

INTRODUCTION TO

DATA COLLECTION



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Introduction to Data Collection

Welcome to learning about data collection. The County of Los Angeles Department of Human Resources is pleased to offer this information guide. We hope that you find it useful in enhancing your understanding of data collection.

Data has always served to enhance understanding, which enables a decision maker to better choose among many options. From simple to complex decisions, individuals have looked to data to assist them in their decision-making process. Without data, individuals are confronted with having to make decisions at random or only on gut feel. This can lead to ineffective, costly, or less than ideal results or outcomes. Data collection provides a mechanism to gather the raw materials that decision makers rely on to help guide thoughts that can lead to effective conclusions, recommendations, or actions.

Today, organizations rely on massive amounts of data that may be used to help predict the future, report on the past, or indicate what is currently happening. This is fundamental to an organization's ability to operate by reducing risk and promoting accuracy in the actions that are or will be taken. Data serves as the foundation to decision making at all levels of an organization.

Purpose

This guide has been developed to introduce you to the fundamental elements of data collection methods, principles, and techniques. The goals of this guide are to present readers with *general information* covering this subject area and spark interest for further exploration.

Objectives

This guide has been designed to convey to readers an understanding of

- a formal process to data collection.
- how to plan for a research assignment.
- basic types of data collection methods and how to select among them.
- ethical issues involved in data collection.
- principles and guidelines related to developing and implementing data collection methods.

Disclaimer

This guide has been developed to serve as an introduction to data collection methods, principles, and techniques. Though this guide presents useful and practical information on this subject area, there is *no guarantee* that someone who reads this guide will be able to perform better on the job or on a County examination. By merely using this guide, you consent to understanding and agreeing with this disclaimer.

Note: Information in this guide is current as April 2006 and will be updated periodically.

Who should use this guide?

This guide is written for those new to formal data collection activities and for those who need to review and enhance their understanding of data collection. This guide is written for anyone who conducts (or will conduct) focused and directed data collection activities and wants to gain a better understanding of this work.

The material covered in this guide can be challenging. It has been designed to present the information in the most common terms while respecting the research discipline by retaining terminology that will be helpful for all individuals conducting data collection work activities. The material is presented for a business setting and audience.

What is data?

Data can be any piece of *information*. Data can take the form of numbers, text, graphics (charts, tables, pictures, maps, etc.), verbal exchanges (e.g., conversations), etc. In essence, data can be any piece of information that can be conveyed to and understood by someone else.

Note: We will use the terms “data” and “information” interchangeably throughout this guide.

What is data collection?

Data collection has many different definitions. It usually revolves around the purpose of trying to answer a question. Data collection has been described as

- a disciplined journey that seeks answers to a question.
- detective work for fact-finding purposes to acquire truth.
- a unique search to capture information that will assist decision making.
- an exploration that provides meaningful information that helps guide a course of action.
- a planned, rigorous process to collect information on a defined topic under study that will be analyzed and reported to someone.
- a limitless search for solutions to questions that is only constrained by such things as the amount of time and budget available, expertise of researcher, lack of curiosity, etc.

From this brief list of definitions, we can see a general trend toward viewing data collection as a method to gather information to answer a question that helps support decision making.

Formal Definition of Data Collection

We have covered some background information on data collection up to this point. To ensure we move forward with a shared understanding of data collection, we have provided a formal definition that we will use throughout this guide.

Data Collection is a systematic, logical method to collect raw information that accurately and reliably represents the variable(s) or field(s) under study.

Let's break this definition down into its component parts:

- *Systematic, logical method* – data collection relies on a defined, standardized approach of logical rules and procedures to gathering data that can be repeated for more than one data collection session/effort and can be replicated by other researchers.
- *Raw information* – the numerical, textual, graphical, or other data format that is collected by a data collection session/effort is raw and unevaluated or unchanged information that will be cleaned and then analyzed. This raw information can come from data collected by others.
- *Accurately and reliably* – the chosen data collection methods and tools result in capturing data that accurately reflects what is *actually* occurring and does so in a manner that can be consistently found.
- *Variable(s) under study* – a variable is something that can be measured and can take on two or more values. For example,
 - The numerical value reflecting the weight of people is a measurable variable as weight can be two or more values (e.g., Shawn weighs 125 pounds and Kim weighs 156 pounds).
 - Responses to a customer service survey may use a 5-point scale with each customer evaluating the service as:
 - 5 = *exceptional*
 - 4 = *good*
 - 3 = *average*
 - 2 = *poor*
 - 1 = *awful*
- *Field(s) under study* – a field being studied can involve the collection of articles, benchmark studies, case studies, technical reports, or other source materials that report on a specific field (e.g., information technology, engineering, library science, nursing, etc.) or a specific finding or element of a field. Also, unique data collection sessions/efforts on a specific area of a field, such as collecting information via a survey, interview, or observation, can occur when you collect data from individuals.

Goal of Data Collection

The goal of data collection is to provide the best possible data given the constraints (i.e., restrictions) that will enable a decision maker to make the best possible decision.

As a data collector, you are entrusted to gather the best, most accurate, and meaningful data possible (while adhering to ethical standards), and present the data in the most useful manner to the decision maker (requester of the data). The data you will be collecting represents a piece or element of truth – the truth that you are trying to uncover or discover.

The Research Process

In order to carry out data collection in a systematic manner, a research process is followed. In this guide, we will discuss an eight-step research process that provides a framework to conducting research assignments. This process assists in planning a research assignment and increases the likelihood that an assignment will result in favorable outcomes (e.g., provides useful answers). Data collection is only part of the research process. However, in order to get to the data collection steps, a great deal of planning and understanding must occur.

The eight steps are

1. Receive the research assignment
2. Define the research problem/situation
3. Determine the research design
4. Determine the data collection tool
5. Develop a data collecting tool(s)
6. Collect data
7. Analyze data
8. Develop communication tool

These eight steps do not represent the only approach to conducting research. Depending on your research assignment, you may not need to perform all eight of them, or you may perform all eight but not to the extent we discuss in this guide. The needs of your individual research assignment will guide your decision making.

To maintain the focus of this guide, only the first five steps will be discussed in detail. The remaining three steps will be briefly summarized.

1. Receive the Research Assignment

Often, work-related research begins with an assignment from your supervisor. He/she has a problem that requires information to help guide his/her decision-making or to present to others. This first step is a chance for you to gain a general understanding of the assignment and what is expected of you.

When you meet with your supervisor, he/she may be able to readily present information about the assignment. However, when the assignment is given to you, it is your responsibility to ensure that you have all the *necessary* information you need to successfully complete your research assignment. This is your first step in the data collection process.

Here are a few questions that will help guide you during this step. Your supervisor may already provide answers without you questioning, but you will most likely have to ask a few follow-up questions to clarify what he/she means. Each assignment is different, so some of

these questions may not be applicable and other questions specific to the assignment may need to be asked. Make sure you take notes!

Questions that will help you gain a general understanding of the assignment include:

- What is the assignment?
- What is the goal of the assignment?
- What is the problem/situation that the research assignment is trying to answer?
- When does the assignment need to be completed?
- What format will the information need to be in for submission (e.g., report, brief discussion, presentation, etc.)?
- Who will use the information that is produced from this research (i.e., intended audience)?
- Has anyone in the organization conducted similar work that I might be able to review and build upon?
- What resources may I use to complete this assignment (e.g., how many hours can I work, what equipment can I use, what other employees of the department/unit may I talk with, do I have a budget, are other staff members going to assist me, etc.)?
- Can I get in contact with individuals outside of the department/work unit (e.g., other department staff, members of community organizations, vendors, etc.) through appropriate methods (in-person, phone, email, posting on a listserve, etc.)?
- Can we meet to clarify my understanding of this assignment and allow me the opportunity to present my plan after I have conducted some preliminary work?

Note: Set a date to meet even if it is a temporary or tentative date. This will give you a target to meet, and it will reserve a time with your supervisor.

Make sure to always ask, “Is there anything else you think I should know that would help me successfully complete this assignment?”

The information collected at this step will provide a general overview of the assignment along with some constraints (e.g., restrictions such as timeframe, specification of the work product, resources allocated, etc.) that will guide what you can and cannot do. The next few steps of the research process will help you begin to shape what you will actually do.

Note: If the assignment does not seem “doable” within the timeframe along with balancing your other work assignments, make sure to inform your supervisor and ask for guidance. The first step in taking on an assignment is to determine if it can be done within the constraints. Each supervisor is different with different working styles. You will have to determine how best to present your concerns, but it is better to state them upfront than to fail to deliver your assignment later.

2. Define Research Problem/Situation

From the information that you collected in Step 1, you can begin to determine what the research question is. Essentially, the research question is a question that *summarizes/states what you are trying to answer with your research*. The question to ask is, “What is the problem or situation I am trying to find answers or solutions to?” Furthermore, the research question serves as an overarching guide to what you will do throughout your research activities (i.e., a purpose statement).

Here are a few examples of research questions:

- What are the three professional associations in our field that have the largest membership and hold conferences that our staff can attend?
- What are the advantages and disadvantages of sending our staff through the training program?
- Is our organization at a disadvantage because we did not update our database system to the latest version?
- What are the top five software products that best meet our needs based on specification, cost, maintenance, implementation timeframe, compatibility with our current system, time to learn, customer service, and other relevant factors.
- How are new laws and/or regulations that are going to be put into effect within the next six months going to influence the way we should perform our work?

Note: These statements are written in the most general way possible to make them applicable to the widest audience. For your assignment, you should include as much specific information as possible in your research question, such as software program types, areas of law, areas of training, etc.

