



## RESEARCH TOPICS, LITERATURE REVIEWS, AND HYPOTHESES

### LEARNING GOALS

- Recognize the characteristics of appropriate research topics
- Understand the purpose of a literature review
- Learn how to search for literature review material
- Develop the skills to critically evaluate material that appears in literature reviews
- Identify ways to organize and write a cohesive evidence-based literature review
- Construct hypotheses
- Identify the three criteria for establishing causality

What if your research methods/statistics professor walked into the classroom and announced, “Our topic for this semester is gender stratification. You have three and a half months to design a study, collect the data, analyze the results, and write your report.” Any idea where to begin? Probably not. “Gender stratification” is not a real research topic; it is too broad. For example, you might choose to focus on examining what percent of women are in upper management positions in a company. Someone else might focus on how husbands and wives separate household responsibilities. A third person might focus on gender differences in the specialties doctors select. Basically, the possibilities for studying gender stratification are as endless as your imagination. This is not necessarily “bad,” but for the purpose of identifying a research topic, it is also not very useful.

Sometimes coming up with a research topic or question is really straightforward. Someone may tell you explicitly what they want you to study such as: Did the program reduce delinquency? What percent of high school students experience bullying on school grounds? Which precinct in the county is the most efficient in reducing property crime? Sometimes, however, getting started is hard. Professors or bosses might give you a broad topic, such as gender stratification, but these are not viable *research* topics. These topics need to be refined into something that is meaningful and manageable, and, doing so is the first step of the deductive research process that I discussed in Chapter 1. In reality, the first couple of parts of that deductive research cycle, namely topic formation, literature reviews, and writing hypotheses, are frequently developed simultaneously and establish the foundation for the rest of the research process. Therefore, this chapter focuses on these three initial components to get us started.

## TOPIC FORMATION AND RESEARCH QUESTIONS

I have been using the terms *research topic* and *research questions* interchangeably, so what is the difference? In reality, not much. Of all the considerations you will learn in conducting research, getting hung up on what is the difference between a research topic and question is not conducive to “getting the job done.” Although I will continue to use them interchangeably, I will probably use the term *research question* a bit more, simply out of habit. However, as I said, they really address the same point: refining what it is your research will address.

### Types of Research Questions

Research questions can take many forms, too many to get into an exhaustive list here. To provide a “getting the job done” perspective of research questions, we can borrow from Hedrick et al. (1993), who identified four types of research questions: descriptive, normative, correlative, and impact. **Descriptive research questions** are pretty much what the name implies—they describe something. What percent of prisoners recidivate within 5 years of release? What percent of upper-management positions in medium-sized firms are occupied by women? Not much more needs to be said about these questions because they are directly related to the kind of material I discussed in Chapter 1 regarding the descriptive purpose of research. The second type of research question is **normative questions**, which make a comparison against some types of standard program objectives (“norm”) or population comparisons. Normative research questions might be something like if 68% of prisoners nationally recidivate within 3 years of release, how do prisoners in our county compare? Is a peer-tutoring program providing the designed 15 hours of tutoring? Think of these research questions as comparing your interest to some known value or program goal to see how your focus would relate to the norm or standard. The third type of question, **correlative questions**, looks at an association between two variables ( $X$  and  $Y$ ) but does not purport to make any causal claims between them. In other words, correlational research questions might ask things like: What is the relationship between college major and salary 3 years post-college graduation? Is there a relationship

between marital status and overall happiness? Correlative research questions might lead to hypothesis testing in order to show that a change in one variable is associated (what we frequently statistically call “correlated”) with a change in a second variable, but they do not explicitly aim to test causality. As we will learn later in this chapter, correlation does not automatically mean causation, but it is definitely a component of it. The last type of research question, **impact question**, is more causal. This would be questions like: Does Drug Court participation reduce the risk of re-arrest for drug-related crimes within 3 years of graduation? Does intensive child intervention reduce the need for out-of-home foster care placement for at-risk families? Impact questions imply that some program or policy, for example, creates (causes, impacts) a change in behavior.



istockphoto.com/Ridofranz

**PHOTO 2.1** Can you think of an example of each of the four types of research questions to fit this picture?



### LEARNING CHECK 2.1: TYPES OF RESEARCH QUESTIONS

1. What distinguishes normative research questions from descriptive ones?
2. What distinguishes descriptive research questions from correlative questions?
3. Which of the four types of research questions does this question exem-

plify: What percent of sociology majors have a job or are enrolled in a graduate program 2 years after graduation?

**Answers to be found at the end of the chapter.**

## Characteristics of Strong Research Questions

Regardless of the form, all strong research questions share some common characteristics. First, research questions have to be sufficiently specific. “Gender stratification,” the example I gave at the beginning of the chapter, is not specific. Specific questions could be: In dual-earner households, what percent of household activities is done by men and what percent is done by women? Are individuals who identify as racial/ethnic minorities more likely to be in upper-management positions in companies with more than 1,000 employees compared to smaller companies? What percent of the elderly have weekly contact with their children? These examples are not only specific, but they are clear and relatively concise as well.

Research questions also need to be **empirically observable**. This means that the research question has to be about something that can actually be documented. Questions that involve values cannot be documented and are not good research questions. Examples of value questions include: Should the death penalty be federally outlawed? Should men become more involved in childcare at home? Is frequent involvement of grandparents in children’s lives important for children’s socioemotional development? As we learned in Chapter 1, science can only answer what *is*, what we can *observe*; and “should” questions or questions about importance are opinions and, as such, are unanswerable. Of course, we could make some of these viable questions by shifting the question wording to something like What are people’s views regarding a federal outlaw of the death penalty? Do women feel that men should be more involved in childcare at home? What benefits do parents see of having involved grandparents in children’s lives? Now, even though we are addressing opinions, we are *documenting* them, and our research goal is a description, not to reach a decision about what we “should” do. In other words, these altered questions are not taking a stand on which opinion we should act on or is more important.

Third, strong research questions or topics should be relevant. In basic research, relevance can be very subjective. What is relevant to a sociologist would not necessarily be relevant to an archeologist. However, relevance can also mean whether research adds to the existing knowledge about a topic in a meaningful way. Identifying relevance is a bit easier in applied research because, in applied research, relevant research is that which will have an impact on real-world experiences or theories. The point is, it is the researcher’s responsibility to make the case of relevance for their field.

Fourth, they should also be realistic. What we mean by this is that the question should be able to be studied within the bounds of the available resources, such as the time, money, and skill of the researcher, and it should be sufficiently specific so that what is being studied is clear. There is no point in creating a research question that requires a form of sampling or statistical analysis that is beyond the available economic resources, the available data-gathering skills of the staff, the analytical skills of the researcher, or the availability of the data.

Last, research questions should be able to be studied ethically. We will discuss the types of ethical responsibilities researchers have to their field and subjects in Chapter 3. For now, let it suffice that when it comes to research studies, the end does not justify the means.

**LEARNING CHECK 2.2: STRONG RESEARCH QUESTIONS**

1. Identify three characteristics of good research questions.
2. Is the following a strong research question? Why or why not?  
How does family structure in high school affect the likelihood an adolescent will enroll in a 2- or 4-year college immediately after high school graduation?
3. Is the following a strong research question? Why or why not?  
Should parents who are unhappy in their marriage stay together for the sake of their children?

**Answers to be found at the end of the chapter.**

## Steps for Creating Research Questions

As I mentioned previously, sometimes research questions or topics are easy to create because someone else—a boss or professor, for example—tells you what to study and what you are told fits the characteristics I just mentioned in the previous section. However, sometimes this is not the case. In those instances, starting with a broad research topic is a viable first step. That topic will just have to be refined and the next step to accomplish this is to read the existing literature, called a **literature review**, which I will discuss in more detail in the next section. For our purposes now, however, I will say that a literature review will help you learn what experts in the field already know about your broad topic so you can eliminate research questions that replicate that knowledge. A literature review will also help you define your problem by giving you ideas of when researchers have found conflicting findings and where there are gaps in existing knowledge. For example, you may find that some research creates more questions than answers and these questions can fuel your focus. Or finding gaps or inconsistencies can help you mold your research question in a way to help resolve the conflict. In a nutshell, your current research should build on the knowledge that already exists and you learn about what is known by studying the published research of others. Third, an honest assessment of your skills and the available resources (such as time and money) can help you further refine your research question. For example, if you have a limited budget, refining your research question in a way that requires a large multiyear study is not useful. On a limited budget, you will need to study a small, specific aspect of an issue. It may take multiple iterations of these steps, especially reviewing the literature and refining your research topic more than once, until you reach a feasible research question and this back and forth further illustrates how stages of the systematic research process covered in Chapter 1 are frequently done simultaneously in the real world.

