

# PRESENTING RESULTS, MAKING CONCLUSIONS, AND WRITING REPORTS

## 10

Communication is truth; communication is happiness. To share is our duty.

—Virginia Woolf, *writer*

### LEARNING GOALS

In this final chapter, learning to write a report of the research project is emphasized, along with the key elements that go into a presentation of your study. Understanding the different audiences reading a report guides the preparation of the findings. By the end of the chapter, you should know the different styles for presenting your research and be able to put together a clear, concise report targeted to the relevant audience.

**Y**ou've made it this far, and now it's time to show off what you have accomplished. It all began with some idea, hunch, book, or article you read, or maybe even an assignment at work or school. You managed to think up some fascinating research questions and hypotheses, operationalize your variables, and construct a reliable and valid questionnaire. Especially worthy was the sampling strategy you designed to generate representative respondents. You also demonstrated your skill in making decisions about levels of measurement and choosing the most relevant statistics to evaluate the research questions. After all this work, it's time to share it with others and call a press conference to announce your major findings! But first, some important considerations must be kept in mind.

## INTERPRETATIONS AND CONCLUSIONS

One of the key ideas to understand in doing survey research is that, although you uncover information with the best scientific methodologies you can employ, it is only one way of apprehending the world around you. Just because you generated a random sample, used valid and reliable measurements, and incorporated the correct statistics does not guarantee in any way that what you discovered is therefore “the truth.” However, you have at least used a more scientific way of achieving this information.

### Limitations

It’s important to remember that some data have not been uncovered, due to the scientific method you used. Some questions remain unanswered, and some information is out of reach. Perhaps qualitative field methods research would have resulted in additional findings, or even contradictory ones, and an experimental laboratory design could have arrived at a more detailed and concise explanation for your outcomes than what you discovered.

In other words, know the limitations of your methodology and be sensitive to them when interpreting your results and making conclusions. Most important, know that you have not “proven” anything, merely ruled out alternative explanations or suggested relationships that seem more plausible than others. Knowledge accumulates incrementally, and your contribution is but one step in that process, not the definitive answer to the topic you studied. Hence, avoid such phrases as “my findings prove,” “my study conclusively answered all the questions about,” or “we found the answer to.” It’s much more accurate to say that “my findings suggest that,” “it seems that in some cases,” or “for the sample of people I studied, we can conclude that.”

### Generalizing Findings

Of utmost importance is the question of generalizability, as discussed in Chapters 1 and 5. To which other groups or population can you conclude that what you found in your sample also applies? If you studied middle-level managers in a small organization in a medium-size town, can you safely state that the findings are also relevant to middle-level managers in other types of organizations in other kinds of localities? If the results were based on a sample of mostly white respondents, do they also apply to people of other races/ethnicities, or even whites of different educational or social class levels? A frequent problem in research is making conclusions about populations or subgroups that were not sampled appropriately. For most of the research we do, we can safely and ethically generalize only about those we actually surveyed or, at best, those similar to the people we studied.

## Neutral Statistics?

People often say that statistics don't lie. Well, don't believe that lie (see Huff's 1954 still-reprinted classic, *How to Lie With Statistics*). Sure, numbers are calculated without bias, but the numbers added and multiplied may have been chosen with intention. Perhaps, for some unethical reason, you decided to ignore the data from certain respondents and not others, or you legitimately eliminated extreme answers and reported only on the middle range of responses. Or maybe you inadvertently led the audience to a particular conclusion using such words as "only" or "very important" or "insignificant" and, in so doing, applied your biased interpretations to the "neutral" statistics. There is a major difference between opinion and fact, and how research findings are reported needs to maintain that important distinction (Nardi 2017).