Depending on the complexity of your research assignment, the data collected in Step 1 may have provided all the information you need to develop your research question. However, for more complex assignments or ones where you know little on the topic, you may need to collect some general information to help you fully understand what you are trying to accomplish. For these assignments, you will conduct *some* preliminary research. The data you collect at this point will provide a foundational understanding of your assignment that can be built upon when you conduct more in-depth research.

Preliminary research usually relates to data that you can gather quickly and easily. This means that you will most likely rely on Internet searches for articles, product reviews, reports, professional publications, etc. You may conduct brief interviews with staff or other individuals outside your department that are informed on the topic. The goal here is to

- gain a general understanding of your topic.
- review what others have done so you do not duplicate work that has already been accomplished.
- help you understand and hopefully avoid the mistakes made by others.

- put your assignment in the context of the work that has already been completed in order to determine how your work may add to the work that has already been completed (i.e., advancing the understanding on the topic).
- help to spark ideas on how you can better provide information to answer the problem posed by your supervisor.

Note: Sensitive topics such as health and safety require more care and may need more in-depth research at all steps, including your preliminary research work.

Tips to develop your research question:

- Write a formal research question even if you are documenting what your supervisor told you during your meeting. This will solidify what your research goal is.
- Understand that there is no one absolute best way to state your research question. However, your research question needs to convey the same meaning when read by both you and whomever you are working with to complete the assignment (e.g., your supervisor). This shared understanding of what you are trying to answer is essential to planning a research endeavor.
- Write a clear and thoughtful research question that appropriately encompasses the main point of what you are trying to answer.
- Determine if your research topic is a broad or narrow topic area or a broad or narrow *aspect* of a topic area. This will be reflected in your research question and the research you conduct. Broad topic areas or broad aspects of a topic area are more general in nature, so your research assignment would relate to a general, overview understanding. On the other hand, narrow topic areas or narrow aspects of a topic area are more specific in nature, so your research assignment would relate to a deeper understanding of a defined topic area.
- Ask yourself, “Will answering this research question get at the root cause of the problem I am trying to answer?” If it does not, modify the question and focus on what is the true goal of the work you are conducting. This may involve a meeting with your supervisor to ensure he/she agrees.
- Make sure your research question is not a data collection question. The data collection question only deals with how the data will be collected whereas the research question directly relates to what the research is trying to answer.

Like with other design-related endeavors, planning a research effort can be an iterative process that involves repeating steps while you refine your search strategies and learn more about your topic.

3. Determine the Research Design

Now that you have defined the question you are trying to answer, the next step is developing a plan on how you are going to answer it. The research design acts like a blueprint or path for you to follow when you conduct your actual research activities. The goal of this step is to determine the plan of the research activities and the methods you will employ.

Because there are many possible ways to carry out your research, you will have many decisions to make. Always remember your goal is to collect the best possible data that will enable a decision maker (e.g., your supervisor) to make the best possible decision. While doing this you must balance answering the research question, considering the constraints (e.g., restrictions such as timeframe, specification of the work product, resources allocated, etc.), and understanding the overall goals of what the research needs to provide. The interaction of these pieces of information will help guide the decisions you have to make to determine the best research plan given the challenges you have to complete the assignment.

The first question to ask is, “What data will provide the best information to answer my research question given the constraints I have to work within?” Answering this question will help you focus in on what data you need, such as numerical, textual, graphical (charts, tables, pictures, maps, etc.); verbal exchanges (e.g., conversations); etc. You may need multiple data formats to best answer your research question. Exploring the different data collection methods and tools that you can use to collect your data will also influence your decision. *The next section of this document (pages 15-48) provides an in-depth explanation of data collection methods and tools for you to use to develop your research plan. We recommend that you continue reading the remaining steps of the research process to get a general understanding of the research process. You may want to revisit this section after reading the entire guide.*

Note: Determining the data you need and data collection methods go hand-in-hand. They do not need to be thought about as two separate sequential steps but more of an interlocking decision. The idea here is for you to focus on what data format you need and which data collection method will be the best one to provide this data given the constraints of your research effort. Your constraints will most likely influence which data collection method you use and how much data you will collect.

In developing your research plan, you will not only select a data collection tool, but also determine how much data you collect. This decision relates to sampling. Once again, the constraints of your work assignment along with the advantages and disadvantages of each of the data collection tools will help you determine your sampling activities.

Sampling

A *sample* is a portion or subset of a larger group with the intended goal that the sample will adequately represent the larger group. The larger group is called a *population* which is everyone or every item/unit that could be included in the grouping. For example, the grouping could be based on every

- contract over \$10,000.
- building that is less than 25,000 square feet.
- employee with 10 or more years of work experience.
- professional conference held in the Los Angeles region.
- employee who completed a four module training program.
- software program that received a superior rating by an independent agency.

Groups can be people, objects, events, or other items of interest or importance to the study. As you can see from the examples, a sample can be *individuals* or *units* of objects/events.

Sampling is the process of determining the number of participants (e.g., individuals) or units and selecting the ones that will mirror or represent the population. Sampling enables us to measure a *variable* (i.e., something that can be measured and can take on two or more values) with a subset or smaller number (i.e., a portion) than all possible measures of the population. The challenge is to be able to select the right sample to enable the findings to be generalized to the entire population and reduce the error in your research findings that were due to the sample you used.

For example, you find 100 articles on a topic and only read the first 10 that you find. Is this sample adequate to give you a good understanding of the topic? If the 10 articles you choose only cover a small portion of the topic then you could misunderstand or misrepresent what the topic is. The right sample will provide you with a representative sample of the whole group (or in this case a good representation of the body of information on the topic). A sample is determined to be representative if it has the same or very similar characteristics of the population from which it was selected.

Note: A representative sample can be thought of as a measure of quality. A quality sample will provide you with the right information to assist you in meeting your research goals as it provides an accurate reflection of the population from which it was drawn.

Sampling advantages include the following:

- less expensive (conducting 20 customer interviews is cheaper than conducting 100).
- less time to conduct the work and less time to turn around a result, especially if the data collected is time sensitive.
- more time for the researcher to focus on developing a stronger data collection tool.
- fewer individuals of the population are required to spend their time and energy in participating in the data collection effort.

Sampling Designs

There are many sampling designs and each provides different options on how to select a subset of the population. Using the information you have already collected about your work assignment will help guide you in identifying the appropriate sampling design. We present five of these design options below. They are presented from the least to most rigorous (i.e., more difficult to implement while having the greatest likelihood of producing a representative sample).

- **Convenient Sampling** – participants/units are selected because they are easily found and are available (e.g., people in your office or the first few documents that result from an Internet search). This is a quick and easy process, but the results are less likely to be representative of the population under study. It can still be useful depending on the goals of your research assignment.
- **Purposive Sampling** – participants/units that are judged (determined) to be appropriate based on desired characteristics or would be particularly informative on the topic being researched. This is a rational approach where the participants/units are handpicked from the larger group (population) based on a targeted profile or characteristic(s) to be included in the study.
- **Systematic Sampling** – participants/units are selected in a systematic but not random way. For example, selecting every eighth person who signs up for a training program or every sixth result from an Internet search. This technique is useful as it is easy to implement while still adding some element of randomness to your selection process. Random selection usually helps to ensure a representative sample is selected.
- **Simple Random Sampling** – every participant/unit of a population has an equal and independent chance of being selected, and they are selected based on a random selection method. This means that a computer software program is used to randomly identify a sample of the participants/units in the population under study based on the number or percent of participants/units you need. For example, if we needed 15% of employees who attended a training session to evaluate how effective the training was to helping them improve their actual job performance, we would use a software program to randomly select 15% of the entire population (i.e., everyone who took the training class). The result would be a list of individuals that were randomly selected with each having an equal chance of being included in the evaluation.

This is a more rigorous sampling technique as you have to rely on a software program to assist you in identifying the sampling. However, this sampling design usually results in a representative sample that will help to strengthen the accuracy of your research findings.

- **Stratified Random Sampling** – is a sampling approach where the population is divided into subgroups called *strata* (the strata would be determined by the needs of your study). From each strata, a random sampling is selected. For example, we may need to select 10% of the residents from each region of the County of Los Angeles based on area code. Area code would be the strata or sub-groupings that have divided the residents of the County of Los Angeles. Next, a sample would be selected from each strata based on a simple random sampling design.

Sample Size

A question that always comes up is “How much data do I need to collect?”. “It depends” is the usual reply – a response that is not as clear cut as most would like. There are many factors to consider that influence the size of the sample you need (i.e., the constraints of your assignment). For example, a general understanding of a topic may require an Internet search and may only require a sample of five or six documents to be read. On the other hand, a complex research assignment on the legal updates in a particular area of law may include a larger sample of documents to be read, such as the actual law, related laws, legal interpretations, other relevant professional opinions from other fields, etc.

The goal with sampling is to ensure that you are able to collect enough data that you have confidence in your findings. That is, you feel that the sample adequately represents the population. There are statistical approaches to determine sample size, but generally speaking, the larger the sample the better. The data collection tool you use will influence the sample you select. In addition, the availability of participants or units may influence how you sample.

When collecting data using participants, a consideration needs to be made based on the expected *response rate* (i.e., the number of participants in the sample who respond out of the number that were invited). For example, if 100 individuals were selected to participate in a survey and 35 responded, then the response rate would be 35% (35/100). Determining your sample size can be influenced by your expected response rate (i.e., lower expected response rates can be offset by having a larger sample size).

Note: The rule of thumb is, “The larger the sample, the more likely you will have accurate findings.”

4. Determine the Data Collection Method

Once again, the research question, constraints, and goals of the research assignment guide this step of the process as they interact to serve as driving agents in determining the data collection tool you use. This means any one of these three driving factors can influence which data collection tool you ultimately use. In reality, the same research question can result in using very different data collection tools due to different constraints or study goals. For example, a research assignment that has a constraint of a shorter time to complete along with the goal of writing a report on general findings of a topic would result in the use of data

collection tool(s) that collects data faster and provides an overview of the topic under study. On the other hand, a research assignment that has the constraints of producing a well documented, thoroughly studied topic that needs to be completed within a year would result in a complex research design resulting in a detailed and well-thought-out analysis and report.

