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Creating an impact from United States Canada Mexico Argentina Brazil Uruguay Chile Bolivia Paraguay Peru Colombia Venezuela Creating an impact from South Africa Zimbabwe Nigeria Morocco Creating an impact from France UK Germany Italy Spain Netherlands Ireland Belgium Ukraine Estonia Portugal Creating an impact from Singapore China Japan India Pakistan South Korea Thailand Taiwan Philippines Malaysia Australia Recent Blogs There's no doubt that AI is revolutionizing the research landscape. This groundbreaking tech is helping..... Many companies turn to market research tools in search of valuable insights, but often begin with..... Qualitative research tools in search of valuable insights, but often begin with..... Qualitative research benefits businesses by extracting the 'WHY' and 'HOW' behind customer..... The quality of insights in quantitative market research is only as good as the people providing the data. This is where research panels come..... A staggering 56% of executives admit they don't fully trust their market data (Gartner). Think about that. More than half of Desk research, also called secondary research, is often overlooked when it comes to market research. However, it's an Healthcare market research reports indicate that the consumer health market is rapidly evolving, primarily driven by technological..... Primary market research tools are crucial for businesses to understand consumer behavior and market trends to make informed decisions..... Forecasting is a powerful tool for decision-making in modern businesses. More importantly, the process of forecasting tends to be successful only when..... Expanding into global markets is a multifaceted endeavor. To be successful, companies need robust data..... We are living in the age of data-driven decisions, where guantitative research stands as a cornerstone of modern analytics..... Today's business landscape thrives on data. leveraging actionable data about competitors..... Stay connected for latest updates Fill in the details and connect with us. Share — copy and redistribute the material in any medium or format for any purpose, even commercially. The licensor cannot revoke these freedoms as long as you follow the license terms. Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made. You may do so in any reasonable manner, but not in any way that suggests the licenser endorses you or your use. ShareAlike — If you remix, transform, or build upon the material you must distribute your contributions under the same license as the original. No additional restrictions — You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits. permitted by an applicable exception or limitation . No warranties are given. The license may not give you all of the permissions necessary for your intended use. For example, other rights such as publicity, privacy, or moral rights may limit how you use the material. Once you have chosen a topic to investigate, you need to decide which type of method is best to study it. This is one of the most important choices you will make on your research journey. Understanding the value of each of the methods described in this textbook to answer different questions allows you to be able to plan your own studies with more confidence, critique the studies others have done, and provide advice to your colleagues and friends on what type of research they should do to answer questions, this chapter is organized in three parts or sections. These parts can also be used as a checklist when working through the steps of your study. Specifically, part 1 focuses on planning a quantitative study (collecting data), part two explains the steps involved in doing a quantitative study, and part three discusses how to make sense of your results (organizing and analyzing data). In chapter 2, you were introduced to the unique assumptions quantitative research holds about knowledge and how it is created, or what the authors referred to in chapter one as "epistemology." Understanding these assumptions can help you better determine whether you need to use quantitative researchers believe there is an objective reality, which can be measured. "Objective" here means that the researcher is not relying on their own perceptions of an event. S/he is attempting to gather "facts" which may be separate from people's feeling or perceptions about the facts. "When you ask research questions or pose hypotheses with words in them such as "cause," "effect," "difference between," and "predicts," you are operating under assumptions consistent with quantitative methods. The overall goal of quantitative research is to develop generalizations that enable the research research is to develop generalizations that enable the research research is to develop generalizations. process and related procedures are very important for quantitative methods. Research should be consistently and objectively conducted, without bias or error, in order to be valid (accurate) and reliable (consistent). Perhaps this emphasis on accurate and standardized methods. natural and physical sciences, both of which have at their base the need to prove hypotheses and theories in order to better understand the world in which we live. When a person is glad such research has been done to know what the effects of taking this medicine is on others' bodies, so s/he can trust the doctor's judgment and take the medicines. As covered in chapters 1 and 2, the questions you are asking should lead you to a certain research method choice. Students sometimes want to avoid doing quantitative research method choice. should forge ahead and use it anyway. If a student research. If a student is interested in what the causes or effects are for a particular phenomenon, they need to do quantitative research. If a student is interested in what sorts of things might predict a person's behavior, they need to do quantitative research. researcher, most likely they will need to do quantitative research. So, ultimately, your choice of methods really depends on what your research goal is. What do you really want to find out? Do you want to compare two or