## LITERATURE REVIEWS

### The Purpose of a Literature View

As I just discussed, critically reading the research of others and gaining material for a literature review are instrumental in refining research questions. A literature review also helps you

place your research question or topic into the broader context of the existing knowledge. It gives you the opportunity to orient the reader to how your research “fits,” thereby fulfilling the goal of relevance mentioned in the previous section. The last use of a literature review I will mention in our spirit of “getting the job done” is that it can also give you direction with methodological decisions, thereby alleviating some of the pressure of coming up with all this stuff on your own. Specifically, the methods, findings, and limitations expressed in previous research can give you ideas of how to measure your concepts, what type of sampling techniques are feasible, which methods of observation might be the most appropriate or informative, and potential problems to troubleshoot. It may also give you information on other causes or factors relevant to your topic that you have not previously considered, but which should nonetheless be incorporated into your study. So the literature review, the part of methodology that might, at first glance, not really seem “relevant” to your “real” research, actually serves as the foundation for it.

But first, you have to find the information.

### Searching for Material

What to search and where to begin can be daunting. The most logical starting point is your research topic or question. I have already discussed how to select a research question, so the next step is to make note of the keywords in that initial question or topic, keeping in mind that the research question may be refined based on the information you find. For example, if my research question is “Does training police officers to identify people experiencing a mental health crisis reduce arrests in favor of directing perpetrators to mental health treatment?,” I might start with the following search terms:

1. Mental health and arrest
2. Crime and mental health
3. Police and mental health and offenders
4. Police and mental health training

The “where” to find information is more detailed. Now, most literature searches occur online via databases called **bibliographic databases**, which you can probably access through your school’s library. Common online databases in our fields include ProQuest, JSTOR, ERIC, PsychInfo, SocINDEX, and Sociological Abstracts. Your professor or librarian can probably direct you to what is available at your school. The process of searching these databases is similar to conducting a standard online search in popular search engines like Google or Yahoo; and in some of these databases, you can also refine your search to the type of publication (e.g., if you are just interested in peer-reviewed publications) and the years of interest (such as the last five years). The results will usually contain the title, authors’ names, and the abstract, which is a brief (usually 125–200-word) summary of the purpose, methods, and main findings that help the reader identify whether the article is relevant to their interest.

Depending on your school's subscription, you might be able to access the full article right from the database; otherwise, you might have to request it from your library, perhaps for a fee. No one search database is perfect. One database might not have the full text of an article available, but another one might. Likewise, not all journals are covered in all databases; and even if there is overlap, they may not cover the same years. Therefore, it is useful to search more than one database when trying to find material.

Once you have selected a database and have entered keywords, the database will present various studies that might be relevant. These studies might be in peer-reviewed journals, professional journals, dissertations, conference proceedings, books, or newspapers...there are many possibilities. Some researchers claim you should be flexible and search all available materials in any particular order. Others suggest starting with academic journals and then proceeding to professional journals, books, conference papers, and any other potentially relevant sources in that order (Creswell, 2002; Hart, 2001). It is my opinion that for research in general and applied or evidence-based research in particular, academic or professional journals, are a good start, and then proceed to any other possibly relevant forms of material. There are a couple of reasons why I say to start with journals. First, there are generally two types of journals: academic and professional. Academic journals usually contain peer-reviewed articles, whereas professional journals generally do not, but both sources tend to have more vigorous research represented in them than do other forms of sources. Among sources, peer review can be one indicator of quality because it means that two to three identified "experts" in the field critically read the details of a study, provided feedback regarding a variety of issues like contribution, missed available literature, methodology, and statistical analysis, and then made a recommendation



**PHOTO 2.2** Much research for literature reviews can now be done online, including obtaining the full text of articles.

regarding publication. Usually, there are four possible recommendations. The most common decision is to deny publication outright, so consequently the research will not even show up in your database search since it is not published. The second possible reviewer's recommendation is to revise the manuscript and resubmit it. This option usually results when a reviewer sees merit to the research but also identifies some substantive issues that he or she feels needs to be addressed before the research is sound enough for publication. In this situation, the reviewers will make specific recommendations as to what the researcher needs to change or address and then the researcher is invited to resubmit the revised work for a new review. The manuscript might still be rejected after the new submission, but this response means that the reviewers are willing to give the manuscript another chance. The third option is a conditional acceptance pending successful changes requested by the reviewers that are generally minor or less methodologically substantial in nature than what would occur with a revise and resubmit decision. The last option is that the reviewers recommend publication of the study as is with no changes. This outcome is the least common among reputable journals, a point that will be especially relevant soon when I discuss predatory journals. Based on these individual recommendations from the two to three people independently reviewing each study submitted, an editor makes a final judgment regarding which of the four outcomes is the official decision. I know I went into more detail about this process than you may have expected, but I did so in order to illustrate the degree of vetting that occurs within peer-review journals. Obviously, this process is more vigorous than what we see in newspapers, news magazines, or online blogs. Although not perfect, as not all journals are equally selective in what they publish, being published in a peer-reviewed journal serves as a preliminary indicator of the quality of a study. Obviously poor studies do not get published, adequate ones do in mid-level peer-reviewed sources, and really good studies get published in the more selective, vigorous journals.

But remember what we learned in Chapter 1. Quality research is not limited to or guaranteed in peer-review research. The research published in professional journals may also be very vigorous; it just may not have been vetted by others. Furthermore, with the push to “publish or perish” in academia, the ease of making websites, and open-access publishing, there has been an increase in what is called **predatory journals**. These are journals that claim to be peer-reviewed, and open access (more in a moment) and promise a fast turn-around between submission and publication if “accepted.” Unfortunately, there are some problems with these predatory journals. First, the manuscripts are not adequately peer-reviewed, if at all. Peer-reviewed submissions may take 6–12 months until publication, which may be a little more understandable to you now that you know the detailed process peer-review entails. Predatory journals, however, will accept a manuscript for publication in as little as under a month, indicating that contrary to what they may post on a website, they are not peer-reviewed. Furthermore, remember, it is very rare for a manuscript to be accepted without any suggestion for changes the first time around. Think about it. When was the last time *you* got two to three people to independently come up with the same decision about something basic, like where to eat dinner or what movie to rent? Such a decision is even less likely when two to three people are independently reviewing something as detailed (remember all those stages

we saw in Figure 1.1 in Chapter 1?) as a scientific study. This lack of a real peer-review means that the material “published” in predatory journals can contribute to the dissemination of bad information. Second, many predatory journals claim to be open access, which is a way of distributing research studies online free to the reader. Open access is a newer way of sharing scientific information that aims to make this information more available to members of the scientific community who, for whatever reason, cannot afford the costly subscription fees for print journals or online databases. Although there are a variety of ways of funding open access material, a discussion of which is beyond our purposes, predatory journals frequently charge the researcher to make his/her study available to others. Even some reputable journals do this to varying degrees, but predatory journals only use the open access fee to generate their profits with no real benefit to the researcher. Last, in predatory journals, the “publication” could be hard to find and it may disappear over time. Reputable journals, on the other hand, strive to make their material readily available and they archive old volumes.