However, no matter what data collection tool you use, it needs to be a reliable data collection method. Meaning, one that is relatively free from what is referred to as measurement error. *Measurement error* is where the true findings are obscured or covered up by error or “slop” in the measure. This error results in less accurate findings that may negatively effect the resulting decisions that are made based on your research findings.

Here are some examples of error or “slop” in the measure that can occur:

Issue	Explanation/Examples
Poorly designed questions	<p>Questions that</p> <ul style="list-style-type: none"> • can be interpreted many different ways • ask two questions instead of one clear, focused question • are written at a reading level that is too high/difficult (e.g., using vocabulary or technical terms the reader most likely would not know)
Inappropriate sampling	Sampling that does not adequately represent the population under study.
Non-standardized data collection practice	<p>Such as:</p> <ul style="list-style-type: none"> • changing the order of the questions for an interview so each interviewee may be asked the questions in a different order • rewording the questions asked during an interview • changing the procedures used to collect data from day-to-day • using different data collection locations that could influence the results

At the end of Step 4 and definitely after Step 5, you will want to hold a meeting with your supervisor to ensure that your understanding of the assignment and what you are planning to accomplish is in keeping with his/her expectations. Be ready to present all the information you have collected, including the information you collected during the initial meeting where your supervisor gave you the assignment. Be prepared to present and discuss your research question, preliminary research, and the research design you plan on following, including the data collection tools you plan on using and developing (if needed). This meeting will allow for a chance to

clarify the assignment expectations and give you an opportunity to present your plan on how to successfully accomplish the assignment.

5. Develop a Data Collection Method/Tool

Depending on your research question, data collection question, and constraints, you may or may not need to develop a *primary* data collection tool such as a survey, interview, or guidelines/script for conducting a focus group (i.e., you directly collect the data from individuals). Instead, you could use a *secondary* data collection tool, such as using an Internet search engine to find a published report. One of the main differences between a primary and secondary data collection effort is the complexity of the data collection tool. The search terms you may type into a search engine can quickly be modified, and you have real-time and absolute control over this data collection action. Whereas, the use of a survey cannot be changed quickly and the individual who is completing it has control over how they respond.

Always remember, when thinking about collecting data in any form, you must think about not only how the data will be collected, but also how it will be analyzed to provide the *evidence* needed to support an answer for your research question. In addition, you must consider the format in which the data should be collected so that it will be displayed in the most useful manner for the targeted reader. Lastly, consider how the data will be stored for current and future retrieval and to ensure the data is secured.

6. Collect Data

This is the step where you put your data collection plan into action. This may involve the collection of documents on the Internet, posting a question on a listserve/blog, or administering a survey to a targeted sample of individuals. The data collection step is where you actually collect the raw material/information that will be analyzed to respond to your research question.

7. Analyze Data

Analyzing your data is the step where you sift through the raw material/information you collected in the previous step and begin to shape it into a format that can be used to answer your research question. This is the step where you will compile your findings and draw out some meaning.

8. Develop Communication Tool

Most research assignments result in a written report or oral presentation of the findings. The goal of this step of the research process is to take all the work you have accomplished and present the essential elements that address the research question and assignment goals in a useful format for the targeted reader (e.g., your supervisor). The format, length, reading level, etc. of the document will be determined by your research goals and anticipated current and future use of the report/presentation.

For example, if the goal is to present a written report covering the general findings to your supervisor, then the report would most likely be shorter and would summarize your results. However, if the goal is to document a research assignment that collected customer service evaluations that would be repeated every year, then the report would document the entire research process in a detailed, step-by-step manner for you or someone else to replicate it in order to update your findings. This would result in a longer report.

Your documentation can serve as a resource for someone else researching the topic. Sharing your findings is a helpful way to pass on the information and insight you gained. Ultimately, this on-going sharing helps save time and money of future research efforts while supporting the expansion of knowledge.

Summary

This section provided an introduction to data collection and described an eight-step research process that can be applied to your research assignments. The next section of this guide will focus on the actual data collection methods and tools you will use to conduct your research. This section will take you on a tour of data collection methods and tools and applied procedures to carrying out your data collection efforts.

Overview of Data Collection Methods & Tools

As part of the research process, you will choose the particular data collection method(s) and tool(s) to use in your research assignment. The data collection method is specifically *how* you will gather accurate and reliable information relevant to the research questions and goals and within the constraints of the assignment.

The goal for this section is for you to gain an understanding of the

- basic types of data collection methods.
- factors to consider when selecting a data collection method/tool.
- ethical issues involved in data collection.
- basic principles for developing data collection methods.
- procedural considerations related to data collection methods.

Basic Types of Data Collection Methods

Data collection methods can be placed into four major categories:

- Document Reviews
- Interviews
- Surveys
- Observations

We'll describe the categories and discuss the specific tools within each.

Document Reviews

The most common data collection method used in the workplace is the document review, which involves collecting *secondary source information* (i.e., existing documents or data that were originally written or collected by someone else).

Why collect information using a document review?

The information collected in a document review can provide background information to familiarize you with the topic area. It can also lead you to additional research questions, which may result in using other data collection methods.

Examples of research questions where the document review is a useful data collection method include the following:

- How do the procurement practices compare among similar organizations?
- What is the historical and current use of the automated client management system within the department?

- What are the underlying principles of project management and how could it be applied in our organization?

Document reviews are conducted by using *document review sources* (i.e., any location – physical or electronic – that stores information or any object that supplies information). For document reviews, the most common sources are

- Internet searches.
- archival sources.
- benchmark & case studies.
- professional publications.

We'll examine each type of document review source: *what* it is, *why* collect information using it, and *how* to collect the information from it.

Internet Searches

Among the document review sources, Internet searches are becoming the most common. Internet searches refer to any secondary source information found using the Internet and its various *search engines* (i.e., a program designed to help find information on the Internet).

Why collect information from an Internet search?

An Internet search is likely the fastest and most convenient way to collect information because of the use of Internet technology and search engines. Via the Internet, you have the potential for immediate access to hundreds of sources. Typical examples are summarized below.

Source	Description
Websites of Organizations	Documents (e.g., reports, summary statistics, and commentaries) may be available through the websites of various organizations (e.g., local governments, universities/colleges, service organizations, professional associations, private companies, etc.).
Internet Forums	A forum is a location on the Internet where people can participate in discussions on a topic area (e.g., music, healthcare, law enforcement). The forum itself is typically organized around the topic area. You must periodically visit the site to check for new discussion topics.
Listserve	Listserve are electronic mailing lists that may be organized by a professional organization or grouped by topic area (e.g., music, healthcare, law enforcement). Listserve are often used to share information with its subscribers or hold discussions among subscribers on aspects of a topic area. On the site, a person receives an email whenever subscribers post new information.

Source	Description
Internet Blogs	Blogs are websites that are typically created by a single person who focuses on providing information on a topic area (e.g., politics, local news, health). Information found on blogs may include technical information, commentaries, images, and links to other data sources. Content found on blogs <u>must</u> be analyzed critically as it is generally not reviewed by other individuals before being made available. You will have to evaluate the author's credentials and his/her quality of writing.
Newspapers and Magazines	Newspaper and magazine articles provide news, commentaries, and other information on a topic area. Many articles are available online for free. Often times, access to archived articles requires payment or a subscription fee.
Bibliographic Databases	Bibliographic databases provide access to article summaries and book titles usually found in research libraries. In many cases, short article summaries (i.e., abstracts) are available for free. Viewing full articles may require payment or subscription fees.

How to collect information from an Internet search

If you know the specific website address of the information source, enter the address in the Internet browser's address field and begin your search within the source.

However, most initial Internet searches will involve the use of a *search engine* (i.e., a program designed to help find information on the Internet). Two of the most commonly used search engines are www.google.com and www.yahoo.com.

With your research question and assignment goals in mind, use the following steps to conduct a basic Internet search using a search engine:

1. *Create a list of search terms* – Search terms are key words and phrases that relate to the research question and goals and are used to find links to websites that contain the desired information. Your list may also include the names of specific data sources for which you do not know the website address.

Note: Creating a list of search terms is a continuous process. Like detective work, you may find information that leads to other sources of information or new search terms to use. Record this information on your list for current and future use.

2. *Enter search term(s) into the search field* – Some search terms may be meaningful enough to enter by themselves to begin your search. In most cases, you will need to combine terms in a logical way in order to obtain relevant results. To achieve this result, use the following search symbols when entering your search terms in the search field. These symbols are recognized by most of the major search engines.

Search Symbol	Command/Definition	Example	Explanation
+ (plus sign)	Find pages that have all the terms entered.	public +policy +health	Finds pages that have <u>all</u> the terms: “public”, “policy”, and “health”.
- (minus sign)	Find pages that have one term on them but not the other term.	community –housing	Finds pages with the term “community” <u>but not</u> the term “housing”.
“ ” (quotation marks)	Find pages where the terms appear in the exact order you specify within the quotation marks.	“public policy”	Finds pages with the complete phrase: “public policy”.

3. *Search the result page(s)* – Results are typically listed in numerical order, which does not imply any level of quality or relevance. You must be prepared to spend time searching for the desired information on each resulting link and possibly on multiple pages of results. In addition, a link may not immediately direct you to the information you seek; you will have to understand each website’s layout and navigation to find the information you need.