more groups, look for relationships between certain variables, predict how someone will act or react, or confirm some findings from another study? If so, you want to use quantitative methods. Self-QuizA topic such as self-esteem can be studied in many ways. Listed below are some example RQs about self-esteem. Which of the following research questions should be answered with quantitative methods? Is there a difference between men's and women's level of self-esteem? How has "self-esteem? How has "self-esteem" been constructed in popular self-esteem? How has "self-esteem? How has communication apprehension?What are the advantages of approaching a topic like self-esteem using quantitative methods? What are the disadvantages?For more information, see the following website:Analyse This!!! Learning to analyse quantitative dataAnswers: 1 & 4Quantitative Methods Part One: Planning Your StudyPlanning your study is one of the most important steps in the research process when doing quantitative research. As seen in the diagram below, it involves choosing a topic, writing research questions/hypotheses, and designing your study. Each of these topics will be covered in detail in this section of the chapter. Topic ChoiceDecide on TopicHow do you go about choosing a topic, writing research questions/hypotheses, and designing your study. for a research project? One of the best ways to do this is to research something about which you would like to know more. Your communication and things you are learning about in other communication classes. When the authors of this textbook select research topics to study, they choose things that pique their interest for a variety of reasons, sometimes because they see a need for more research in a particular area. For example, April Chatham-Carpenter studies adoption return trips to China because they see a need for more research in a particular area. research on this topic for Chinese adoptees and their families; she studied home vs. public schooling because her sister home schoolers (cf. . When you are asked in this class and other classes to select a topic to research, think about topics that you have wondered about, that affect you personally, or that know have gaps in the research. Then start writing down questions will help you decide whether the goal of your study is to understand something, gather the perspectives of others on a topic, or look at how language constructs a certain view of reality. Review Previous Research you do not rely on your conclusions to emerge from the data you collect. Rather, you start out looking for certain things based on what the past research has found. This is consistent with what was called in chapter 2 as a deductive approach (Keyton, 2011), which also leads a quantitative research question or research problem from reviewing a body of literature, with the previous research question or re seen in chapter 3 and the Appendix, to do an adequate literature review, you need to identify portions of your topic. Some people use concepts related to your topic. Some people use concept maps to help them identify useful search terms for a literature review. For example, see the concept maps to help them identify useful search terms of concepts related to your topic. following website: Concept Mapping: How to Start Your Term Paper Researchable AreaOnce you have selected your topic to something that can be researched practically and that will take the research on this topic further. You don't want your research topic to be so broad or large that you are unable to research it. Plus, you want to explain some phenomenon better than has been done before, adding to the literature and theory on a topic. You may want to test out what someone else has found, replicating their study, and therefore building to the body of knowledge already created. To see how a literature review can be helpful in narrowing your topic, see the following sources. Narrowing or Broadening Your Research Questions & HypothesesWrite Your Research Questions (RQs) and/or Hypotheses (Hs)Once you have narrowed your topic based on what you learned from doing your review of literature, you need to formalize your topic area into one or more research questions or hypotheses. If the area you are research questions or hypotheses. If the area you are research questions or hypotheses. If the area you are research questions or hypotheses. If the area you are research questions or hypotheses. If the area you are research questions or hypotheses. social media, for example, which is a relatively new area of study. You might write a research question that asks:"Is there a difference between how 1st year and 4th year college students use Facebook to communicate with their friends?"If, however, you are testing out something you think you might find based on the findings of a large amount of previous literature or a well-developed theory, you can write a hypothesis. Researchers often distinguish between null and alternative hypothesis is not true. For example, if the use of Facebook had been studied a great deal, and there were theories that had been developed on the use of it, then you might develop an alternative hypothesis, such as: "First-year students do." Your null hypothesis, on the other hand, would be: "First-year students do not spend any more time using Facebook to communication with their friends than fourth-year students do." Research question/Hypothesis in their studies, and actually call it "hypothesis." Process of Writing a Research question (RQ) or hypothesis (H) for your topic, you should go through the following steps to create your RQ or H.Name the concepts from your overall research topic that you are interested in studying. RQs and Hs have variables, or concepts that you are interested in studying. Variables can take on different values. For example, in the RQ above, there are at least two variables - year in college and use of Facebook (FB) to communicate. Both of them have a variety of levels within them. When you look at the concepts you identified, are there any concepts you identified, are there any concepts you identified, are there any concepts which