Fortunately, a simple online search will identify multiple websites that are tracking and listing predatory journals, but no one online source is perfect. Be aware of the reputation of the

## BOX 2.1

### WHERE TO FIND INFORMATION ON JOURNAL QUALITY

| Quality Indicator | What It Is  | How to Use the Measure                               | Possible Sources  |
|-------------------|---|--|---|
| Impact factor     | The number of citations to a given journal over the previous 2 years divided by the number of research articles and reviews published by that journal | The higher the impact factor, the higher the quality | Social Science Citation Index<br><a href="http://mjl.clarivate.com/cgi-bin/jrnlst/jlresults.cgi?PC=ss">http://mjl.clarivate.com/cgi-bin/jrnlst/jlresults.cgi?PC=ss</a><br>Scimago journal and country rank<br><a href="https://www.scimagojr.com/">https://www.scimagojr.com/</a> |
| Eigenfactor       | Total number of citations over a 5-year period (does not account for a number of articles published)  | The higher the impact factor, the higher the quality | Eigenfactor.org<br>Scimago journal and country rank<br><a href="https://www.scimagojr.com/">https://www.scimagojr.com/</a>  |
| h-index           | An author-level metric that measures the productivity and scholarly view (based on citations) of a specific author that appears in a journal          | The higher the impact factor, the higher the quality | Scimago journal and country rank<br><a href="https://www.scimagojr.com/">https://www.scimagojr.com/</a>   |

journal that houses the manuscripts you are considering for your literature review. If it is on a list of possible predatory journals, ignore the manuscript. If a journal is not on such a list, there is additional information that helps determine a journal's validity and quality. One of these indicators is the journal's **impact factor**, which is a measure of the frequency that the average journal article is cited in a particular year. The higher the impact factor, the more frequently the average article is cited, and the higher quality the journal. Another indicator of quality is the journal's acceptance rate. Many people want to publish in highly respected journals, so more people are likely to submit articles to these journals than the journal has space for publication. For example, one of the most respected journals in sociology is the *American Sociological Review* and according to its editorial report of 2019, the journal had 728 submissions in 2018 and only 6.7% of them were eventually accepted for publication (American Sociological Association, 2019). That means that the rejection rate is close to 93%, which is extremely high and indicates that the reviewers and editors of that journal are highly selective. This selectivity, in turn, increases the likelihood that the studies that *are* published are methodologically strong and relevant to the field. Finally, you can also use the number of citations for a specific published article as an additional measure of the study's usefulness to the field. However, keep in mind that older articles have had more time to accrue citations than newer ones; therefore, the number of citations alone is not a perfect indicator either. As you can probably tell, here, as with many things, it is most useful to use more than one of these criteria in combination, rather than alone, to assess the initial quality of the material you find.

However, a preliminary determination of study quality is just one factor in deciding whether the information that shows up in a database search is worth a deeper look for your purposes. Obviously, a second consideration is the degree to which the study focus and findings relate to your research topic or question, which is also important. Both of these factors (source quality and study relevance) are important places to start deciding what will merit a closer look. I will provide some suggestions to determine study relevancy in the next section, but for now, I am focusing on just how to find possible information. Therefore, although this last suggestion seems like it is out of order (because, as I just said, I will discuss some considerations for determining study relevancy), once you do identify some studies that seem particularly informative to you, one last way of identifying additional studies is to look at the material cited by *these* studies. In other words, if you look at the reference section in these articles you find particularly relevant, you can sometimes find more sources that will also be helpful to your study.

## Critically Evaluating Material

Probably one of the hardest parts of a literature review is figuring out how to *critically* evaluate the material you see. You will likely come across many different articles, using different methodologies, different theoretical foundations, and producing different results. How do

you know what to believe? There is not an easy answer to this per se. Instead, the answer lies in how you approach and organize the different pieces of information you obtain to facilitate your comparison.

Let's first talk about how to organize the articles you find. Remember, it is very possible that you will have many articles that might be relevant to your topic to consider, and there is no one magic approach to how to deal with them all. Your professor may have some suggestions, but here is an approach I have found that works with my students. First, gather the abstracts and the citations (which will save you time when you want to look up the full text of any articles and when you compile your reference section) of the articles you think might even remotely be relevant to your needs. For example, if we want to study how people on Facebook react to posts that they consider to be inappropriate, I would start by copying and pasting *both* the abstracts and the corresponding full citations into one file that I can read all together. Next, based on a reading of the abstracts, I suggest creating a chart that summarizes the purpose, sample, method of observation, and key findings present in each abstract. I also suggest including a column where you can jot initial links between articles or comments of how particular articles relate to your topic. This chart will serve as the source for an initial weeding of articles because the main points are presented in a way that is easy to compare how the many articles you have collected might fit together. An example of how this chart might look for a study about people's reactions to inappropriate Facebook posts appears in Figure 2.1.

Incidentally, you may not be able to fill in all aspects of the chart based on the abstracts. That is OK for now. Once you have this chart filled in as much as possible, decide right away which articles are not useful to your specific purpose as it is currently defined. I suggest using a color code so you can quickly visualize which articles you have decided not to pursue, but not to delete these articles all together from the chart in case they might be relevant later. The next step is to read the remaining articles, even if you are unsure if they will be useful later, and complete the grid based on the detail presented in the articles.

Once you have these main pieces of information recorded, now you are better able to compare and critically evaluate the articles. We already discussed one issue in evaluating the material, the authority of the source. Remember that not all sources are created equal. Peer-reviewed journals tend to have more authority than newspapers, for example, because, as we said, any published material in peer-reviewed journals has been reviewed by experts in the field before publication. However, as we also learned, not *all* journals claim to be peer-reviewed (look back to our discussion of predatory journals), and, even among those that are truly peer-reviewed, as we also mentioned previously, some journals have more prestige than others.

Even without having a strong methodological background, there are some indicators you can use to start critically sorting the information across studies. One of these indicators is the authority of the author. This really involves the affiliation of the author. In other words,

FIGURE 2.1 SUMMARY CHART FOR LITERATURE REVIEW CONSIDERATION

| Author        | Topic   | Sample   | Method  | Findings  | Pros / Cons  | Possible Use   |
|---------------|---|--|---|---|--|--|
| Roche et al.  | Identify inappropriate posts<br><br>See reaction to posts   | 150 college students enrolled in Intro course and who agreed to do study for extra credit points | Created posts and then did survey to see students, reaction to posts (quantitative) | Romantic relationships → inappropriate<br><br>Passive-aggressive inappropriate<br><br>Ignore / block / defriend               | Con: Not random and no indication if representative of student body<br><br>Con: Too close to your study interests?<br><br>Pro: Different topics for some areas of inappropriateness—some replication, some new | Appropriateness comparisons<br><br>Reaction comparisons<br><br>Self-disclosure discussion<br><br>Demographic differences |
| Glassman      | Implications of college students posting drinking pictures on FB  | 445 college students   |   | Those who post pics were more likely to drink alcohol   | Con: 22% response rate questionable—did they compare respondents to population to approximate representation?  | An example of negative self-disclosure on Facebook<br>→ Can use to create posts  |
| Miller et al. | SNS content appropriateness   |  | Field study   | Students aware info post is inappropriate for all   |  | Not sure article focus fits with my study; concerned with some term definitions.   |
| Park & Lee    | Why college students use Facebook, their concern for impression management, and sense of belonging w/ campus life | 246 college students   | Online survey   | Entertainment, relationship maintenance, self-expression, and communication with impression management relate to FB intensity | Pro: Focuses on impression management  | See the theme of impression management so this might be useful. I need to read the article to decide further.            |

**Color Key:**

Black is info inserted into the chart based on a reading of the initial abstracts obtained.

Gray is articles that are eliminated after the initial abstract reading (1<sup>st</sup> round).

Light blue is an example of an article that I need to investigate more to decide whether I will actually use it.

Blue is info that was inserted into the grid after reading the article.

is the author associated with a known institution, like a university or a government agency? If the authors have an affiliation, it is frequently noted by his/her name on a biography presented at the end of the article. If an affiliation is not noted, you can always search the author online. Having an association with a university of government agency gives some authenticity to the author, rather than having that person be an unknown individual. Another way of identifying the authority of the author is to see whether others have cited that individual or where she/he has published before. Again thanks to the Internet, much of this is available online. A third consideration is the tone of the material. As I mentioned in Chapter 1, science strives

to be objective and unbiased. As such, if an author writes emotionally, presents only one side of an argument, and/or does not provide scholarly citations, then that should raise a red flag to the reader. You also want to consider the timeliness of the material. Is the topic currently popular? If so, then you might expect to see rather recent citations. If the topic is novel, however, perhaps the citations will be older; and that will be OK. The point is, you have to have an idea of whether you should expect current citations or not, and then whether a source fulfills those expectations. Furthermore, you want to consider the objectivity of the researcher. For example, has the researcher distinguished between opinions and research findings? Key phrases that show a citation is research based include (but are not limited to):

- Recent data suggest that...
- In laboratory experiments...
- Data from surveys comparing...
- Doe (2012) found that...
- The percentage of men who...