4. *Refine the search, as necessary* – Often times, there are far too many results to conduct an efficient review, or the results do not seem relevant. Two basic strategies you can use to refine the search results are:
 - Re-think your search term list – You could seek advice from co-workers or others who are experienced with the research question and goals on additional words or phrases that may be added to, removed from, or modified on the search term list. You could also change the order of the search terms when you enter them in the search field, which may yield different results.

 - Use the search engine’s advanced search function – Search engines have advanced search functions but vary on specific search capabilities. In most cases, the advanced search function will allow you to search for exact phrases, exclude certain phrases, and filter results based on a criterion, such as:
 - domain extensions (e.g., .com, .org, .net).
 - file type (e.g., .pdf, .xls, .doc).
 - language it was written (e.g., English, Spanish, Chinese).
 - date (e.g., last 3 months, last 6 months, last 12 months, within specific dates).

5. *Document the results of the Internet search* – When you find the desired information, document the results by performing any of the following:
- print hard copies of the document/data.
 - save the documents/data to your computer hard drive, if possible.
 - copy and paste the information onto a word processing document (e.g., Microsoft Word).
 - save the website addresses for future review. *Remember that websites can be removed by their owners at any time without warning.*

Archival Sources

Archival sources consist of any existing documents, records, or data that are either found within the organization or were collected by other organizations, such as

- other local government agencies (e.g., city, county, or state).
- agencies that provide similar or complementary services (e.g., health agencies, schools, community organizations, etc.).
- agencies that have similar functions (e.g., procurement, payroll, human resources, etc.).

Archival sources may include, but are not limited to,

- documented mission and vision statements.
- departmental policy and procedures.
- memoranda and other correspondences (e.g., emails).
- training manuals.
- electronic data and records (e.g., case files).
- data stored in old software systems that may not be current.
- public relation materials.
- press releases.
- narrative and statistical reports (e.g., demographic data, data about a city neighborhood).
- public records.

Why collect information from archival sources?

Archival sources may serve several useful purposes depending on the research question and goals. Examples include the following:

- highlight or uncover a potential problem with an existing work process.
- gain historical insight on a proposed training topic (e.g., the organizational context for the training).
- find out if a similar research assignment has been conducted before and if so, what has been already collected.
- collect existing demographic data about the community that will receive services from a new departmental program.

How to collect information from archival sources

Basic strategies used to collect archival sources include

- seeking advice from supervisors, co-workers, or others who may know where relevant documents/data are stored or if they exist.
- searching your department/section/unit's centralized library or storage area of information, if one exists.
- conducting an Internet search (see previous section on how to conduct an Internet search).
- contacting representatives from other agencies.

Benchmark & Case Studies

Benchmark and case studies provide information that relates to a specific workplace practice, process, or function. A benchmark study collects and analyzes information from multiple organizations, while a case study collects and analyzes information from a single organization.

Why collect information from benchmark and case studies?

Benchmark and case studies are most useful when an organization wants to

- gain insight on how other organizations operate.
- understand how it compares to similar organizations.
- decide whether improvements need to be made within the organization.

Examples of benchmark or case studies include information related to

- the effectiveness of practices or approaches to providing a mental health service.
- information technology systems used to store, process, and report client data.
- policies and implementation practices related to dress code.

How to collect information from benchmark and case studies

There exist companies whose purpose is to conduct benchmark and case studies or continuously collect data for such studies. Companies may make the reports available for free or for purchase. Companies may also make the reports available on the Internet.

Note: You may also conduct your own benchmark or case study by using additional data collection methods, such as interviews and surveys (these methods are discussed in later sections of this information guide).

Professional Publications

Professional publications present research studies, articles, and reports within a specific industry (e.g., construction, education, social services, consumer affairs, etc.) or field (e.g., legal, healthcare, social work, engineering, etc.). Professional publications include journals, magazines, books, and newsletters issued by a professional organization or association.

Why collect information from professional publications?

Among document review sources, professional publications *generally* provide the most accurate and reliable information. Before it is published, a professional article usually goes through a formal review process conducted by other experts in the field. This practice promotes a satisfactory level of accuracy, objectivity, and quality on the information being conveyed – standards that are set forth by the publication. The more information you can find out about the publication’s review process, the better decision you can make about the quality of the articles the publication produces.

How to collect information from professional publications?

Professional publications may be accessed via the Internet or are available at local public or college/university libraries. Once you find an article, you can identify other potential articles or other sources (e.g., organizations or experts) that have been referenced by the original article.

Realize that there are usually subscription costs associated with professional publications. Although some publications may be available to the public for free, others require a subscription fee whether it is available as a print copy or on the Internet.

Choosing a Document Review Source

Choosing the document review source to collect data from depends on the research questions and goals. In fact, you are encouraged to seek information from multiple sources whenever possible. Each type of source has its advantages and challenges, which are summarized in the table below.

Type of Source	Advantages	Challenges
Internet Searches	<ul style="list-style-type: none">• Potential for collecting large quantities of data in a short period of time.• Access to information includes international sources.	<ul style="list-style-type: none">• Less control over quality of data.• May be time-consuming to review all collected data for relevance and quality.
Archival Sources	<ul style="list-style-type: none">• Potential for collecting large quantities of data in a short period of time.• Provides historical context for your research assignment.	<ul style="list-style-type: none">• Access to information may be difficult.• No control over quality of data.
Benchmark and Case Studies	<ul style="list-style-type: none">• Potential for an immediate collection of useful information.• Can compare your organization with other similar organizations.	<ul style="list-style-type: none">• Access to information may be difficult depending on the willingness of the organization that produced the study to share the information.• May require fees to access the information.
Professional Publications	<ul style="list-style-type: none">• Generally provides most reliable and accurate information among secondary sources.	<ul style="list-style-type: none">• May require expertise in subject area in order to interpret content.• May require subscription fees to access publications.

Interviews

The interview is the most common data collection method used to collect *primary source information* (i.e., any information that you collect or produce specifically for your research assignment). An interview is a purposeful conversation between you and the participant(s). The conversation is driven by the use of questions that produce responses that are related to the research questions and goals.

Why collect information using the interview?

Interviews are ideal for collecting detailed and descriptive information directly from the participants that you can use to describe the responses of the interviewees and identify general response themes.

Examples of research questions where the interview is a useful data collection method include the following:

- What improvements to a training program can be implemented?
- What types of problems have employees experienced when providing social services to clients?
- What are the challenges to successfully implement a new departmental policy and procedure?

How to collect information using an interview

Prior to interviewing the participants, you will need to prepare a set of interview questions designed to produce responses from the participant that will provide you information to answer the research questions. During the interview, you will ask each question and record the participant's responses. Throughout the interview, you may ask additional questions (often referred to as *probing questions*) in order for participants to elaborate on their responses, clarify their responses, or be re-directed towards answering the question. Generally, interviews may be conducted by using the following tools:

Personal Interview – A personal interview is a one-on-one, directed conversation that occurs face-to-face with an individual.

Telephone Interview – A telephone interview is a one-on-one, directed conversation with an individual that occurs over the telephone.

Focus Group – A focus group is a face-to-face interview with a group of individuals (typically ranging from 2-12 individuals). Individuals within a focus group usually share a common characteristic (e.g., all hold the same job title) but may provide different perspectives and information during a directed, moderated, and interactive group discussion.

Surveys

A survey is an approach that gathers primary source information by presenting a series of questions to be answered in a pre-arranged order. Surveys use questions that produce responses that are related to the research questions and goals and within the constraints of your assignment. Surveys are often self-administered (i.e., completed by the participant with little to no interaction with the researcher).

Why collect information using the survey?

Surveys are ideal for collecting a large amount of information directly from participants. Information gathered through a survey can be easily analyzed, which allows you to summarize the responses of the participant and draw out other meaningful information.

Examples of research questions where the survey is a useful data collection method include the following:

- What is the demographic data that describes the target sample of participants?
- To what extent were participants satisfied with the training program they attended?
- How has the level of satisfaction with a program changed over time?

How to collect information using a survey

A survey involves the development of questions designed to produce responses from the participant that will provide you with information that answers your research questions. Surveys collect information by using the following tools:

Hardcopy Survey – A hardcopy survey is delivered to participants either in-person or by mail.

- When delivered in-person, you schedule participants to come to your facility or large conference room to complete the survey. Responses may be recorded on the survey itself or on a separate form (e.g., scantron sheet).
- When delivered by mail, the participants complete it and return it to you by mail. Responses may be recorded on the survey itself or on a separate form (e.g., a scantron sheet).

Electronic Survey – An electronic survey is delivered to participants by electronic means, which include any of the following:

- Participants come to a computer facility and complete the survey on a computer terminal.
- Participants complete the survey via the Internet (usually referred to as a *web-based survey*). Participants are notified via email as to the survey's website address and are given login and password information to access and complete the survey.

- Participants receive the survey via email as an attachment. In this case, the survey may either (a) remain in its electronic form and participants record their responses and return the completed survey electronically, or (b) be printed as a hardcopy survey and participants complete it and return it in-person or by mail.

Observation

The least common data collection method to collect primary source information is observation. Observation involves gathering information directly from the participant(s) by watching and recording their actions, behaviors, and conduct in their natural settings (e.g., an employee performing tasks in a warehouse). Observation may also involve visually assessing a particular work environment or process (e.g., the steps involved in processing a benefits claim).

Why collect information using the observation?

Observations are useful in helping to understand how people behave in certain situations by watching the people's *actual* behaviors. This method of data collection allows you to study how participants interact in their natural settings or how a particular work process functions in an actual setting.

Examples of research questions where observation is a useful data collection method include the following:

- How do social workers interact with clients when providing social services within a regional office?
- What kind of work environment does an employee work in while performing carpentry tasks?
- What are the potential risks for accidents in a department's warehousing operations?

Generally, there are two types of observation tools. The basic difference between the two is how you are involved in the observation.