seem to be related to each other? students in their use of FB, meaning that we believe there is some connection between our two variables. If you think the variables you have identified are somehow related to each other, do the following. If not, start your RQ with a word such as "what," "how," "why," or "to what extent," since you are most likely interested in describing something rather than seeing what the connection is between two or more variables or concepts. Decide what type of a relationship you would like to study between the variables. Do you think one causes the other? Does a difference in one create a difference in the other? As the value of one changes, does the value of the other change? Identify which one of these concepts is the independent (or predictor) variable, or the concept that is affected by changes in the other variable? In the above example RQ, year in school is the independent variable, or the concept that is affected by changes in the independent variable? Facebook communicating with friends is the dependent variables. The amount of time spent on Facebook dependent variables, check out the following site: Independent & Dependent Variables. Express the relationship between the concepts as a single sentence - in either a hypothesis or a research question. For example, "is there a difference between international and American students on their perceptions of the course are your two variables. Cultural background and perceptions of the course are your two variables. would be your dependent variable. More examples of RQs and Hs are provided in the next section. APPLICATION: Try the above steps with your topic and RQ/H to him/her via e-mail. Types of Research Questions/HypothesesOnce you have written your RQ/H, you need to determine what type of research question or hypothesis it is. This will help you later decide what types of statistics you will need to run to answer your question or test your hypothesis. There are three possible types of questions you will need to run to answer your question or test your hypothesis. second and third types can. Descriptive Question. The first type of question is a descriptive question. This type of question is a descriptive question. This type of question is the closest to looking like a qualitative question, and often starts with a "what" or "how" or "why" or "to what extent" type of wording. What makes it different from a qualitative research question, using the topic of social media, include the following."To what extent are college-aged students using Facebook to communicate with their friends?"Why do college-aged students use Facebook to communicate with their friends?"Why do college-aged students use Facebook to communicate with their friends?"Why do college-aged students use Facebook to communicate with their friends?"Why do college-aged students use Facebook to communicate with their friends?"Why do college-aged students use Facebook to communicate with their friends?"Why do college-aged students use Facebook to communicate with their friends?"Why do college-aged students use Facebook to communicate with their friends?"Why do college-aged students use Facebook to communicate with their friends?"Why do college-aged students use Facebook to communicate with their friends?"Why do college-aged students use Facebook to communicate with their friends?"Why do college-aged students use Facebook to communicate with their friends?"Why do college-aged students use Facebook to communicate with their friends?"Why do college-aged students use Facebook to communicate with their friends?"Why do college-aged students use Facebook to communicate with their friends?"Why do college-aged students use Facebook to communicate with their friends?"Why do college-aged students use Facebook to communicate with their friends?"Why do college-aged students use Facebook to communicate with their friends?"Why do college-aged students use Facebook to communicate with their friends?"Why do college-aged students use Facebook to communicate with their friends?"Why do college-aged students use Facebook to communicate with their friends?"Why do college-aged students use Facebook to communicate with their friends?"Why do college-aged students use Facebook to communicate with their friends?"Why do college-aged students use Facebook to communicate with their friends?"Why do college-aged students use Facebook to communicate with their friends?"Why do college-aged students use Facebook to communicate with their friends?"Why do The question is merely descriptive in nature. It can be answered by summarizing the numbers obtained for each type of strategy or organization. This is true also of the following research questions found in a study of online public relations strategies: "What online public relations strategies are organizations implementing to combat phishing" (Baker, Baker, & Tedesco, 2007, p. 330), and "Which organizations are doing most and least, according to recommendations, to combat phishing" (Baker, Baker, & Tedesco, 2007, p. 330). statistics in their results or findings section, making it clearly a quantitative study, but without an independent or dependent variable; therefore, these research question/Hypothesis. The second type of RQ, the descriptive question/hypothesis of difference, and will often have the word "difference" as part of the question. The very first research question in this section, asking if there is a difference between 1st year and 4th year college students' use of Facebook, is an example of this type of question. In this type of question. In this type of question, the independent variable is some type of grouping or categories, such as age. Another example of a guestion of difference is one April asked in her research on home schooling: "Is there a difference between home vs. public schooling (a group being compared), and the dependent variable is size of social networks?" In this example, the independent variable is home vs. public schooling (a group being compared), and the dependent variable is size of social networks?" In this example, the independent variable is home vs. public schooling (a group being