On the contrary, keywords that show a citation is opinion based include (but are not limited to)

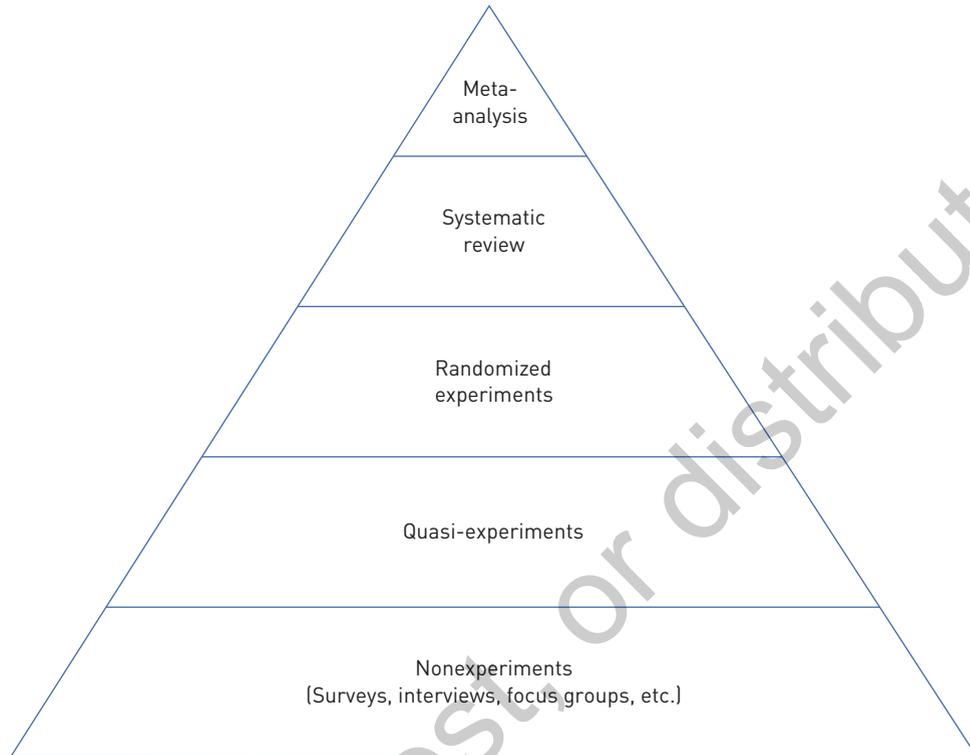
- Jones (2014) has argued that...
- These kinds of assumptions...
- Smith has advocated the use of...

Both opinion and research are useful; one just has to make sure they are interpreted correctly. You wouldn't necessarily want to base a \$400,000 grant on an opinion as opposed to a research observation.

However, even if the material is written by a well-established expert, has current cites, is objectively presented, and is published in a well-respected journal, that does not mean that you should just blindly accept the material based on face value. You still have a responsibility to methodologically and statistically evaluate what you see. I won't discuss how to evaluate how well researchers have designed their chosen methodology here because most of the considerations are covered later in this book, so you have not learned about them yet. However, here it is worth recognizing that not all methodologies are equal, especially in applied and evidence-based research, so it does merit discussing briefly how different methodologies rank.

At the top of the hierarchy would be **meta-analyses**. Meta-analyses are statistical analysis of the results of many independent studies that are similar enough to be able to have their findings be treated as the data for a new study (Higgins & Green, 2005). Think of this as a statistical analysis of others' statistics, where the findings of other studies are the data for the meta-analysis. When done well, this type of study allows researchers to get more of an overall

FIGURE 2.2 HIERARCHY OF METHODS OF OBSERVATION



picture of many different studies at once. Of course, the quality of this type of research is only as good as the quality of the studies that serve as this method's data; but, for now, we will assume that when ranking methods, those methods have been carried out as well as can be expected.

**Systematic reviews** are another tier of research. These are similar in approach to meta-analysis in that they systematically review the findings of multiple studies of similar focus and design; they just produce their results in a narrative form rather than the statistical one, characteristic of meta-analysis. A third tier is **randomized experimental research**, especially ones that are well controlled and involve both random selection (Chapter 5) and random assignment (Chapter 6) because if experiments have these characteristics, researchers are more confident that any change in behavior is due to the independent variable and not some other rival causal factor (Chapter 3). Because experiments are the best methodological means for controlling for factors other than the treatment that might create an observed change in behavior, many researchers consider these types of experiments to be the “gold standard” for establishing a causal connection, especially when evaluating the effectiveness of interventions. Next down in the hierarchy is **quasi-experiments**, which do not involve random assignment but do frequently have comparison groups for which statistics (rather than methods) can assess the effects of some rival causal factors. Because this group of methods lacks random selection and assignment, their findings need to be interpreted more cautiously than pure experiments because randomization is the only true way to make sure that groups are equal prior to an

intervention. Nonexperimental methods, like surveys, interviews, or focus groups, are toward the bottom end of the hierarchy. However, just because these methodologies are at the bottom of the hierarchy does not mean that they are “bad” choices or do not produce useful information. If we are doing applied research, especially if we are testing a program, these forms of observation are simply less preferred as the *main* way of obtaining evidence than meta-analysis or experiments because they are usually exploratory or descriptive in nature, not explanatory. Remember in the last chapter when we said that the research goal was important because it helped you assess the merit and needs of the research? This is an example of this idea in practice. If your research goal is to describe the need for a particular program, for example, then a nonexperimental method may be all that is necessary to “get the job done” and adequately achieve this goal. However, if your goal is to test program effectiveness (evaluative research), then your goal is more sophisticated and, as such, a more sophisticated method of observation, such as meta-analysis or experiments, is required. Therefore, it is important to know how the different methods rank.

Keeping this ranking in mind, the methodological and statistical considerations you learn as you progress through this book will serve as the foundation for the evaluation of those specific designs when you read the research of others. Furthermore, these points can help you identify which articles in your grid you can discount and omit early on and which ones merit a closer read of the study in its entirety. Once you read all the articles you find relevant, you can fill in the other parts of the grid, including some preliminary notes in the last column that will help you remember linkages, gaps, differences, and/or similarities between articles for when you want to start organizing your literature review. By comparing the findings and methodological detail of different studies, researchers can get a stronger sense of the gaps and contradictions in the existing knowledge that can help them refine their research question to create a testable hypothesis.

Given the systematic and replicable nature of science, the next step is to organize the material in a way that shows others the information flow that led you to your specific focus and that helps to explain how your focus fits into the wider scheme of knowledge.

## Organizing a Literature Review

If learning how to critically evaluate material for the literature review is the hardest part of this process, then organizing it has to be a close second. All too often, students treat the literature review like a high school book report where they simply document what each article found and the methods used to obtain those findings. As a result, students often devote one paragraph to each article, where the resulting “literature review” ends up reading like a shopping list instead of a critical analysis of what is known about a topic. However, literature reviews are much more than documentation and no professional (or professor) wants to read a report where paragraph one is about article one, paragraph two is about article two, paragraph three for article three, and so on. Instead, literature reviews are about synthesis, identifying agreement *and* disagreement in what has been found already, identifying gaps in the current knowledge, and wrapping this entire discussion into a critical presentation that will lead the reader to *your* particular focus.

It is not necessary to include every article you read, meaning those that make it past your initial scrutiny of abstracts, in your literature review. Simply put, you will find that some of the articles you read, even after the initial thinning out, will not actually be very useful and therefore have no place in the literature review even after you spent the time reading them. So to help you organize the studies that you did find useful or relevant, think of the entire research project as a story—perhaps not a bestseller, but a story nonetheless. The literature review sets the scene whereby at its conclusion, the reader should have a clear idea of what you will specifically study and why. It is for the other parts of the report—the methods, results, and discussion sections—to continue the story by answering how you did the research, what you found, and the broader social implications of your findings. The articles that are only moderately relevant can be mentioned in passing and/or combined with other studies that have a similar focus or findings, whereas the articles that are highly relevant to the “story” deserve a more detailed discussion such as some summary and evaluation of the studies’ methods and main findings.

This is where the grid that you developed in the previous section can be useful. Remember, that grid is a brief summary of the purpose, methods, and main findings of the articles you found. By reading through this, you will start to get an idea of the main issues relevant to your topic, how you might want to refine your topic, and where similarities and differences between the methods and findings of others are. Through the grid, you will also be able to form an idea of how you want to outline your literature review and be able to identify whether there are any gaps in your research that require further exploration and addition to your grid for comparison by you.

In organizing your literature review, you generally want to start by establishing the prevalence of the phenomena. Sometimes this is done in the introduction, but sometimes the introduction and literature review are not distinct subsections, but rather flow into one another. In a sense, the establishment of the phenomena addresses “why we care” about the topic. One quick note about writing introductions: Even though I used the analogy of a story earlier, introductions are not written like a real story with creative writing language or unsubstantiated dramatic claims. Although the material may progress through stages like a story, you are not writing the next bestseller where you have to “grab” the reader’s attention to make them want to read more. The people reading research are busy professionals and they really just want to know the bottom line, albeit a well-written bottom line. So as I tell my students when they are writing, “Write what you mean, support what you mean, and move on.”