Personal Observation

In a personal observation, you watch the participant(s) and do not actively interact with the participant(s). You take notes on what you observe. However, it is important to understand that the mere presence of the observer may influence the actions of the observed. Observations may be conducted in a

- natural setting, where people may or may not know they are being observed.
- defined research setting, where the natural setting is replicated and people know they are being observed.

Participant Observation

In a participant observation, you observe and participate in the natural setting, interact with the participant(s), and record their actions, behaviors, and conduct. As the researcher, you are both a participant in the situation being studied and an observer of the situation.

Note: Of the two types of observation, personal observation is the most common type used in a workplace setting. Therefore, the remaining sections of this guide will refer only to the personal observation.

Summary

There are many data collection methods and tools you can use to collect information that are relevant to your research questions and goals and within the constraints of your assignment. After understanding which data collection methods are available to you, an important next step is actually choosing which method(s) and tool(s) to use. The next section will discuss the factors to consider when deciding which data collection method(s) and tool(s) is most appropriate to answer your research questions.

Selecting a Data Collection Method/Tool

Remember that your goal in data collection is to gather enough accurate and relevant information within the constraints of your assignment that will enable a supervisor to make a sound, effective decision. A number of factors must be considered when deciding which data collection method/tool(s) to use in order to achieve your goal.

It is important to note that *no one data collection method/tool is ideal for every situation nor will any one factor determine the most appropriate method/tool*. You must consider all the relevant factors together when deciding which ones to employ.

When choosing among data collection method/tools, consider the following factors:

- Research questions and goals
- Participant/unit sample
- Response rates, time, & cost
- Research experience
- Quality of data

This section will provide a brief explanation of each factor and make comparisons among the data collection method/tools. At the end of this section, a table that summarizes the preferred data collection tool based on each factor is provided.

Research Questions and Goals

The first and foremost factors to consider when choosing a data collection method are the research questions and goals – the reasons why you are collecting data. Your research questions and goals will generate specific *data collection questions* (i.e., questions that direct you towards the specific types of information you need to collect) that help you decide which data collection method to choose. Particular data collection methods are suited to provide certain types of information.

Here’s an illustration of how the research questions and goals generate data collection questions, which leads to selecting a data collection method and to specific information that is collected.

An Illustration

Let’s say your department administers a job placement assistance program to the local community.

Research question: What do participants of the job assistance program think about the various aspects of the program?

Data Collection Question	Potential Data Collection Method	Potential Data Collected
What is the program’s mission and goals, and how is the program supposed to be implemented?	Document Review	Print or electronic copies of the program’s mission and goals statements, and the program’s policy and procedures manual.
What are the experiences of the participants who received assistance from the program?	Interview	Written notes describing stories, thoughts, and experiences as told by a sample of participants of the program.
To what extent are participants satisfied with the assistance they receive from the program?	Survey	Raw numerical data measuring the participants’ levels of satisfaction with various aspects of the program.
What is the quality of the interaction between the employees of the job placement assistance program and the participants?	Observation	Written notes describing the behaviors exhibited by the employees while they interact with the participants.

The above illustration shows how one research question can generate multiple data collection questions, which leads to several options on how to collect the data. It is important to note, however, that one data collection method can provide information that answers several data collection questions. For this reason, you should consider additional factors to determine the most appropriate data collection method(s) to use.

Participant/Unit Sample

There are specific characteristics of the participant/unit sample that may affect your choice of a data collection method/tool. These factors are (1) Sample Size, (2) Location of Participants/Units, and (3) Participant Skills. Each factor is briefly explained below.

Sample Size

Sample size refers to the number of participants or units of information you need in order to be satisfied that you collected enough information that will result in relevant findings (i.e., accurate and reliable). For our purposes, we will define sample size ranges as follows:

- Small – 1 to 10 participants/units.
- Medium – 11 to 15 participants/units
- Large – 15 or more participants/units.

Particular data collection methods/tools are more effective than others when considering the target sample size. That is, particular data collection method/tools may be more effective when used to collect information from a small sample than a large sample. These differences in sample size should be taken into account when choosing a data collection method/tool.

Location of Participants/Units

Location of Participants/Units refers to the physical location(s) of the participants who provide information, or the units of information the researcher needs to collect. The concern is how geographically spread-out the physical locations are and how that affects your choice of a data collection method/tool. For our purposes, the range of physical locations will be defined as follows:

- Limited-range – Participants/units of information are situated in a single location or in multiple locations that are concentrated within a single geographical area. You can easily travel to each location to collect information, or it is convenient for participants to travel to you to provide the information.
- Wide-range – Participants/units of information are situated in multiple locations within a widespread geographical area. Traveling to each location to collect information or participants traveling to you to provide information is inefficient or inconvenient.

Particular data collection method/tools are more effective than others when considering the location of participants/units. That is, a particular data collection method/tool may be more effective and efficient when collecting information from participants located in a wide-range of physical locations. These differences among participant/unit locations should be taken into account when choosing a data collection method/tool.

Participant Skills

Participant Skills refer to two particular skill sets that participants (i.e., any individual who is providing you with information) may need to maximize the benefit of using a data collection method/tool. The two skill sets are:

- Communication & Interpersonal Skills – This refers to a participant’s skill in conveying information to others *orally and/or in writing*, listening to others, and interacting with others in a productive and mutually beneficial manner in order to understand and communicate the information you want to collect.
- Reading Comprehension – This refers to a participant’s skill in reading and comprehending written materials in order to understand and implement written instructions or requests for information and answer written questions.

The level of participant skills may differ based on variations in the participants’ backgrounds and experiences. For example, oral communication and interpersonal skills may be very important to perform Job A. As a result, participants from Job A may have higher levels of oral communication and interpersonal skills than other jobs. Therefore, data collection method/tools that require oral communication and interpersonal skills may be more appropriate when the sample of participants is from Job A.

How do the data collection methods compare?

The following table compares the data collection method/tools in terms of the participant/unit sample characteristics. The table indicates the ideal situation to use a data collection method, although your research questions/goals and the constraints of your assignment will affect the situation. Comments are provided to elaborate on each method/tool.

Method/Tool	Participant/Unit Sample			Comments
	Sample Size	Location of Participants/Units	Participant Skills	
Document Review	All	All	All	<ul style="list-style-type: none"> The use of technology gives you access to large amounts of information from a wide range of locations. For example, Internet searches provide access to international sources.
Personal Interview	Small	Limited-range	Communication & Interpersonal Skills	<ul style="list-style-type: none"> Ideal for small sample sizes within a limited range of locations. Interviewing large sample sizes becomes time-consuming. Traveling is inconvenient for you and the participants.
Telephone Interview	Small to Medium	Wide-range	Communication & Interpersonal Skills	<ul style="list-style-type: none"> Ideal for small to medium sample sizes. Interviewing large sample sizes becomes time-consuming. Can gather information from a wide range of locations because traveling is eliminated.
Focus Group	All	Wide-range	Communication & Interpersonal Skills	<ul style="list-style-type: none"> Sample sizes are more manageable because interviews are conducted in groups rather than individually. Ideal when participants are from a wide range of locations as it provides a representation of perspectives.
Survey	Medium to Large	Wide-range	Reading Comprehension	<ul style="list-style-type: none"> Surveys are most efficient when collecting information from medium to large sample sizes. Surveys can be easily distributed to participants in a wide-range of locations.
Observation (Personal)	Small	Limited-range	Not applicable	<ul style="list-style-type: none"> Ideal for small sample sizes within a limited range of locations. Otherwise, collecting information becomes time-consuming. Participant skills are not applicable. Your role is to observe behaviors in regardless of participant skills.

Response Rates, Time, & Cost

As stated earlier, your goal is to gather as much relevant information as possible within the constraints of your assignment. Some of these constraints deal with response rates, time, and costs.

Response Rates

Response rates refer to the likelihood that participants will actually participate in the data collection process and provide useable, relevant, and accurate information. Particular data collection method/tools are more likely to solicit participation than others.

Efficient Use of Time

Efficient Use of Time refers to how well a data collection method/tool gathers information from participants when given time constraints to develop and implement the method/tool. Data collection method/tools vary on how efficient they are in collecting information within the established time constraints.

Cost Effectiveness

Cost Effectiveness refers to the monetary amount necessary to develop and implement a data collection method/tool. Considering all the cost factors, particular data collection method/tools are generally more cost effective than others. Data collection method/tools vary on costs, such as

- how long it takes to develop.
- who will be responsible for developing and implementing it.
- how many participants are involved in the process.
- how long it takes to implement.
- the available resources associated with a data collection method/tool (e.g., existing technology, available sites to collect data, etc.).

The Response Rates, Time, & Costs Trade-off

There is an inherent trade-off among response rates, efficient use of time, and cost effectiveness. It is often stated that only two out of the three factors can be achieved in any one data collection method. For example, interviews generally yield the highest response rates but take the longest and are expensive to develop and implement.

How do the data collection methods compare?