compared), and the dependent variable is size of social networks?" In this example, the independent variable is home vs. public schooling (a group being compared) is size of social networks?" In this example, the independent variable is home vs. public schooling (a group being compared) is size of social networks?" In this example, the independent variable is home vs. public schooling (a group being compared) is size of social networks?" In this example, the independent variable is home vs. public schooling (a group being compared) is size of social networks?" In this example, the independent variable is home vs. public schooling (a group being compared) is size of social networks?" In this example, the independent variable is home vs. public schooling (a group being compared) is social networks?" In this example, the independent variable is social networks?" In this example, the independent variable is social networks?" In this example, the independent variable is social networks?" In this example, the independent variable is social networks?" In this example, the independent variable is social networks?" In this example, the independent variable is social networks?" In this example, the independent variable is social networks?" In this example, the independent variable is social networks?" In this example, the independent variable is social networks?" In this example, the independent variable is social networks?" In this example, the independent variable is social networks?" In this example, the independent variable is social networks?" In this example, the indep difference hypotheses, as the following example on the same topic illustrates: "Public schoolers have a larger social network than home schoolers do." Relationship/Association question or hypothesis, and will often have the word "relate" or "relationship" in it, as the following example does: "There is a relationship between number of television ads for a political candidate is in getting elected." Here the independent (or criterion) variable is the success at getting elected. In this type of question, there is no grouping being compared, but rather the independent variable is continuous (ranges from zero to a certain number) in nature. This type of question can be worded as either a hypothesis or as a research question, as stated earlier. Self-Quiz: Test out your knowledge of the above information, by answering the following questions about the RO/H listed below. (Remember, for a descriptive question there are no clear independent variables.) What is the independent variable (IV)? What is the dependent variables.) What is the independent variable (IV)? What is the dependent variable (IV)? Wha partner through online dating and those who met their current partner face-to-face?""How do Fortune 500 firms use focus groups to market new products?""There is a relationship between age and amount of time spent online using social media."Answers:RQ1 is a difference question, with type of dating being the IV and relational satisfaction being the DV.RQ2 is a descriptive question with no IV or DV.RQ3 is a relationship hypothesis with age as the IV and amount of time spent online as the DV.Design Your research questions/hypotheses, is to design your study which means to decide how to proceed in gathering data to answer your research question or to test your hypothesis. This step includes six things to do. [NOTE: The terms used in this section will be defined as they are used.]Decide type of study design: Experimental, quasi-experimental, quasi-experimental already existing data.Operationalize variables into measurable concepts.Determine type of sample: Probability or non-probability.Decide how you will collect your data: face-to-face, via e-mail, an online survey, library research, etc.Pilot test your methods.Types of Study DesignsWith quantitative research being rooted in the scientific method, traditional research is structured in an experimental fashion. This is especially true in the natural sciences, where they try to prove causes and effects on topics such as successful treatments for cancer. For example, the University of Iowa Hospitals and Clinics regularly conduct clinical trials to test for the effectiveness of certain treatments for nedical conditions (University of Iowa Hospitals & Clinics: Clinical Trials). They use human participants to conduct such researcher controls are less necessary and thus less common. It is important for the researcher to understand which type of study s/he wishes to do, in order to accurately communicate his/her methods to the public when describing the study. There are three possible types of studies you may choose to do, when embarking on quantitative research: (a) True experiments, (b) quasi-experiments, and (c) non-experiments, and (c) non-experiments. For more information to read on these types of studies you may choose to do, when embarking on quantitative research: (a) True experiments, (b) quasi-experiments, (b) quasi-experiments, and (c) non-experiments. For more information to read on these types of studies you may choose to do, when embarking on quantitative research: (a) True experiments, and (c) non-experiments. For more information to read on these types of studies you may choose to do. designs, take a look at the following website and related links in it: Types of Study designs use difference questions/hypotheses, as the independent variable for true and quasi-experiments. is nominal or categorical (based on categories or groupings), as you have groups that are being compared. As seen in the flowchart above, what distinguishes a true experiment from the other two designs is a concept called "random assignment." Random assignment." April's study of home vs. public schooled and which ones were public schooled, and instead relied on already existing groups. An example of a true experiment reported in a communication journal is a study investigating the effects of using interestbased contemporary examples in a lecture on the history of public relations, in which the researchers had the following two hypotheses: "Lectures utilizing interest- based examples should result in more