Once the phenomena are established, Creswell (2002) suggests proceeding with a critical discussion of the research that is most relevant to the independent variable(s). Although we will cover independent and dependent variables more in a bit, for now, it is sufficient to say that the independent variable is what will influence the outcome. It is the cause that will make a change in something else, the latter of which is the dependent variable. If the literature review starts with this focus, it is still pretty broad as it is only presenting one part of the researcher’s ultimate topic. Creswell argues that the next section of literature should focus on the dependent variable(s), with subsections for each specific dependent variable if there are more than one. In the discussion of the dependent variable, although the writer is not yet linking the material to the independent variable, the reader may be starting to make some of those connections on their

## BOX 2.2

### LITERATURE REVIEW EXCERPT EXAMPLE

Describing how to present and organize a literature review is one thing; being able to see how it is done is another. So here is a very brief excerpt from a study about intergenerational mobility and drug use done by Dennison (2018) that discusses the role of college graduation in drug use. We can use this excerpt to illustrate some of the point covered in this chapter:

Aside from socioeconomic background, *research also considers the role of one's own achieved SES—or destination status as referred to by mobility scholars (e.g., Sobel, 1981)—on drug use (Boardman et al., 2001; Karriker-Jaffe, 2013; Williams & Latkin, 2007).* Indeed, turning points like socioeconomic achievements are fundamental elements in life-course criminology (Sampson & Laub, 1993), and the way in which achieved SES influences drug use is no exception. **Research shows that college completion is related to lower instances of drug use compared with those with no college education (Martins et al., 2015; White, Labouvie, & Papadaratsakis, 2005). Furthermore, Erickson et al.**

**(2016) find that those with a college degree report lower odds of experiencing anxiety, substance use, and other personality disorders, net of sociodemographic and psychological measures. Educational attainment has also been shown to promote self-efficacy (Ross & Mirowsky, 1989) as well as reduce depression (Bjelland et al., 2008).**

*Prior research notes the importance of employment status on the cessation of drug use (e.g., Faupel, 1988); however, most often considered is the way in which drug use reduces the prospects of stable employment across the life course (see Henkel, 2011). Spans of unemployment are shown to increase drug use (Compton, Gfroerer, Conway, & Finger, 2014; DeSimone, 2002; Hammer, 1992; Henkel, 2011). Moreover, research suggests that unemployment increases psychological distress (Nagelhout et al., 2017), and some find these consequences to be strongest during economic recessions (e.g., Compton et al., 2014).*

Source: Dennison (2018, pp. 207–208).

First, notice the synthesis. There are more than 15 citations presented here, yet the excerpt is just two paragraphs long. In other words, there is not a paragraph—or even a sentence—for each study. When multiple studies reach a similar conclusion, Dennison shares that conclusion, cites the studies, and moves on to his next point. For example, look at the italicized sentence. There are three citations about the relationship between socioeconomic status (SES) and drug use and none of those citations are discussed individually; they are *synthesized* into that one point.

Second, notice the bolded text. This section about how college completion relates to a *variety* of factors. The first sentence is about college completion and drug use (with two citations) and the next two are about how college completion relates to other factors that are also related to drug use (with three citations). The bolded italicized paragraph, relates drug use to a new topic, employment, but if you pay attention to what Dennison says, you will realize that although these studies in the bolded italicized text do not directly relate to the points about college graduation, they *do* relate to the points that he mentioned that college graduation can improve. So in other words, Dennison is beginning to frame a

message of how these various factors, even if the parts in one paragraph (e.g., the bolded text) were not directly studied in the next (e.g., the bolded italicized text), all relate.

There is also a clarification or analytical component. If you look at the second sentence in the bolded italicized text section, you will see that Dennison clarifies a broad statement of the importance of employment and the cessation of drug use by *explaining* how studies have approached this relationship and the conditions under which some have found this approach to be strongest. He is not oversimplifying by stating that research has found that drug use and employment are related.

Finally, notice the tone of the writing. Dennison is very direct and factual. He is not “painting pictures,” creatively writing to capture a reader’s attention or being dramatic. He is not trying to use awkwardly long words to sound smart. He is not stating opinions whether this relationship is justified or important or fair. He does not use quotes from the article to make his point; he is the one writing the synthesis and summary. Furthermore, his sentence structure is varied, but not long-winded. He is not taking 100 words to

(Continued)

**BOX 2.2 (CONTINUED)**

## LITERATURE REVIEW EXCERPT EXAMPLE

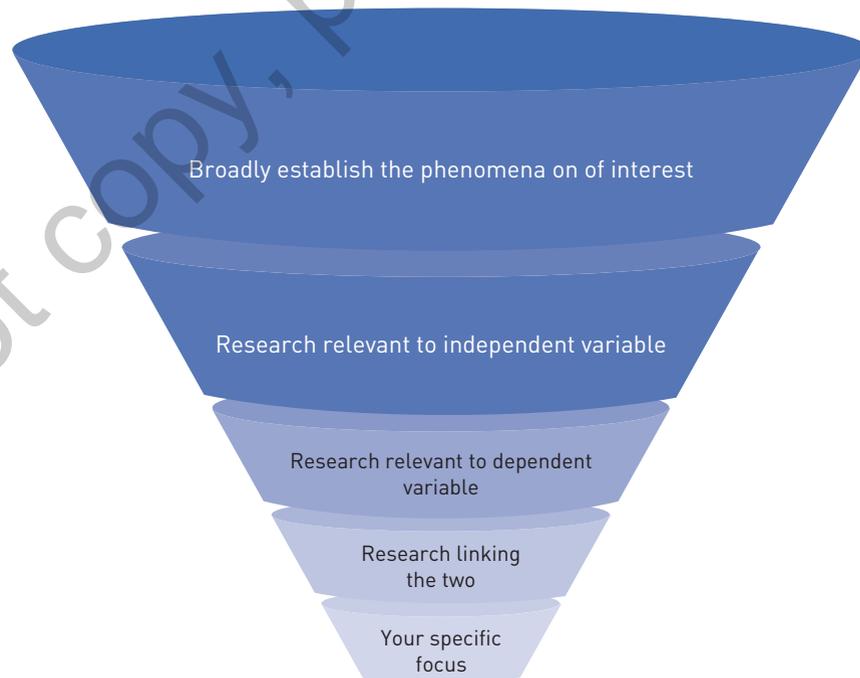
write what can be expressed in 50. In a nutshell, he is factually summarizing what the research has found, relating studies by identifying when the findings were the same, and comparing them by identifying when

approaches added new pieces of information. And he managed to do this, as I said, in about two paragraphs even though he addressed more than 15 studies.

*Source:* Dennison, C. R. (2018). Intergenerational mobility and changes in drug use across the life course. *Journal of Drug Issues*, 48(2), 205–225. doi:10.1177/0022042617746974

own; therefore, the literature is becoming a bit more directed. Only after the literature for both variables is presented separately, according to Creswell, should the writer then present any literature that links the two. Creswell (2002) argues that this section should be relatively short and limited to studies that are very close to the research questions topically and/or methodologically and where the researcher makes the case for how the current study contributes to this, now specific, knowledge. So essentially the literature review is organized like a funnel where, toward the end of it, the specific direction of the current research and the rationale for the research should be clear to the reader (Figure 2.3)

**FIGURE 2.3** ORGANIZATION OF LITERATURE REVIEW



I just discussed some general guidelines for organizing the material in a literature review, but not actually writing it. Obviously, everyone's style of writing varies, so in the spirit of "getting the job done," I will only highlight three points about actually writing literature reviews. First, as your writing is both summarizing and critiquing, make sure you distinguish between your opinion of the prior research and the conclusions of the authors. Second, if you are noting limitations of prior research, make sure the limitations you focus on are ones that can be avoided, especially in your study. Remember, research is done by people. It may be unfair, for example, to criticize someone for drawing a sample from a localized population rather than the national one because, although a national sample may be ideal, it may also be beyond the accessibility of an individual researcher, including you. Third, in your writing, direct quotations should be used sparingly—if at all (Pyrzczak, 2005). Excessive use of quotations of a researcher runs the risk of making the literature review more of an annotated bibliography than a critical analysis. The only time to use direct quotations (and then they need to be cited in the appropriate format) is when something is so incredibly worded that it simply cannot be paraphrased. Let me tell you, that is rare!