The following table compares the data collection method/tool based on the RTC factors by using the following symbols:

Plus Sign (+) Generally a positive or favorable characteristic	Negative Sign (-) Generally negative or unfavorable characteristic	Both signs (+/-) Characteristic depends on other related factors, such as the sample size, location of participants/units, research question and goals, etc.
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Method/Tool	Response Rates, Time, & Costs			Comments
	Response Rates	Efficient Use of Time	Cost Effectiveness	
Document Review	+/-	+	+	<ul style="list-style-type: none"> • If you are collecting information from individuals, response rates will depend on their cooperation to provide the information. • You can collect a large amount of information in a short period of time. • Costs limited to time spent collecting the information from various sources.
Personal Interview	+	-	-	<ul style="list-style-type: none"> • If participants show up to the interview, you have more control over the response rates as they are more likely to provide information in face-to-face conversations. • Inefficient use of time if you need to collect information from a large sample of participants. • Generally cost effective to develop, but cost ineffective to implement, especially for large samples of participants.
Telephone Interview	+	+/-	+/-	<ul style="list-style-type: none"> • If you get in contact with the participants, you have more control over the response rates as they are more likely to provide information in a directed conversation. • More efficient use of time than personal interview, especially if the sample size is small to medium. • Generally cost effective to develop, but cost ineffective to implement, especially large samples of participants. More cost effective than personal interview to implement; more participants can be interviewed by telephone than in-person within a given time period.
Focus Group	+	+/-	-	<ul style="list-style-type: none"> • If participants show up to the focus group meeting, you have more control over the response rates as they are more likely to provide information in a face-to-face group interaction. • More efficient use of time than personal interview, if sample size is medium to large, as meetings are held in multiple sessions rather than individually. • Generally cost ineffective to develop and implement.

Method/Tool	Response Rates, Time, & Costs			Comments
	Response Rates	Efficient Use of Time	Cost Effectiveness	
Survey	-	+	+	<ul style="list-style-type: none"> • Less control over response rates as participants are not compelled to complete and return the surveys. Techniques to increase response rates are required. • More use of time when you need to collect information from a large sample of participants in wide range of locations. • Generally, cost ineffective to develop, but cost effective to implement. Costs may increase for more complex survey designs.
Observation (Personal)	+/-	+/-	+	<ul style="list-style-type: none"> • Response rates depend on your access to participants for observation. • Efficient use of time when observing a small sample of participants within a limited range of locations. • Costs typically limited to time spent observing participants. Costs may increase if a more complex observation method is needed.

Research Experience

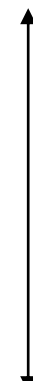
Research experience refers to your professional work experience performing duties related to data collection and employing various data collection method/tools. Particular data collection method/tools do require more extensive experience than others in terms of the development and implementation.

For our purpose, the levels of research experience needed are defined as follows:

- **Basic level** – Researcher may have no work experience conducting research assignments or may have work experience conducting basic research assignments, such as Internet searches or retrieval of information from archival sources.
- **Intermediate level** – Researcher may possess some work experience conducting basic to intermediate research assignments, which may include Internet searches and developing and conducting a short telephone or in-person interview.
- **Advanced level** – Researcher may possess extensive work experience in conducting intermediate to complex research assignments, which may include collecting and reviewing professional publications and/or developing and conducting focus groups, surveys, or longer telephone or in-person interviews.

How do the data collection methods compare?


The following table shows the data collection method/tools in ranked order of the level of research experience required (from basic to advanced):

Level of Research Experience	Data Collection Method/Tool	Why?
Basic  Advanced	Document Review	<ul style="list-style-type: none"> • Many of the skills needed to conduct a document review may be learned on the job.
	Personal Interview	<ul style="list-style-type: none"> • Requires some previous experience in data collection. • Many of the skills needed may be learned on the job. • Additional knowledge of data collection principles may be needed to design more complex forms of each method.
	Telephone Interview	
	Observation (Personal)	
	Focus Group	<ul style="list-style-type: none"> • Requires extensive experience in data collection as there are many technical principles that guide the development and implementation of these methods.
	Survey	<ul style="list-style-type: none"> • Conducting focus groups require satisfactory skills in group facilitation.

Quality of Data

The goal in every research assignment is to gather as much quality information as possible.

Quality of data refers to how relevant and useful the data is to fulfilling the research questions and goals. With each data collection method/tool, there is an amount of control you have over the resulting quality of the data, assuming that good preparation work has been done prior to implementing the method/tool (e.g., developing good interview questions). The following table shows the data collection method/tools in order of the amount of direct control you have over the quality of the data collected (from most control to less control):

Amount of Control	Data Collection Method/Tool	Why?
Most Control  Least Control	Personal Interview	<ul style="list-style-type: none"> • During the interview, you may ask probing questions that may be used at any time to gather more detailed information from participants.
	Telephone Interview	
	Focus Group	
	Survey	<ul style="list-style-type: none"> • You develop the survey questions, but your ability to follow-up on participant responses is limited.
	Observation (Personal)	<ul style="list-style-type: none"> • Your role is simply to watch and record participant behavior. You must have little to no influence over actual participant behaviors.
	Document Review	<ul style="list-style-type: none"> • Because documents are produced by other individuals, you have no control over how they collected their data.

Summary

There are numerous factors to consider when choosing which data collection method/tools to complete your research assignment. It is important to re-emphasize that no one data collection method/tool is ideal for every situation nor will any one factor determine the most appropriate method/tool. You must consider all the relevant factors together when deciding which ones to employ.

Furthermore, depending on the research questions and goals, you should consider using more than one data collection method to fulfill your assignment. In most cases, it is appropriate and highly recommended to do so. Using multiple methods in a research assignment serves several purposes:

- *Higher potential for sound decisions* – Using multiple methods provides a richer, more detailed picture upon which one can make sound decisions.
- *Better use of time* – If you have a limited amount of time, you may initially collect general information to determine if additional information is necessary. If you need to collect additional information, then you can use other data collection methods to collect the additional information or refine the information you already have.
- *Reduces the chance of collecting inaccurate information* – Using multiple methods allows you to emphasize the advantages of particular data collection methods and compensate their challenges with other methods. This approach reduces the chance of collecting inaccurate information because of the inherent shortcomings of a particular method.

Data Collection Method/Tool by Factor Comparison

The following table summarizes the *preferred* data collection method/tool (as denoted by an “X”) based on the factors to consider when selecting a data collection method/tool.

Method/Tool	Participant/Unit Sample						
	Sample Size			Locations of Participants/Units		Participant Skills	
	Small	Medium	Large	Limited-range	Wide-range	Communication & Interpersonal	Reading Comprehension
Document Review	X	X	X	X	X	X	X
Personal Interview	X			X		X	
Telephone Interview	X	X			X	X	
Focus Group	X	X			X	X	
Survey (Hardcopy/Electronic)		X	X		X		X
Observation (Personal)	X	X		X		n/a	n/a

Method/Tool	Response Rates, Time, & Costs			Level of Researcher Experience		
	Response Rates	Efficient Use of Time	Cost Effectiveness	Basic	Intermediate	Advanced
Document/Data Review		X	X	X		
Personal Interview	X				X	
Telephone Interview	X				X	
Focus Group	X	X				X
Survey (Hardcopy/Electronic)		X	X			X
Observation (Personal)			X		X	

Ethics & Data Collection

To collect data ethically, you must balance between two responsibilities. On the one hand, there is the responsibility to collect and use the information in an honest manner in order to further one's knowledge and ultimately seek answers. On the other hand, there is the responsibility to treat the participants fairly while collecting the information: to build trust, gain support, and be forthright throughout the process. By diligently maintaining a reasonable balance between these two duties, you can achieve the following results:

- The well-being of the participants is protected.
- Participants are more likely to provide information in the future.
- The integrity of the data collection process is maintained.
- The accuracy, objectivity, and security of the collected data are maintained.
- A level of professional conduct in the research process is promoted.

The ethical issues revolve around treating the participants fairly and maintaining the data properly by ensuring the following throughout the data collection process:

- voluntary participation
- informed consent
- protection of participant identity
- data security
- proper use of data

Voluntary Participation

Voluntary participation refers to a participant's right to freely choose to provide information. Ideally, anyone who is providing you information should be a "willing participant": a person who is fully aware that he/she is providing information and does not perceive that he/she is being forced to do so. This practice is essential to protecting the well-being of the participants while collecting meaningful information. A way to ensure voluntary participation from a participant is by obtaining informed consent.

Note: In the workplace setting, it is every employee's responsibility to participate in work assignments that may include providing and sharing information, as appropriate, for another employee's research assignment.

Informed Consent

Informed consent refers to two obligations: (1) informing a participant why information is being collected from him/her, and (2) obtaining his/her permission to collect information prior to using the specific data collection method/tool. Gaining informed consent prior to collecting data is an important aspect of gaining voluntary participation from a participant.

The first obligation refers to the notion that you should describe to participants

- the purpose of collecting the information.
- how the information will and/or will not be used.
- any benefits or consequences for participating.

An example would be explaining to a participant that you are collecting employees’ opinions about a program that the department wants to implement (i.e., the purpose). You would explain to the participants that the information will be used to develop various aspects of the program (i.e., how the information will be used) and that his/her opinion will help shape the way the program is implemented (i.e., the benefit).

The second obligation refers to gaining permission from a participant to collect the information from him/her by either of the following ways:

- Verbally explaining to the participant the above information, then obtaining a verbal agreement from the participant to provide information. This practice is most often performed when conducting telephone interviews.
- Explaining to the participant the information above in writing, then obtaining agreement to provide information through the participant’s signature. This practice is most often performed when administering questionnaires or conducting personal interviews.

Protection of Participant Identity

Also important in collecting data ethically is considering how to protect the identity of a participant during the data collection process. That is, you must be clear to a participant whether you will maintain a level of *confidentiality* or *anonymity*.

Confidentiality

Depending on your assignment, you will be required to maintain a level of *confidentiality*, which refers to knowing the identity of the participant but promising not to reveal it. Often times, you will inform a participant that his/her identity may be revealed to only those who are directly involved in the research assignment.

Uses of Confidentiality	How to ensure confidentiality
<ul style="list-style-type: none"> • When personal contact is made with the participant, such as in an observation or interview. • When you may need to collect additional information from a participant in the future. • When collecting information for a document review from a representative of another agency. 	<ul style="list-style-type: none"> • Use a random identification system (001, 002, 003, etc.) instead of easily recognized identifiers (e.g., employee numbers or social security numbers). • Maintain documentation that links the identification system with the participant identities private and secure. • Disclose the identity of the person who provided you the information only if the person gives you permission to do so or you judge that disclosing the identity does not harm the person in any way. You may consider informing the person of your disclosure.