interested participants" and "Lectures utilizing interest- based examples should result in participants" and "Lectures utilizing interest- based examples should result in more interested participants" and "Lectures utilizing interest- based examples should result in more interested participants" and "Lectures utilizing interest- based examples should result in more interested participants" and "Lectures utilizing interest- based examples should result in more interested participants" and "Lectures utilizing interest- based examples should result in more interested participants" and "Lectures utilizing interest- based examples should result in more interested participants" and "Lectures utilizing interest- based examples should result in more interested participants" and "Lectures utilizing interest- based examples should result in more interested participants" and "Lectures utilizing interest- based examples should result in more interested participants" and "Lectures utilizing interest- based examples should result in more interested participants" and "Lectures utilizing interest- based examples should result in more interested participants" and "Lectures utilizing interest- based examples should result in more interested participants" and "Lectures utilizing interest- based examples should result in more interested participants" and "Lectures utilizing interest- based examples should result in more interested participants" and "Lectures utilizing interest- based examples should result in more interested participants" and "Lectures utilizing interest- based examples should result cognitive recall" (Weber, Corrigan, Fornash, & Neupauer, 2003, p. 118). In this study, the 122 college student participants were randomly assigned by the researchers to one of two lecture with traditional examples and a video with contemporary examples. (To see the results of the study, look it up using your school's library databases).Weber, K., Corrigan, M., Fornash, B., & Neupauer, N. C. (2003). The effects of interest on recall: An experiment in communication is a study of the effects of viewing either a dramatic narrative television show vs. a nonnarrative television show about the consequences of an unexpected teen pregnancy. The researchers randomly assigned their 367 undergraduate participants to view one of the two types of shows. Moyer-Gusé, E., & Nabi, R. L. (2010). Explaining the effects of narrative in an entertainment television program: Overcoming resistance to persuasion. Human Communication Research, 36, 26-52. A third example of a true experiment done in the field of communication can be found in the following study. Jensen, J. D. (2008). Scientific uncertainty in news coverage of cancer research: Effects of hedging on scientists' and journalists' credibility. Human Communication Research, 34, 347-369. In this study, Jakob Jensen had three independent variables. He randomly assigned his 601 participants to 1 of 20 possible conditions, between his three independent variables, which were (a) a hedged vs. not hedged message (b) the source of the hedging message (research attributed to primary vs. unaffiliated scientists), and (c) specific news story employed (of which he had five randomly selected news stories about cancer research to choose from). Although this study was pretty complex, it does illustrate the true experiments. If the researcher is not able to randomly assigned to read a particular news story, with certain characteristics. Quasi-Experiments. If the researcher is not able to randomly assigned to read a particular news story. participants to one of the treatment groups (or independent variable), but the participants already belong to a group before the study starts, and the researcher has no control over which group they belong to. An example of a hypothesis found in a communication study is the following: "Individuals high in trait aggression will enjoy violent content more than nonviolent content, whereas those low in trait aggression will enjoy violent content study is the following: "Individuals high in trait aggression will enjoy violent content less than nonviolent content (Weaver & Wilson, 2009, p. 448). In this study, the researchers could not assign the participants to a high or low trait aggression group since this is a personality characteristic, so this is a quasi-experiment. It does not have any random assignment of participants to the independent variable groups. Read their study, if you would like to, at the following location. Weaver, A. J., & Wilson, B. J. (2009). The role of graphic and sanitized violence in the enjoyment of television dramas. Human Communication Research, 35 (3), 442-463. Benoit and Hansen (2004) did not choose to randomly assign participants to groups either, in their study of a national presidential election survey, in which they were looking at differences between debate and non-debate viewers, in terms of several dependent variables, such as which candidate viewers supported. If you are interested in discovering the results of this study, take a look at the following article. Benoit, W. L., & Hansen, G. I. (2004). Presidential debate watching, issue knowledge, character evaluation, and vote choice. Human Communication Research, 30 (1), 121-144.Non-Experiments. The third type of design is the non-experiments. Non-experiments are sometimes called surveys. This is not enough to distinguish them from true experiments, however, as both of those types of designs may use surveys as well. What makes a study a non-experiment is that the independent variable is not a grouping or categorical variable. Researchers observe or survey participants in order to describe them as they naturally exist without any experimental intervention. Researchers do not give treatments or observe the effects of a potential natural grouping variable such as age. Descriptive and relationship/association questions are most often used in non-experiments. Some examples of this type of communication researchers include the following studies. Serota, Levine, and Boster (2010) used a national survey of 1,000 adults to determine the prevalence of lying in America (see