## BOX 2.3

### SUMMARY STEPS FOR LITERATURE REVIEWS

1. Make an initial list of search terms based on your research question.
2. Identify online databases relevant to your topic.
3. Search the databases with these terms.
  - a. Keep track of your terms used for each database.
  - b. Make decisions about whether to add terms based on the resulting "hits" and, if you decide to add terms, add them to your list to be searched in the multiple databases.
4. Evaluate the resulting material for relevance and quality.
  - a. Create a chart listing the various articles that initially seem relevant based on the information in their abstracts like what you see in Figure 2.1.
  - b. Make an initial decision about which articles in this chart are not relevant and do not pursue them further.
  - c. For the articles that make it past this initial cut, read them in their entirety and fill in any information on the chart that was missing or possibly relevant.
  - d. Start to compare articles for similarities, differences, and strength of information (see Figures 2.1 and 2.2).
5. Consider the information you learn for your own study.
  - a. Do you need to revise your research question or topic?
  - b. Do you have ideas regarding sampling, measurement, method of observation, etc.?
  - c. What ethical considerations do you need to consider?
6. Write the literature review.
  - a. Consolidate studies with similar points into broad statements with appropriate citations.
  - b. Studies that have information that is highly relevant to your focus should be discussed in more detail regarding methodology and relevant findings, while simultaneously incorporating theme with your more general points.

**LEARNING CHECK 2.3: LITERATURE REVIEWS**

1. Identify two issues to consider when evaluating the strength of a scholarly article.
2. When comparing studies, what type of research (presuming it is done well) is at the top of the methodological hierarchy?
3. When you write literature reviews, which should you start with: a

discussion of the independent variable(s) of interest, a discussion of the dependent variable(s), the prevalence, or importance of the phenomena?

**Answers to be found at the end of the chapter.**

## HYPOTHESES

As I mentioned at the end of your literature review, the reader should have a clear sense of your topic, its relevance, what is/is not known regarding it, and your specific focus. If you are doing research for any purpose other than exploration, your literature review might conclude with a testable assertion, called a hypothesis, about how your variables of interest are related. Hypotheses are empirically testable statements that usually have an independent and a dependent variable. There are three issues important in this definition: (1) recognition that hypotheses are statements; (2) the presence of an independent variable; and (3) the presence of a dependent variable. First is the recognition that a hypothesis is a statement. It is not a question of how variables are related; it is a statement, an assertion, that stems from theory and the information learned from the literature review. Students are frequently hesitant to word hypotheses as statements because they are afraid of what will happen if they are wrong. Guess what? *Nothing*. Nothing will happen if you are wrong. You won't fail, your reputation won't be ruined...*nothing* will happen. Sometimes having a hypothesis not be supported is just as informative as when it is, so it is OK to "fail" in this sense. Of course, this all presumes that the methodology and statistics were strong; but we are not ready to evaluate methodology yet.

As I said before, the independent variable is the cause. It is what will create the change. As such, it will come first in time. Common independent variables are demographics like sex, age, and race/ethnicity. As most of these are set at birth, they are likely to be the cause if they are featured in a hypothesis. Similarly, if I am doing evidence-based research and I want to test a program, intervention, or policy, then that program, intervention, or policy is going to be the independent variable because the researcher and/or practitioner sets the parameters of who gets it and it is supposed to create the change. The dependent variable then is the effect. It is the behavior that is being altered because of the independent variable. How we put together hypotheses can vary a few ways, which is what I will cover next.

### Alternative and Null Hypotheses

There are two broad types of hypotheses: the null and alternative hypotheses. When students think about hypotheses, they are usually thinking about the alternative hypothesis, also called

the research hypothesis, which is the hypothesis of *difference*—it is what we really expect to find based on theory, the research we learned in our literature review, and/or common sense. But believe it or not, this **alternate hypothesis** is not what we really test with statistics. Contrary to what might initially make sense, when I discuss statistics, we are actually testing the null hypothesis, not the alternative hypothesis. The **null hypothesis** is the hypothesis of no difference, where “null” means “nothing.” Although I will explain why we statistically test the null in Chapter 12, for now, let’s just say that statistics are analogous to a court of law. Think of it this way: In the American criminal justice system, a defendant is assumed to be innocent until proven guilty. In research, the assumption is that there is no relationship between variables (the null hypothesis) until statistics show (remember, we don’t “prove”) otherwise, meaning that observed differences are real and not likely to be due to chance. So statistically we are focused on rejecting the null of no difference and, therefore, that is what we *statistically* test with our formulas.

## BOX 2.4

### DIFFERENT HYPOTHESIS TYPES

| Hypothesis Type  | Example  | Relationship                      | How it is Written      |
|------------------|--|-----------------------------------|------------------------|
| <b>Null</b>      | Graduates of Smarty Pants University ( $\mu$ ) earn the same 2 years out of college as other college graduates, which is \$43,500  | None                              | $H_0: \mu = 43,500$    |
| <b>Alternate</b> | The income of graduates of Smarty Pants University 2 years out of college ( $\mu$ ) is significantly different than the income other college graduates (average = \$43,500) 2 years out of college | Different, no direction specified | $H_a: \mu \neq 43,500$ |
|                  | The income of graduates of Smarty Pants University 2 years out of college ( $\mu$ ) is significantly higher than the income of other college graduates (average = \$43,500) 2 years out of college | Positive (higher)                 | $H_a: \mu > 43,500$    |
|                  | The income of graduates of Smarty Pants University 2 years out of college ( $\mu$ ) is significantly less than the income of other college graduates (average = \$43,500) 2 years out of college   | Negative (less)                   | $H_a: \mu < 43,500$    |

The null hypothesis is usually symbolized by “ $H_0$ ” because “0” means “nothing.” The alternate, or research, hypotheses are usually denoted as “ $H_1$ ,” “ $H_2$ ,” etc., where the subscripts are numbers that correspond to the number of hypotheses that researchers have in a study. An alternative hypothesis can take one of the three forms as illustrated in Box 2.4. When I have a hypothesis of a general difference, all I claim is that the two populations are not equal, but I do not take a stance about how they are not equal. On the contrary, I *can* go out on a limb and hypothesize either that my study population is greater than the comparison population *or* that it is less than it. Whether or not I take a stance on how the groups differ should be based on theory, available research (which you learn from doing your literature review), and/or common sense. However, this decision is important because how I word my alternate hypothesis has implications for any statistical analysis that I might do, which I will discuss more in Chapter 12.

### Establishing Causality

Not all hypotheses aim to establish causality. If the purpose of your research is descriptive, then your hypothesis may just be a testable statement about who is more or less likely to exhibit a behavior. This would be an **associative hypothesis**. For example, a hypothesis such as “Teenagers from low-income families are more likely to have a child without being married than are teenagers from higher-income families” is an associative hypothesis. It is a testable statement; it has an independent variable (economic background) and a dependent variable (likelihood of having a baby without being married). However, it is not making the claim that income *causes* teens to have a child without being married.

If I wanted this hypothesis to be **causal hypothesis**, to somehow claim that income differences *caused* the differences in unwed birth rates, then I would have to fulfill three criteria. The first criteria of **empirical association** is pretty straightforward. It means that I would have to show that a change in one variable is associated with a change in the other variable. Some call this associative relationship a **correlation**. Association and correlation are essentially the same idea, but “correlation” is really a statistical means of assessing an association; therefore, I will use “association” to mean a relationship and “correlation” as the statistical test of that relationship. If one wants to begin and end with this associative criteria, then one has an associative hypothesis that I mentioned in the previous paragraph. However, there is a common saying in research that correlation does not equal causation. So to move beyond this first criterion (and beyond an associative hypothesis), a researcher has to also fulfill two additional criteria.

The second criteria involves time order and is also pretty straightforward, at least in theory. This means that the independent variable has to come before the dependent variable in time. Because my hypothesis refers to teenagers and I do not expect teens to be economically self-sufficient in our culture, here socioeconomic background would come before deciding to have a baby without being married. Testing whether an intervention changes behavior is another clear example of where the independent variable, the intervention, will come *before* any later change in behavior.

In reality, however, the time–order relationship can be more difficult to establish than it initially appears. For example, take the relationship between mental illness and homelessness. If someone experiences mental illness, it may be difficult for them to maintain a job, which would lead to unemployment and possible homelessness. In this example, the mental illness comes first. However, it is also possible that one could lose their job due to downsizing, have difficulty finding another job, become homeless, and develop mental illness after becoming homeless. In this instance, homelessness is the cause of mental illness, not vice versa. If in my example of SES and unwed parenthood, they were worded slightly differently to read “Having an unwed birth is more common among lower-income individuals,” the time–order relationship is less clear. With the wording of this new hypothesis, I do not know which came first—the SES or the unwed birth. The time order might be the same as my original hypothesis, where SES comes first. However, it may be the opposite. A person may be lower-income because of having a child without being married. Single-parent households generally have less income potential than two parents due to only having one possible earner. Consequently, even a slight wording change in hypothesis can lead to very different research possibilities. In applied research, this criteria is usually more easily fulfilled, but the researcher still needs to be sensitive to it.