Anonymity

In a few assignments, you will decide to maintain *anonymity*, which refers to not being able to identify a participant based on his/her responses. That is, no link can be made between the participant and his/her specific responses.

Uses of Anonymity	How to ensure anonymity
<ul style="list-style-type: none">• When particularly sensitive information is collected.• When it is unnecessary for you to collect additional information from participants in the future.• When conducting surveys.	<ul style="list-style-type: none">• Ensure no questions produce responses related to any personal identification (e.g., employee numbers or social security numbers).• Ensure that questions do not produce responses that may be used in combination to identify the participant (e.g., work location, ethnicity, gender, birth dates).

Data Security

In addition to protecting the identity of a participant, it is equally important to protect and secure all the information that is collected, especially when the data contains personal identification. Furthermore, data security refers to limiting the access to information to specific individuals, most likely those who are directly involved in the research assignment.

To ensure the protection and security of the data collected, the following basic steps should be taken:

- Secure hardcopy data in a file cabinet that can be locked and that limits access to individuals.
- Secure electronic data by keeping it password protected and limiting access to other individuals.
- Remove identifying personal information from electronic databases and replace it with an assigned identification number. If you need to identify participants for follow-up, keep the identifying data and the collected data separated and in a secure place.
- Continue maintaining data security even after the research assignment is complete or shred hardcopy files or delete electronic files from the computer.

Proper Use of Data

The proper use of the data you collect is as important as your interactions with those who provide you the information. Properly using data demonstrates your commitment to collecting information in an ethical manner in order to gain understanding and find the answers to your questions. There are two common issues related to the proper use of the data.

The first issue has to do with the use of another person's work: his/her ideas(s), information, language, or writings. When someone uses another person's work *as their own without acknowledging or giving credit to that person*, this is referred to as *plagiarism*. Because numerous information sources, ideas, and thoughts are easily accessible due to technology, you

should be mindful as to how you integrate another person's work into your own. Here are two ways you can appropriately integrate another's work into your own:

- Ensure that you acknowledge the other person's work in your documentation by listing all the references and sources you used in your work.
- Think critically about the information you gather and add new elements to the information based on your own thoughts, perspectives, and experiences. *Note: You can still acknowledge other people's work in your documentation by listing all the references and sources you used.*

The second issue has to do with how you use the information in order to fulfill your research questions and goals. It would be inappropriate to manipulate the information to fit your research questions and goals, when the information actually suggests otherwise. That is, it is inappropriate to present only selected parts of the information you collect that will support your research goals without presenting *all* the information or presenting parts of the information *without* placing in its *proper* context. Assuming that you have collected relevant and accurate data in an appropriate manner, the information should lead you to the most appropriate decision, not vice versa.

Summary

There are several ethical issues related to data collection, namely voluntary participation, informed consent, protection of participant identity, data security, and the proper use of data. Having a basic understanding of these issues is necessary throughout the data collection process, including when you develop and implement any data collection method/tool.

Basic Principles of Developing Data Collection Methods

This section highlights basic principles and practical guidelines related to developing data collection methods. These principles and guidelines increase the likelihood that the information you collect is accurate, reliable, and relevant to your research questions and goals within the constraints of your assignment.

Note: This section provides a general overview of guidelines related to developing data collection methods. There is no guarantee that someone who reads this guide will be able to properly develop a data collection method. You are encouraged to review additional information covering this topic area (The bibliography at the end of this guide lists several references for your review.).

Document Review

An important aspect of the document review method is to understand your research questions and goals, the constraints of your assignment, and the advantages and challenges of each document review source. This understanding assists you in focusing your attention on searching for the most relevant document review sources. Additional guidelines for developing a document review method include the following:

- To have a clear understanding of the research purpose and the types of information you are looking for, ask your supervisor (or whomever assigned you the research assignment) for as much clarification as to what information he/she is looking for and why. This will help you focus your search on finding the information you are looking for.
- If you are contacting people for information, make a list of the documents/data you want in order to request and collect information more efficiently.
- Create and maintain a database of your sources and references. This may include contact information from the other organizations, a list of the most useful websites, relevant professional publications, etc. This practice makes similar searches in the future more efficient and allows you to easily share knowledge among your co-workers.

Question Development for Interviews and Surveys

When developing an interview or survey, you will need to create a set of questions that solicit the kinds of information you need to fulfill your research questions and goals within the constraints of your assignment. Basic principles related to writing questions include the following:

- Choose between open-ended vs. close-ended questions.
 - *Open-ended questions* are questions that have no pre-established set of responses for a participant to choose from. Participants freely respond to the question depending on the question's intent and answer the question in their own words.

<i>Examples: Open-ended Questions</i>
<ul style="list-style-type: none"> • “How would you improve in your organization’s request-for-proposal process?”
<ul style="list-style-type: none"> • “How would you describe the quality of customer service you have received from this office?”
<ul style="list-style-type: none"> • “How would you change the way clients currently receive and submit applications for public assistance?”

- *Close-ended questions* refer to questions with a set range of answers determined prior to the interview or survey, and the participant must choose one or more responses among the given set of answers (e.g., yes/no; choose one among the choices; check all that apply; etc.).

<i>Examples: Close-ended Questions</i>
<ul style="list-style-type: none"> • On a scale from one to seven, seven being the most satisfied, how satisfied are you with the service provided by the district offices?
<ul style="list-style-type: none"> • In the past 6 months, how many workshops have you attended?
<ul style="list-style-type: none"> • What is the highest level of education you have earned?

- Write questions using language that provides the same meaning among participants based on a common background, such as an occupation, industry, department, etc. This ensures a consistent message being conveyed to participants, which leads to more accurate responses. This can be a challenging task. One technique is to use the most common terms possible when writing questions.
- Provide enough information in the question for a participant to adequately formulate or choose a response. This minimizes the chance of a participant trying to guess what information you are looking for.
- Limit each question to a single reference or topic. This prevents any confusion among participants as to the purpose of the question and ensures the accuracy of the responses.

<i>Example: Multiple vs. Single Reference</i>	
<i>Multiple reference (i.e., Undesirable)</i>	<i>Single reference (i.e., Desirable)</i>
<ul style="list-style-type: none"> • How satisfied are you with the Return-to-Work program and the Employee Assistance Program? 	<ul style="list-style-type: none"> • How satisfied are you with the Return-to-Work program? • How satisfied are you with the Employee Assistance Program?

- Avoid biased or leading questions. These questions compromise the integrity of the research assignment and ultimately lead to inaccurate results.

<i>Example: Leading vs. Neutral Question</i>	
<i>Leading question (i.e., Undesirable)</i>	<i>Neutral question (i.e., Desirable)</i>
<ul style="list-style-type: none"> • Did you exercise your right as a County employee to attend the last health fair? 	<ul style="list-style-type: none"> • Did you attend the last health fair?

- In general, organize the questions in the following manner in order to increase the likelihood that the participant will provide the information you seek:
 - Start with questions that are easier to answer and gradually move to more difficult questions.
 - Start with questions covering general topics and gradually move to more specific topics.
 - Ask the questions in an order that makes sense to the participants (e.g., in chronological order or by topic areas).
- Ask personal questions (e.g., race, age, gender, education level, etc.) *at the end* of the interview or survey. Many people are reluctant to disclose personal information. When the first questions they answer are personal, the participant may become uncomfortable or reluctant to continue with the data collection process. By placing personal questions at the end, you increase the likelihood that the participant will provide the information you seek.

Interviews

In addition to the guidelines for developing questions outlined above, other principles related to developing questions specifically for interviews include the following:

- Use mostly open-ended questions. Open-ended questions produce more detailed and descriptive information in the participant’s own words.
- Create questions that are easy to read and that clearly convey a message *when read aloud*.

Surveys

Survey development involves developing two component parts: (1) the Questions, and (2) the Response Choices. Each component part will be briefly explained below.

The Questions

In addition to the guidelines for developing questions outlined above, another principle related to writing questions specifically for surveys is to use mostly close-ended questions. If you decide to use open-ended questions in your survey, they should be kept to a minimum and placed at the end of the survey to ensure that all close-ended questions are answered first.

The Response Choices

The *response choices* are the set of responses that the participant chooses from in order to answer the question. While many other types of response choices exist, two basic types are *lists* and *scales*. *Lists* are categories of information from which a participant may choose one or more choices, depending on your instructions. *Scales* give participants a range of numbers from which he/she must choose one to answer the question. An example of each type of response choices is provided below.

<i>Examples: Types of Response Choices</i>	
<i>List</i>	<i>Scale</i>
Which geographical area(s) are you willing to work (you may choose more than one)? <input type="checkbox"/> North <input type="checkbox"/> West <input type="checkbox"/> Central <input type="checkbox"/> East <input type="checkbox"/> South	How likely are you to participate in the new exercise program? 5. Highly Likely 4. 3. Neutral 2. 1. Not at all Likely

List of Response Choices

Basic principles for developing a list of response choices for a survey include the following:

- Be sure to provide a *complete* list of response choices. Complete lists eliminate any confusion among participants on how to respond and do not exclude any particular participants from responding (i.e., there is at least one category that everyone fits into).

<i>Example: Complete vs. Incomplete Lists</i>	
What is your current marital status?	
<i>Incomplete (i.e., Undesirable)</i>	<i>Complete (i.e., Desirable)</i>
<input type="checkbox"/> Single <input type="checkbox"/> Married <input type="checkbox"/> Widowed	<input type="checkbox"/> Single <input type="checkbox"/> Married <input type="checkbox"/> Separated <input type="checkbox"/> Divorced <input type="checkbox"/> Widowed

- If the categories are ranges of numbers, each category should not overlap. This eliminates any confusion among participants on how to respond.