Human Communication Research, 36, pp. 2-25).Nabi (2009) surveyed 170 young adults on their perceptions of reality television on cosmetic surgery makeover programs relate to body satisfaction (p. 6), finding no significant relationship between those two variables (see Human Communication Research, 35, pp. 1-27). Derlega, Winstead, Mathews, and Braitman (2008) collected stories from 238 college students on reasons why they would disclose or not disclose personal information within close relationships (see Communication Research Reports, 25, pp. 115-130). They coded the participants' answers into categories so they could count how often specific reasons were mentioned, using a method called content analysis, to answer the following research questions: RQ1: What are research questions: RQ1: What are research questions: RQ1: What are research questions for the disclosure of highly personal information? RQ2: Do attributions reflect concerns about rewards and costs of disclosure or the tension between openness with another and privacy?RQ3: How often are particular attributions for disclosure/nondisclosure used in various types of relationships? (p. 117)All of these non-experimental studies have in common no researcher manipulation of an independent variable or even having an independent variable that has natural groups that are being compared. Identify which design discussed above should be used for each of the following research questions. Is there a relationship between age when a person first started using Facebook and the amount of time they currently spend on Facebook daily? Is there a difference between potential customers' perceptions of an organization's Facebook page and those who are not shown an organization's Facebook page?[HINT: Try to identify the independent and dependent variable in each question above first, before determining what type of design you would use. Also, try to determine what type of question it is - descriptive, difference, or relationship/association.]Answers:1. Quasi-experiment2. Non-experiment2. Non-experiment3. True Experiment2. Non-experiment3. True Experiment3. Tr collect: (a) survey data, (b) observational data, and/or (c) already existing data, as in library research. Surveys. Using the survey data collection method means you will talk to people or survey them about their behaviors, attitudes, perceptions, and demographic characteristics (e.g., biological sex, socio-economic status, race). This type of data usually consists of a series of questions related to the concepts you want to study (i.e., your independent variables). Both of April's studies on home schooling and on taking adopted children on a return trip back to China used survey data. On a survey, you can have both closed-ended questions. Closed-ended questions, can be written in a variety of forms. Some of the most common response options include the following.Likert responses - for example: for the following statement, do youstrongly agree agree neutral disagree strongly disagreeSemantic differential - for example: does the following make youHappy SadYes-no answers for example: I use social media daily.Yes / No.One site to check out for possible response options is often follow up some of their closed-ended questions on "why" a participant chose a particular answer or ask participants for more information about a particular topic. If the researcher wants to use the open-ended question responses as part of his/her quantitative study, the answers are usually coded into categories and counted, in terms of the frequency of a certain answer, using a method called content analysis, which will be discussed when we talk about already-existing artifacts as a source of data. Surveys can be done face-to-face, by telephone, mail, or online. Each of these methods has its own advantages and disadvantages, primarily in the form of the cost in time and money to do the survey. For example, if you want to survey many people, then online survey tools such as surveygizmo.com and surveygizmo.com are very efficient, but not everyone has access to taking a survey on the computer, so you may not get an adequate sample of the population by doing so. Plus you have to decide how you will recruit people to take your online survey, which can be challenging. There are trade-offs with every method. For more information on things to consider when selecting your survey method, check out the following websites. Constructing the Survey Survey Methods Survey Survey Methods. There are also many good sources for developing a good survey, such as the following websites. collection method is observations. In this data collection method, you make observations, so that you can count what you are studying. This type of data collection method is often called interaction analysis, if you collect data by observing people's behavior. For example, if you want to study the phenomenon of mall-walking, you could go to a mall and count characteristics of mall-walkers. A researcher in the area of health communication could study the occurrence of humor in an operating room, for example, by coding and counting the use of humor in such a setting. One extended research study using observational data collection methods, which is cited often in interpersonal communication classes, is John Gottman's research, which started out in what is now called "The Love Lab." In this lab, researchers observe interactions between couples, including physiological symptoms, using coders who look for certain items found to predict relationship problems and success. Take a look at the YouTube video about "The Love" Lab. Already-Existing Artifacts. The third method of quantitative data collection is the use of already-existing artifacts. With this method, you choose certain artifacts (e.g., newspaper or magazine articles; television programs; webpages) and code their content, resulting in a count of whatever you are studying. With this data collection method, researchers most often use what is called quantitative content analysis. Basically, the researcher counts frequencies of something that occurs in an artifact of study, such as the frequency of times