The last criterion, showing that the association noticed between the variables (criteria one) is nonspurious, is much tougher to fulfill. A **nonspurious relationship** is one in which the association between two variables cannot be explained (is not caused) by a third variable. In my example of premarital birth, not only can we make an association between income, which

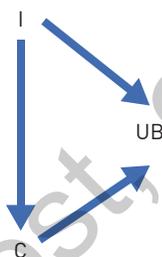


**PHOTO 2.3** Homelessness is a problem for which a casual connection is hard to establish. For example, does having a mental imbalance lead to homelessness or does becoming homeless lead to mental health issues?

I will call “I,” and unwed birth (“UB”), I can also argue that teens of higher income (“I”) are more likely to go on to college (“C”). Having an infant and attending college is *very* difficult, not impossible, but much more difficult. So I can also argue that those who expect to go to college (“C”) are less likely to have an unwed birth (“UB”). All these relationships can be summarized as follows:

1. Income is associated with unwed birth:  $I \rightarrow UB$
2. Income is associated with likelihood to attend college:  $I \rightarrow C$
3. Having an unwed birth is associated with the likelihood to attend college:  $UB \rightarrow C$

If I take these three possible relationships and combine them, I see that income may be directly related to unwed birth, but it may also be related to whether someone plans on going to college, for which an unwed birth is associated with a decreased likelihood of this. I can depict these potential relationships as such:



There are other possible causes of unwed birth as well. For example, teens may use pregnancy to “save” a relationship or they may think that having or fathering a baby makes them an “adult.” As a result, there are more possible *causes* to unwed birth than just income, so any observed association between income and unwed birth might actually be explained by any of these other rival causal factors, thereby violating the criteria of being a nonspurious relationship. Rival causal factors create spurious relationships that threaten **validity**. I will discuss validity in more depth in Chapter 6, but for now, let’s suffice it to say that validity is whether you are observing what you think you are. If I find an association between income and premarital birth but I do not consider these other factors that I mentioned, then I can’t really be reasonably confident that any association I see between the two variables is real or valid. The association may be caused by one of these other unmeasured issues. Issues like this, what I call topical rival causal factors, can be identified by the literature review. You may be focusing on income, but some other researchers may have researched the transition to adulthood, and learning about what they found by doing the literature review will give you ideas of how to address this (and other topical issues) in your study. If you want to make a causal connection, you *need* to address other rival causal factors in your study so you can see whether your variable of interest (your independent variable) has any effect on the dependent variable when simultaneously addressing the effects of these other possible causal factors. This is what researchers statistically call *controlling for rival causal factors*. In fact, even though much of the material in this book will focus on bivariate analysis, which means the study of two (bi-) variables (-variate), such as one independent and one dependent variable, to establish a causal connection, unless doing a randomized



#### LEARNING CHECK 2.4: HYPOTHESES AND CAUSALITY

1. What are the three criteria to establish causality?
2. What does it mean to say “correlation is not causation?”
3. Is the following a null or alternate hypothesis: The more hours of

supplemental training an employee receives, the lower the absentee rate.

**Answers to be found at the end of the chapter.**

experiment, researchers usually need a multivariate analysis. In a multivariate analysis, you are including not only the main independent and dependent variables of interest (the bivariate relationship) but also the possible rival causal factors that you have identified in your literature review and have therefore incorporated into your method of observation (hence the *multivariate*). For example, with some highly public deaths of African American men at the hands of police and the emergence of the Black Lives Matter movement, there has been a lot of discussion regarding racial injustice in policing. One side of the debate argues that the police are more likely to arrest and use force when encountering minority men, especially Black men, thereby making racial bias a main factor in whether a police-citizen interaction will turn violent. Another view is that race is a correlate (not a cause) to other factors, such as statistics on whether someone is carrying an illegal weapon, age, neighborhood characteristics, and civilian behavior. It is likely that there is merit to both sides, so in order to understand the role of race *while also accounting for* or *controlling for* the other factors, Kramer & Remster (2018) analyzed the conditions around how race and age (their main independent variables) affected the decision to use police force (their dependent variables) using a sample of over two million police stops between 2007 and 2014. The conditions that they accounted for included whether the stop was successful in finding a weapon, other contraband or an arrest (all of which could explain police force), the nature of civilian behavior (whether there were verbal threats, the civilian refused to comply with orders, or whether the civilian was suspected of a violent crime), the length of time the officer observed the civilian prior to the stop, whether the stop occurred at night, local crime rates, and gender, among other factors. The point is that Kramer and Remster tried to statistically determine the effect of race, or racial bias, on the likelihood of a violent encounter with police while *simultaneously* also accounting for these other factors. If racial bias is relevant, then the effect should be statistically significant even if these other factors are also present. Kramer and Remster found that black individuals were more likely to be stopped by police, more likely to be viewed as threatening to officers, and more likely to encounter force by police than whites, even when considering the additional contextual factors noted, thereby indicating that civilian race is, indeed, a factor in police-citizen interaction (2018). As this study illustrates, multivariate statistical modeling can help shed light on very complex social processes.

As if that wasn't confusing enough, rival causal factors can also be methodological or a flaw with the study design. Research design issues that could create spurious relationships threaten what is called internal validity. There are multiple methodological issues that can threaten internal validity and I will discuss those in more detail in Chapter 4.

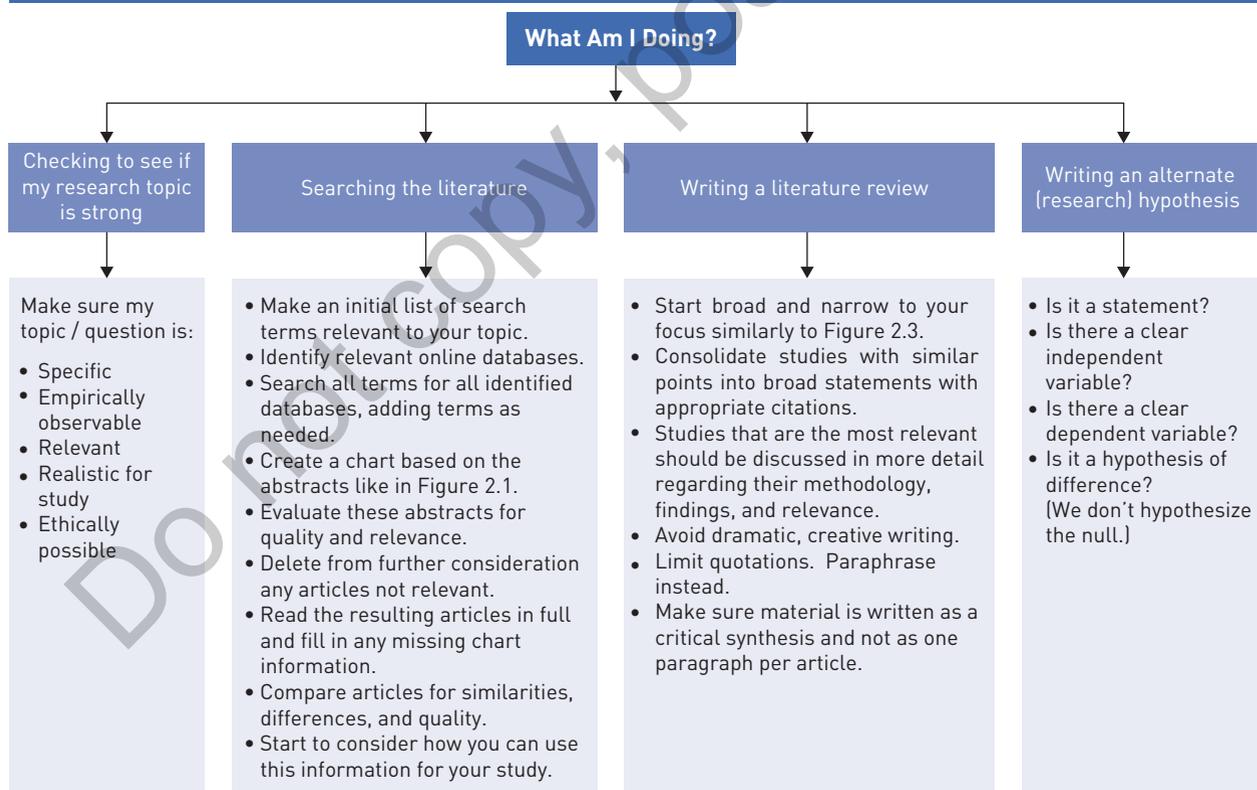
## MAKING DECISIONS

In this chapter, we started learning about some early decisions to make when doing research, namely how to refine your research topic or question, conduct literature reviews, and write hypotheses. However, we are still in the formation part of the research design where we have a lot of freedom in our choices. We are not really at the stage where we are weighing options for design; therefore, although there are decisions to make (such as deciding on the specific research topic or deciding what articles to include in the literature review), they are rather nebulous at this point and depend more on what we find from the work of others rather than what we will specifically design ourselves. Consequently, the flow chart for the making-decisions component of this chapter is really a summary of the considerations I discussed for the stages of topic formation and appears in Figure 2.4.

