explain the research design used and the methods that you applied.

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The results help you to understand the research problem from several perspectives. In this section, you will focus on data and interpretations of these data that answer your research questions with the help of tables, figures, narrative descriptions or other elements.

Discussion

This section is called “Discussion” because you question your findings and consider different interpretations for your data. You will see if your results can be generalized, if there are alternative explanations, strengths and weaknesses of your research.

Conclusions

A conclusion is not merely a summary of the main points of your work. Here, you will synthesize your main points and probably recommend new areas of future research. Your conclusion will provide a final answer to your research questions. After this section, you will also find the recommendations section that will propose remedial actions to solve the issues related to your research problem. You can also talk about the possibility of future research for gaps found in your study.

Source: Creswell, J. W. (2015). *Educational research: Planning, conducting, and evaluating quantitative*. New Jersey: Upper Saddle River.

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Types research report

Creswell (2015) points out the following types of research report.

Types of research report

A research report is a completed study that reports an investigation or exploration of a problem; identifies questions to be addressed; and includes data collected, analyzed, and interpreted by the researcher. It is written for audiences, varies in length and format, and differs for quantitative and qualitative research.

You must write your research report in a way that is acceptable to the intended audiences, so you write for the audience (e.g. faculty (advisor/committees), journal reviewers, policy makers (authorities), practicing educators in the field, and other researchers.). In addition, some aspects of your research report will differ depending on the type of research report that you write. According to Creswell (2015), the most common types of research report in the academic field are the following:

Dissertations and theses are the research reports prepared for faculty and committees (graduate or undergraduate in our country). The length of a dissertation or thesis can vary, depending on the tradition in a school or department.

Thesis proposal is a plan for a research report, initiated and developed before the research actually begins. An important difference between proposals and

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other research reports is that you will write a proposal before conducting the research.

A journal article is a research report (much shorter than a thesis or dissertation) that you send to an editor of a journal, who makes a decision (accept, revise and resubmit, or reject the journal article) based on reviewers' comments.

A conference paper is a research report presented to an audience at a national, or international conference typically sponsored by a professional association. Conference papers are written for audiences who attend the conference as well as for individuals who review and accept the papers for presentation.

Source: Creswell, J. W. (2015). *Educational research: Planning, conducting, and evaluating quantitative*. New Jersey: Upper Saddle River.

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While writing your research report, you can ask yourself the following questions based on the suggestions of Mackey and Gass (2015) when structuring and evaluating the different sections of your research report.

Evaluating a research report

The abstract

- Does it provide a readable, concise yet representative overview of the topic and aim of the research?
- Are the sample and materials/methods briefly described?
- Are the results of the study summarized and is the relevance of the study clear?

The introduction

- Is the broad research area described and then narrowed down to the particular focus of the research work?
- Are the aims and importance of the research topic stated?
- Is relevant and recent literature briefly covered to describe the current state of the art and support the research topic?
- Are gaps in literature addressed?
- Are research questions/hypotheses/objectives clearly stated?

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The literature review

- Are all relevant studies surveyed?
- Does the review provide an accurate and objective summary of the current state of the art and the theoretical framework of the study?
- Does the review present readers with enough background to understand how the study fits in with other research?
- Is the literature review relevant, that is, are studies that are peripheral to or irrelevant to the research question excluded?

The method section

The design

- Is it clear that the research design (e.g., experimental, correlational, qualitative, mixed method, and so on) was appropriate given the theoretical framework, purpose, and research questions of the study?
- Are each of the variables clearly defined?
- Is the design explained in sufficient detail?

The participants

- Are enough details on the participants provided?

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- Have confidentiality/anonymity issues been taken into account when this information was reported?
- Is information on the selection or assignment of participants (sampling) to particular groups provided?

Data collection and analysis

- Is it clear that the choice of sample (e.g. purposeful sampling) was appropriate given the purpose of the study?
- Is it clear that the means for gathering data was appropriate for the research question?
- Is evidence of the validity and reliability of the instruments provided?
- Are the data collection instruments sufficiently described?
- Is sufficient and detailed information provided about how, when, and where the data were gathered?
- Was the status of the researcher made explicit in the data-gathering process (i.e., Was the researcher an observer? A participant? What, if any, was the relationship of the researcher to the participants?)?
- How did you implement the instruments?
- How did you do organize the data collected (e.g. coding, transcription)?
- How did you analyze the data collected (e.g. statistical procedures, software)?

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Results

- Are the data clearly summarized and presented in the report (e.g., charts, appendices, figures, etc.)?
- Are both descriptions and graphical representations of the data included where appropriate?
- Is the chosen method of presentation the clearest, most effective, and most elegant way of presenting the data?
- Is appropriate and consistent formatting followed throughout?
- Is the description of results organized based on the research questions?

Discussion

- Are results summarized?
- How do the results answer the research questions?
- How do the results confirm or contrast the literature you reviewed?
- Are there implications of the results for theory or pedagogy?

Conclusions

- Are the results of the research succinctly summarized?
- Are the limitations of the research acknowledged?

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Recommendations

- Are the recommendations based on the conclusions obtained?

References

- Are the citations in the correct format?

Final touches and formatting

- Is the formatting (e.g. cover page, table of contents, margins, font size, spacing, indentations, number of words, etc.) appropriate?
- Does the formatting follow the guidelines of the educational institution or publisher?

Source: Mackey, A., & Gass, S. M. (2015). *Second language research: Methodology and design*. Routledge.

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