something is mentioned on a webpage. Content analysis can also be used in qualitative research, where a researcher identifies and creates text-based themes but does not do a count of the occurrences of these themes. Content analysis can also be used in qualitative research, where a researcher identifies and creates text-based themes but does not do a count of the occurrences of these themes. identify countable themes within the questions. Content analysis is a very common method used in media studies, given researchers are interested in studying already-existing media artifacts. There are many good sources for more information on content analysis.Writing Guide: Content Analysis A Flowchart for the Typical Process of Content Analysis ResearchWhat is Content Analysis?With content analysis?With content analysis and any method that you use to code something into categories, one key concept you need to remember is inter-coder or inter-rater reliability, in which there are multiple coders (at least two) trained to code the observations into categories. This check on coding is important because you need to check to make sure that the way you are coding your observations on the open-ended answers is the same way that others would code a particular item. To establish this kind of inter-coder or inter-rater reliability, researchers prepare codebooks (to train their coders on how to code the materials) and coding forms for their coders to use. To see some examples of actual codebooks used in research, see the following: ReCal: reliability calculation for the masses. Regardless of which method of data collection you choose, you need to decide even more specifically how you will measure the variables in to Measurable Concepts When you look at your research question/s and/or hypotheses, you should know already what your independent and dependent variables are. Both of these need to be measured in some way. We call that way of measuring operationalizing a variable. One way to think of it is writing a step by step recipe for how you plan to obtain data on this topic. How you choose to operationalize your variable (or write the recipe) is one all-important decision you have to measure your variables in a valid (accurate) and reliable (consistent) manner, which well help you later decide what statistical tests you need to run to answer your research question/s or test your hypotheses. We will start with the last topic first. Level of Measurement has to do with whether you measure your variables using a continuous level of measurement (range of numbers). The level of measurement that is considered to be categorical in nature are ordinal, interval, and ratio. The only ones you really need to know are nominal, ordinal, and interval/ratio. Nominal variables are categories that do not have meaningful numbers attached to them but are broader categories, such as male and female, home schooled and public schooled, Caucasian and African-American. Ordinal variables do have numbers attached to them, in that the numbers are in a certain order, but there are not equal intervals between the numbers (e.g., such as when you rank a group of 5 items from most to least preferred, where 3 might be highly preferred, and 2 hated). Interval/ratio variables have equal intervals between the numbers (e.g., weight, age). For more information about these levels of measurement, check out one of the following websites. Levels of Measurement Scales in Social Science ResearchWhat is the difference between ordinal, interval and ratio variables? Why should I care?Validity and ReliabilityWhen developing a scale/measure or survey, you need to be concerned about validity and reliability. Readers of quantitative research expect to see researchers justify their research measures using these two terms in the methods section of an article or paper. Validity. Validity is the extent to which your scale/measure or survey adequately reflects the full measures? For example, if researchers wanted to develop a scale to measure "servant leadership," the researchers would have to determine what dimensions of servant leadership they wanted to measure, and then create items which would be valid or accurate measure of servant leadership. When doing so, the researchers are trying to prove their measure has internal validity. Researchers may also be interested in external validity, but that has to do with how generalizable their study is to a larger population (a topic related to sampling, which we will consider in the next section), and has less to do with the validity of the instrument itself. There are several types of validity you may read about, including face validity content validity, criterion-related validity, and construct validity. To learn more about these types of validity, read the information at the following link: Validity. To improve the validity, read the information at the following that concept well and write several survey questions on each dimension measured, to make sure the full idea of the concept is being measured. For example, Page and Wong (n.d.) identified four dimensions of servant leadership: character, people-orientation, task-orientation, ta All of these dimensions (and any others identified by other researchers) would need multiple survey items developed if a researcher wanted to create a new survey, it can be useful to see if one already exists with established validity and reliability. Such measures can be found by seeing what other respected studies have used to measure a concept and then doing a library search to find the scale/measure itself (sometimes found in the reference area of a library in books like those listed below). Fischer, J., & Corcoran, K. (2007). Measures for clinical practice and research: A sourcebook (volumes 1 & 2). New York: Oxford University Press. Maddy T. (2008). Tests: A comprehensive reference for assessments in psychology, education, and business. Austin, TX: Pro-Ed.Rubin. R. B., Rubin, A. M., Graham, E., Perse, E. M., & Seibold, D. (2009). Communication research measures II: A sourcebook. New York: Routledge.Reliability is the second criterion you will need to address if you