## CHALLENGES

At this early stage in the research process, there are no specific methodological challenges we may need to address; however, there are some common issues arising from searches of the literature and the early stages of considering causality that you might encounter.

**FIGURE 2.4** ■ SUMMARY POINTS TO MAKE DECISIONS FOR TOPIC FORMATION



1. **My review of the literature is not producing anything related to my topic.** I have students come and tell me this *all* the time and the reason is usually two common problems. First, students are looking for literature that is *exactly* on their topic. Allow me to let you in on a little secret: If you have found “enough” research *exactly* on your topic, then your topic has been already studied a great deal and *you* need to find a new approach. In other words, finding a lot of research exactly on your topic is not a good thing! Literature reviews are the review of *related* research...and “related” does not mean an exact replica.

The second most common reason is that people give up too soon or are too limited in their search. Before you conclude that there really isn't much known about your topic (and therefore that your research may be more exploratory in nature), there are a few points you need to make sure you covered. First, check that you have used multiple databases and multiple search-term combinations within each database. Keep a list of what terms you are using to search and then think of any other combinations of those terms, synonyms, or other ways of getting similar (not necessarily identical) points that you could be using to search instead. Then use all the combinations of these terms for multiple databases. For example, you might not find much information searching for “mental health training for police officers,” but you can expand this to searches such as “police and perpetrator mental health,” “arrest and perpetrator mental health,” “police view of perpetrators in mental crisis,” etc. You will find some of the same articles popping up, but you might find new ones as well. Keeping a list is also helpful because you can show that list to someone else who might be able to give you other suggestions of possible search combinations that will help you find material as well.

2. **My search for literature is producing too many possible articles.** When I entered “mental health” and “arrest” into the ProQuest search engine when I wrote this chapter, I received 9,442 “hits.” It would take an immense amount of time to scroll (not to mention read the abstracts) through this many hits. If I refine the search by programming ProQuest to only look at peer-reviewed articles, the number drops to 6,776. If I add “full text” as a filter so ProQuest only provides “hits” for articles that I can read in their entirety online, the number drops to 5,651; and if I program it to only include articles published within the past 10 years, the “hits” further drop to 3,099 articles. That is *still* a lot of articles and most of them will not be relevant to my topic. In order to refine the search further, I might need to use multiple terms together, such as “mental health” and “arrest” and “crisis.” The point is that basically, you can keep working with the database to further restrict the search parameters and to make your list manageable.
3. **My literature review identified factors other than my main independent variable that are also associated with changes in my dependent variable, but I cannot incorporate all of them into my study so how can I establish causality?** The short answer is that you really cannot; but remember, descriptive research can be very informative. That

earlier phrase I said I give my students about writing what they mean means for them to write succinctly yet cohesively without dramatic flourish, but it also means to simply be clear about what you can and cannot do. Remember, no research is perfect. Discuss these topical rival causal factors (all of them) in the literature review, try to incorporate as many of them that you methodologically and feasibly can, explain why you couldn't incorporate the ones you didn't, and then be honest in your results of about what you can and cannot conclude. Although you cannot conclude causality, the topical rival causal factors you included might speak to the provisional nature of science where the more factors (topical provisions) you can control for (account for), the clearer your descriptive results.

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## Key Terms

|                               |                          |                                  |
|-------------------------------|--------------------------|----------------------------------|
| Alternate hypothesis          | Empirically observable   | Normative question               |
| Associative hypothesis        | Empirical association    | Null hypothesis                  |
| Bibliographic database        | Impact factor            | Predatory journal                |
| Causal hypothesis             | Impact question          | Quasi-experiment                 |
| Correlation                   | Literature review        | Randomized experimental research |
| Correlative question          | Meta-analysis            | Systematic review                |
| Descriptive research question | Nonspurious relationship | Validity                         |

## Answers to Learning Check Questions

### Learning Check 2.1: Types of Research Questions

1. Normative questions involve comparing the information you will gather to some known standard or norm. Descriptive questions just report a situation without any comparison. One way of identifying a descriptive question is that it will usually involve only one variable or issue at a time.
2. Descriptive questions look at one variable and report what is going on regarding it. Correlative questions look at how the variables relate or correlate.
3. Descriptive. It is only examining behavior two years after graduation, which is one variable.

### Learning Check 2.2: Strong Research Questions

1. Any of the following would be valid answers: reasonably specific, empirically observable, relevant, realistic, and ethically able to be studied.
2. Yes. Even though it may need some specification with measurement (e.g., “family structure” will have to be defined), as a research question it fulfills the criteria for being strong.
3. No. Most importantly, it is not empirically observable because it is a value question.

An argument might also be made that it is not sufficiently specific because “sake of the children” is very subjective and hard to define.

### Learning Check 2.3: Literature Reviews

1. Possible answers: the authority of the author, the authority of the source, the tone of the material, the objectivity of the researcher, the method of observation
2. Meta-analysis
3. The prevalence or importance of the phenomena

### Learning Check 2.4: Hypotheses and Causality

1. The three criteria are (1) association, (2) the independent variable needs to come first in time, and (3) the relationship between the independent and dependent variables cannot be spurious (caused by a third, different, variable).
2. Two variables can be associated (have correlation), but if the relationship does not fulfill the other two criteria, then a researcher should not claim causation.
3. Alternate hypothesis because it shows that the variables do have an effect on each other—whereas one goes up, the other goes down.

## End-of-Chapter Problems

1. "How do freshman and seniors differ in their binge drinking behavior?" is an example of what type of research question?
  - a. Descriptive
  - b. Normative
  - c. Correlative
  - d. Impact
2. "Does attending a multicultural training seminar improve cultural awareness among employees?" is an example of what type of research question?
  - a. Descriptive
  - b. Normative
  - c. Correlative
  - d. Impact
3. Which of the following is a strong research question?
  - a. Do treatment courts work?
  - b. Should treatment courts be an option for nonviolent drug offenders?
  - c. Does attending treatment court reduce the risk of being arrested for a drug-related crime 2 years after completion?
  - d. Which offenders are the best candidates for treatment court attendance?
4. What is wrong with the following research topic: Reactions to inappropriate online posts
  - a. It is not sufficiently specific.
  - b. It is not empirically observable.
  - c. It cannot be studied ethically.
  - d. Nothing. The topic is fine.
5. True or False: Literature reviews can help researchers refine their research topic.
6. True or False: Newspaper articles are strong sources for material in a literature review.
7. A researcher argues that coming from a high-conflict home where parents fight frequently causes behavior problems, such as disciplinary actions in school and poor academic performance, in children; but, she has failed to account for whether the child exhibited behavioral problems prior to parental conflict, which a review of the literature suggests might be an important factor in child behavior in school. Her causal claim is false because she did not fulfill what criteria of causality?
  - a. Association
  - b. Time order
  - c. Nonspuriousness
  - d. Her causal claim is fine; all three components of causality have been met.
8. Which of the following is an example of an alternate hypothesis?
  - a. Gender differences in the type of major declared.
  - b. Gender has no effect on the type of major declared.
  - c. Women are more likely to select majors that lead to helping professions than men.
9. Which of the following is an example of a null hypothesis?
  - a. Distance between campus and home is related to the number of times a student goes home.
  - b. Distance between campus and home is not related to the number of times a student goes home.
  - c. The shorter the distance between campus and home, the less often a student goes home.
  - d. The shorter the distance between campus and home, the more often a student goes home.
10. In the following alternate hypothesis, what is the direction of effect: As years of education increases, so does one's income
  - a. No direction is specified
  - b. Positive
  - c. Negative