Imagine you found that 10 percent of the high school sophomores used an illegal drug in the past month. The previous month, 8 percent did so. That 2 percent change can also be presented as a 25 percent increase in drug use (25 percent of 8 percent is 2 percent). The headlines might mislead by saying "Drug Use Is 25 Percent Higher Than Last Month," when they should also say that the starting point was 8 percent. And what if you said that this month only 10 percent used drugs? The word "only" implies that either you expected more or that 10 percent is not a major issue. On the other hand, antidrug leaders could say that 10 percent is too high and would prefer saying "a disturbing" 10 percent of high school sophomores drank alcohol last month. So much for neutral statistics!

## Using Hypotheses to Guide Interpretations

When making conclusions and summarizing findings, keep focused on what your research questions and hypotheses are. Sometimes researchers will write up their results and attempt to explain them using hunches or ideas that were not actually tested in the study. This could be done if the goal is to suggest further research and if the conclusions are written as speculative interpretations. It would not be unusual to say that "perhaps the reason those who studied more get higher grades is connected to the fact that they exhibit more motivation to succeed." But if you haven't included measures of "motivation to succeed," then you cannot say this as if you discovered it in your study. You should phrase interpretations in such a way that those reading your results know the interpretations are speculative, that you were unable to include variables to test them in your project, that you wished you had studied this topic further, and that now you hope someone else will when the research is replicated.

Your summaries should always be in terms of the research questions and literature review you began the project with, and based on the data you actually collected. Certainly, you should not go back and rewrite your hypotheses on the basis of what you

have found after you collected the data. Although research does not go as linearly as described in most methods books, it is not ethical to go back and change what you said you were going to do once you have already done it and arrived at your findings. However, it is good practice to develop new hypotheses and research questions when you uncover some fascinating and serendipitous findings that suggest additional research you can still incorporate in your project. Or perhaps you can adjust measurements and sampling, if you encounter problems along the way with the original design. In all such cases, you must report these modifications in detail in your report.

### **Cause-and-Effect Conclusions**

Be careful of making conclusions of causality when all you have are measures of correlation without any sense of time sequence or having ruled out other plausible explanations. This is a very common error, as discussed in Chapter 1, even by professional researchers who occasionally imply causation when it was in fact never fully assessed. Often cross-sectional studies are used to suggest longitudinal changes or causation when the evidence is not actually there.

Unless you have data that demonstrate causation, you should conclude with findings focused on relationships and differences and only speculate or hypothesize about cause and effect. In short, throughout the concluding interpretations, clearly separate speculations from findings rooted in data. Remember to distinguish what you measured for descriptive or exploratory purposes, what you did for explanatory research, and what is being used for predictive purposes. Collecting data to describe relationships is not the same as collecting data for explanatory purposes.

For example, just because you report findings on gender and other information on salaries does not mean there is a causal relationship between them. Let's say you found out that a particular company is 60 percent female and that the average wage is \$60,000, compared with another company that is 50 percent female with an average wage of \$70,000. You have merely described the organizations in terms of two variables, sex and salary. But to conclude that the percentage of employees that are female is the reason for the lower average wage has not been determined. You must do some additional data analysis that clarifies explanatory processes before you can make such a conclusion.

### **The Ethics of Reporting Results**

In Chapter 2, the topic of *ethics* focused on the need to be forthright and up front about your project when recruiting subjects. Do no emotional or physical harm, and do allow for informed consent. However, the ethics of doing research don't end with the collection of data.

Data analysis, interpretation, and presentation of results each involve ethical issues as well. For example, if you recall from Chapter 6, when there is a skewed distribution, it's better to use a median than a mean when reporting a central tendency for the variable. Take income: Because few people earn millions of dollars, income is said to have a positive skew, and if the few are included in the calculation of the mean, it could be distorted higher. Imagine a company reporting on the improvement of its employees' salaries by showing an increase in mean wages from one year to the next, only to discover that it was just the executives who saw a dramatic increase in their earnings. If the median were used, the salary figures would probably have stayed about the same, because increasing the chief executive officer's salary from two million dollars to four million keeps the median the same, yet pulls the mean higher. Clearly, this is an unethical use of statistics.