choose to develop your own scale or measure. Reliability is concerned with whether a measurement is consistent and reproducible. If you have ever wondered why, when taking a survey, that a question is asked more than once or very similar questions are asked more than once or very similar questions. reliability. Are you, for example, answering all of the similar questions similarly? If so, the measure/scale may have good reliability or consistency over time. Researchers can use a variety of ways to show their measure/scale may have good reliability or consistency over time. Researchers can use a variety of ways to show their measure/scale is reliable. See the following websites for explanations of some of these ways, which include methods such as the test-retest method, the split-half method, and inter-coder/rater reliability. Types of Reliability Reliability and reliability and reliability. Types of Reliability and reliability and reliability. Types of Reliability and reliability and reliability. quiz/discussion may have had less to do with the actual survey itself, but rather with how the researchers got their participants or sample. How participants or sample. How participants are recruited is just as important to doing a good study as how valid and reliable a survey is. Imagine that in the article you chose for the last "self-quiz/discussion" you read the following quote from the Pew Research Center's Internet and American Life Project: "One in three teens sends more than 100 text messages a day, or 3000 texts a month" (Lenhart, 2010, para.5). How would you know whether you could trust this finding to be true? Would you compare it to what you know about texting from your own and your friends' experiences? Would you want to know what types of questions people were asked to determine this statistic, or whether the survey the statistic is based on is valid and reliable? Would you want to know what types of questions, rather than just accepting such a statement as undisputable fact. For example, if only people shopping at an Apple Store were surveyed, the results might be skewed high. In particular, related to the topic of this section, you should ask about the sampling method the researchers did. Often, the researchers did. were surveyed (in this case 800 teens, aged 12-17, who were a nationally representative sample of the population) and how much the "margin of error" is (in this case +/- 3.8%). Why do they state such things? It is because they know the importance of a sample in making the case for their findings being legitimate and credible. Margin of error is how much the "margin of error" is (in this case +/- 3.8%). much we are confident that our findings represent the population at large. The large the margin of error, the less likely it is that the poll or survey is accurate. Margin of error, see one of the following websites. Answers.com Margin of ErrorStats.org Margin of ErrorStats.org Margin of ErrorAmericanresearchgroup.com Margin of error is directly tied to the size of your sample, in relationship to the size of your sample, in relationship to the size of your sample, in relationship to the size of the population, two concepts we will talk about in the next few paragraphs]In particular, this assume that margin of error sample, in relationship to the size of your sa section focused on sampling will talk about the following topics: (a) the difference between a population vs. a sample; (b) concepts of error and bias, or "it's all about significance"; (c) probability sampling; and (d) sample size issues. Population vs. a sample; (b) concepts of error and bias, or "it's all about significance"; (c) probability sampling; and (d) sample size issues. Population vs. a sample; (b) concepts of error and bias, or "it's all about significance"; (c) probability sampling; and (d) sample size issues. Population vs. a sample; (b) concepts of error and bias, or "it's all about significance"; (c) probability vs. non-probability vs. non-p teens, you are never able to survey the entire population of teenagers, so you survey a portion of the population. If you study every member of a population, then you are conducting a census such as the United States Government has!), you attempt to get as good a sample as possible. Characteristics of a population are summarized in numerical form, and technically these numbers are called statistics. Error and BiasIf a sample is not done well, then you may not have confidence in how the study's results can be generalized to the population from which the sample was taken. Your confidence level is often stated as the margin of error of +/- 3.8% to the degree to which a sample differs from the total population you are studying. In the Pew survey, they had a margin of error of +/- 3.8% to the degree to which a sample was taken. So, for example, when the Pew survey said 33% of teens send more than 100 texts a day, the margin of error means they were 95% sure that 29.2% - 36.8% of teens send this many texts a day. Margin of error is tied to sampling error, which is how much difference there is between your sample's results and what would have been obtained if you had surveyed the whole population. Sample error is linked to a very important concept for quantitative researchers, which is the notion of significance. Here, significance, it refers to whether a finding is statistically significant, meaning the findings are not due to chance but actually represent something that is found in the population. Statistical significance is about how much you, as the researcher, are willing to risk saying you found something important and be wrong. For the difference between statistical significance and practical significance and practical significance is about how much you, as the researcher, are willing to risk saying you found something important and be wrong. For the difference between statistical significance and practical significance and pract Significance. Scientists set certain arbitrary standards based on the probability they could be wrong in reporting their findings. These are called significance levels and are commonly reported in the literature as p