<i>Example: Overlap vs. No Overlap in Range of Numbers</i>	
In the past week, approximately how many times have you visited the department's Intranet site for work information?	
<i>Overlap (i.e., Undesirable)</i>	<i>No Overlap (i.e., Desirable)</i>
<input type="checkbox"/> Never <input type="checkbox"/> 1 – 5 times <input type="checkbox"/> 3 – 7 times <input type="checkbox"/> 5 or more times	<input type="checkbox"/> Never <input type="checkbox"/> 1 – 5 times <input type="checkbox"/> 6 – 9 times <input type="checkbox"/> 10 or more times

Scale of Response Choices

Basic principles for developing a scale of response choices for a survey include the following:

- Use scales when the questions measure a participant's attitude or opinion about a topic area (e.g., "How satisfied are you with ...", "To what degree do you agree or disagree with ...", "How likely are you to ...", etc.).
- Balance and evenly distribute positive and negative response choices within the scale. Too many responses on either side – positive or negative – will inaccurately represent the true meaning of the participants' responses.

<i>Example: Balanced vs. Unbalanced Scales</i>	
To what extent do you agree with each statement?	
<i>Unbalanced (i.e., Undesirable)</i>	<i>Balanced (i.e., Desirable)</i>
<input type="checkbox"/> Strongly Agree <input type="checkbox"/> Mostly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Somewhat Agree <input type="checkbox"/> Strongly Disagree	<input type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neutral <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree

- Generally, the number of choices in a scale should range between three (3) and seven (7). This range provides enough information for a participant to make a meaningful response and allows you to detect meaningful differences among participant responses without confusing the participants with too many choices.

<i>Example: Range of Choices</i>		
To what extent are you satisfied with the following services?		
<i>3 choices</i>	<i>5 choices</i>	<i>7 choices</i>
1. Satisfied	1. Very Satisfied	1. Extremely Satisfied
2. Neutral	2. Satisfied	2. Very Satisfied
3. Dissatisfied	3. Neutral	3. Satisfied
	4. Dissatisfied	4. Neutral
	5. Very Dissatisfied	5. Dissatisfied
		6. Very Dissatisfied
		7. Extremely Dissatisfied

Observations

An important aspect with the observation method is to understand the research questions and goals. This helps you establish a framework or guidelines for the observation. When the framework is set, you can create forms that facilitate and guide the documentation of behaviors/events that you observe. It may be as simple as taking notes on a notepad during the observation or as elaborate as

- creating a pre-determined list of behaviors/events you expect to observe and using tally marks to count the number of times you observe the behavior/event.
- determining the major categories of behavior/events (and create category headings) and providing space between each category heading for you to take notes on all the specific behaviors/events you observe.

Summary

Developing a data collection method that satisfies these guidelines is not easy. There is no set of rules that, if precisely followed, will ensure the creation of a good data collection method. These guidelines will not guarantee but rather increase the probability that a well-designed data collection method will be developed.

Procedural Considerations & Data Collection

Each data collection method has several procedural considerations that you should be aware of when implementing the method. These considerations help to ensure that you collect accurate and reliable information relevant to your research questions and goals within the constraints of the assignment. The following summary highlights the major procedural considerations associated with each method.

Document Review

Conducting a document review requires “detective work” during your search. Often times, you must contact numerous people or search through multiple sources before you find ones that give you the information you seek. To maximize the effectiveness of your search, the following guidelines may be used:

- Evaluate continuously whether or not the information you collect is in fact relevant to your research purpose within the constraints.
- Evaluate the reliability of the information you collect. This involves considering the source of the information, who originally produced the information, when the information was originally produced, the original intent of the information, etc.
- When collecting information from other organizations, a good business practice is to share your results with those organizations. This practice promotes reciprocity among organizations and increases the likelihood of sharing information in the future.
- Document the sources and results of your data collection. This makes future searches easier and more efficient. When you find the desired information, document the results by performing any of the following:
 - Print or make hard copies of the documents/data.
 - Save documents/data to your computer hard drive, whenever possible.
 - Copy and paste any information onto a word processing document (e.g., Microsoft Word).
 - If you are conducting an Internet search, save the website addresses for future review. *Remember that websites can be removed by their owners at any time without warning.*

Interviews

An important issue related to implementing interviews involves taking steps to reduce a participant’s anxiety associated with collecting information using an interview. The more comfortable the participant is throughout the whole process, the more willing he/she will be to provide information. Steps may be taken during two main phases of implementing interviews: (1) preparing for the interviews, and (2) conducting the interviews. These procedural considerations are highlighted below.

Preparing for Interviews

When preparing for the interviews, the following guidelines may be used:

- Send each participant information that will help him/her prepare for the interview. Types of information to include are interview time, interview location, directions to interview location, contact information, length of time to allocate for the interview, etc.
- Ensure the interview location and facilities promote a positive environment to conduct interviews. This includes
 - considering the surrounding environment (e.g., noise levels). If you are conducting a telephone interview in a cubicle work environment, you may need to find a quiet room to conduct the interview.
 - properly arranging the interview room to make the interview setting comfortable for participants.
- For focus groups, you may need to address additional issues:
 - Attempt to obtain a group of participants that represent a diverse set of thoughts and experiences and still come from the population under study. This will reflect in the results of the focus group.
 - Focus your attention on facilitating the group discussion by obtaining assistance from a co-worker to record participant comments.

Conducting the Interviews

When conducting interviews, the following guidelines may be used:

- Begin the interview by explaining the interview's purpose to the participant. This builds trust with the participant and helps him/her focus on providing relevant information.
- Maintain an interested posture, eye contact, and expression throughout the interview. This demonstrates your attentiveness and interest in what the participant is saying.
- Provide enough time for you to conduct the interviews. This allows the participant to provide thorough and thoughtful responses without the feeling of being rushed.

Survey

An important issue related to implementing a survey is response rates. No matter how well you design and implement a survey, the research assignment could be unsuccessful if you do not receive enough completed surveys to draw meaningful conclusions. A few basic techniques to increase response rates are as follows:

- Provide an introductory letter that explains the purpose of the survey and detailed instructions on how to complete and return the questionnaire to you. The easier it is for participants to complete the survey, the more likely they will participate in the process.
- Implement a strategy to follow-up with participants (e.g., sending reminder cards or re-mailing or emailing surveys). This conveys to participants a message of seriousness and importance of the survey project.
- For surveys delivered by mail, provide a stamped, self-addressed envelope. This makes returning completed surveys easier for participants.

- Keep the survey at a manageable length. You want to maintain a balance between asking enough questions to collect the information you need, while not overwhelming the participants with too many questions.
- Ensure the anonymity of the participants, whenever feasible. Participants are more likely to complete surveys when they know their responses are not directly linked to their personal identity.
- Use a third party vendor to administer and tabulate the results. This gives the participant an impression that you are making attempts to maintain objectivity.
- Offer a form of incentive, such as a prize drawing (e.g., gift certificates), for only those participants who complete a survey. Meaningful incentives increase the likelihood that participants will complete the survey.
- Emphasize organizational and personal benefits of completing the survey. Participants are more likely to complete surveys if they trust that the results will be used for positive initiatives (e.g., improvements in work processes).

Observation

One concern with implementing the observation method is gaining access to participants to observe. In most cases, obtaining approval from the appropriate individuals (e.g., supervisors or higher-level managers) will give you access to individuals whom you want to observe. Once you have gained access to participants, the following procedural guidelines may be followed:

- Set rules or guidelines for the observation:
 - When and where will the observation take place?
 - Who and/or what will be observed?
 - How will the observations be recorded?
 - How long will the observations take place?
- Understand that behaviors change when people are aware that they are being observed.
- Inform the individual that you are observing their work and explain why in an honest manner. This helps build trust with the individual being observed and reduces any anxiety associated with being observed in a workplace setting.

Summary

There are many challenges to implementing a data collection method in a way that produces meaningful results that fulfill your research questions and goals within the constraints of your assignment. Understanding and following general guidelines to implementing data collection methods may increase the probability that the methods will produce the relevant and reliable information you seek.

Conclusion

The formal research process is challenging, but it is something that can be accomplished. Reading this guide is your first step to moving toward enhancing the research you conduct. The information conveyed in this guide can assist you in developing research plans and data collection efforts. This will provide a solid foundation for most work-related research endeavors. For the more complex research assignments, we advise that you read the materials that we referenced in the bibliography along with other relevant sources on conducting research that you find.

What's next?

We will be updating this guide periodically. In the future, we are going to develop an information guide on statistics that will present information that could help you to better analyze the data you collect.

Your Feedback

In order to assist us in enhancing this document, we would greatly appreciate any feedback you would like to provide. Please email any suggestions to testprep@lacdhr.org. In the subject line of your email, please write "Data Collection Guide." Thank you in advance for your response.

Bibliography

This guide was developed based on the experience and opinions of its authors along with integrating the knowledge of the expert opinions referenced below. This guide was developed for a business setting, and we freely share it with all readers who may find its contents of interest.

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http://www.stat.fi/tk/tt/laatuutilastoissa/lm020600/pe_en.html

http://www.benchmarking.gov.uk/about_bench/types.asp

http://goodquestions.ucsf.edu/section3/3a_archival.html

<http://en.wikipedia.org/wiki/Plagiarism>

http://en.wikipedia.org/wiki/Case_study

<http://en.wikipedia.org/wiki/Benchmarking>

<http://searchenginewatch.com/facts/article.php/2156021>

<http://searchenginewatch.com/links/article.php/2156221>

For more information about Internet search techniques, go to searchenginewatch.com.

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