What happens if you get findings that have major repercussions on public policy and people's lives? What are the ethical issues involved in reporting some of your findings and not others, especially those that may run counter to prevailing beliefs or to those of the sponsoring agency of your research? Writing up your report can have a profound impact on people's opinions and behaviors, not to mention their faith in scientific research. How often have you heard that you can't believe what the polls say, yet they rarely have been wrong when done scientifically, as was shown in Chapter 5? How ethical is it for television stations or online blogs to report the results of people who logged onto a website survey or texted to vote in a poll without offering a disclaimer about the scientific accuracy of the research? What does this do, not only to people's sense of the quality of research but also to their beliefs about the topic voted on?

Interpretations of findings should be informed, intelligent, creative, data based, and ethical. They should not be speculative, selective, biased, and dishonest. Your conclusions should demonstrate a familiarity with the subject, theories, and prior research, as well as provide insights and ideas for future research projects.

## AUDIENCES AND REPORTS

An important consideration in the preparation of a report is who will be reading it. This is a basic tip often given by people specializing in teaching good writing. Know your audience. If you visualize to whom you are addressing the remarks, writing ability improves. Any summary of what you have done will always contain some key pieces of information, especially about the methodology, but how it is stated and what elements need to be emphasized might vary, depending on whether your *audience* is

- The general public, in print or online
- A reader of an academic journal
- A participant attending a presentation at a conference

- A professor evaluating your thesis
- An employer
- A funding agency.

Let's look at how the presentation of research findings might differ depending on the group to whom you are addressing your remarks.

### **The General Public**

When communicating with the general public, avoid academic jargon from your field. There's nothing worse when describing the results of a project than to lapse into concepts that carry very different meanings inside an academic discipline compared with what the public might understand them to mean. For example, someone might describe walking up to people on the street as "randomly" stopping them to ask for their participation in a survey. We, however, know this is a convenience sample, not a random sample. Or imagine reporting the results of a study on "anomie" and "cognitive dissonance" and failing to clarify those terms to a perplexed audience of non-social scientists. Too often we forget that the language we've become accustomed to is impenetrable to those not in our field of expertise.

In addition, most people are not familiar with statistical procedures, so presenting the results of a "multiple regression analysis" and the accompanying "Beta coefficients" will mean nothing to most people. Many of these statistics provide you with the information you need to decide whether your findings are statistically significant or not. For the purposes of a nontechnical audience, the results are the key point, summarized with clarity and insight, not laden with numbers that tell them very little. It is not the time to give a lecture on multivariate statistical analysis during a presentation of your conclusions.

When speaking with the popular media about a study, it is crucial that you clearly describe the limitations. There's nothing worse than reading in some local paper or in an online social media posting that you "proved," for example, men are less likely than women to ask for directions when lost, if in fact you only demonstrated a slight tendency to do so in your limited sample of college-age students in a small Canadian university. Frame results with such phrases as "some men demonstrated that" or "it's not clear if these findings apply to older males or those living in other countries."

### **Readers of an Academic Journal**

The best professional publications are those in a particular field that are *refereed*. This means that every submission is reviewed by selected experts who typically do not know who wrote the article. The author also does not know who is reviewing

the paper. This is called a *double-blind* method because both authors and evaluators remain anonymous, thereby allowing for a potentially unbiased review without any preconceived assumptions about the level of expertise or skills of those involved. Reviews for the article are either a “rejection,” a “revise and resubmit,” or occasionally an outright “accept.” A “revise and resubmit” usually is a statement that the paper has some potential but that further clarification, reanalysis of data, rethinking of the interpretations, or other important changes need to be made before another critical review occurs. Then the revised paper is sent back to some or all of the original reviewers, and occasionally to new ones, for another evaluation.

Be aware of many *open access journals* which invite you by e-mail to submit your research, require you to pay a fee to get published, do not provide double-blind reviews, and often have titles that sound similar to professional refereed journals. Many researchers like to have easy and open access to legitimate *academic journals* that do not charge a fee to publish research. But the rapid increase in so-called “predatory” publications is worrisome: “This rise of predatory journals threatens the quality of scholarship. Without a credible editorial board, flawed scientific papers become an increasing problem. These practices also threaten to give the open-access movement a bad name” (Sorokowski et al. 2017: 483).

Legitimate professional journals (such as the *American Sociological Review*, *British Journal of Sociology*, *American Ethnologist*, *Australian Journal of Political Science*, and *Journal of Clinical and Social Psychology*, to name a few) usually provide a “style sheet” about the kind of information expected in the article and the standard format for writing the paper and bibliographic references. These guidelines, often published in issues of the journals or on their websites, also tell you whether these are refereed journals. The typical *journal article format* is as follows (similar to the ordering of the chapters in this book):

- Abstract
- Literature review
- Methods
- Results
- Conclusions and summary
- References.

**Abstracts.** Most articles in the social sciences begin with an *abstract*, a 100- to 150-word summary of the key points of the research organized in the same order as they are in the complete report or article. Consider it sort of a brief version of an *executive summary*, which is typically a short, one- or two-page summary of the central findings of a study, so termed because it is read by those in leadership positions who

supposedly have very little time to read the entire research. An abstract gives readers key ideas about the paper but is not meant to include everything about the study. It should read coherently and stand alone as a self-contained summary of the research with minimal jargon. Abstracts can be descriptive and simply provide the details of the study; these types of abstracts require further reading of the article to find out the complete results. Other kinds are informative and give the main findings and conclusions. Remember that in this electronic age, many people learn about research through computer databases that provide titles, abstracts, and key words. Therefore, the abstract should be clear enough for people outside the field to read and should include the most relevant concepts, key words, and main points that would result in the research showing up in an online search.

**Literature Review.** Following the abstract, the body of the paper typically opens with a few sentences stating the focus of the research and its themes. Then a review of the relevant literature serves to frame the paper in some theoretical and empirical context. As described in Chapter 2, a *literature review* involves a type of content analysis in which you seek out thematic links among the relevant readings and organize the information into those themes. Discuss the major findings of other research and uncover common threads and differences that run through them. Your goal is to summarize and analyze the research that has been done, raise critical questions about what may be missing from the prior research, and make a case that your research will extend, revise, or replicate what has gone before.

Some people prefer to organize a literature review by summarizing each article or book, one after another. These kinds of literature reviews are similar to annotated bibliographies. However, a literature review should have some analysis of the material and not be just a descriptive listing of research studies with brief summaries of the findings. A review should consider specific themes that emerge from the research that has been done and be organized according to the issues, variables, and theories you are using. How generalizable are the results of the past research? Do the findings apply to the sample your study is using? Are certain variables and measures more valid than others when studying your topic? What theoretical perspectives guided previous studies, and how do they relate to your research goals?

**Methods.** Most important is the description of the research methods. This should be sufficiently detailed to guide readers in evaluating the quality of the data and research design. The methods section also should provide enough information to serve as a model for those who wish to replicate the study. Include specific information about the sampling procedures (how, when, where, who), composition and size of the final sample (demographics of respondents), the research design and methods used



(questionnaire survey, interviews, experimental design, content analysis, participant observations, archival analysis, cross-sectional or longitudinal, etc.), description of the measurements (such as operationalizations, reliability and validity of any standardized instruments), and any other relevant information about the procedures used to gather data (online or distributed questionnaires, number and type of follow-ups to improve response rates, etc.). Many researchers provide a website or e-mail address to obtain copies of the surveys, sometimes even a complete data set, and other relevant information others might need to replicate the study. See Box 10.1 for an example of a methods section write-up.



## **BOX 10.1** **WRITING METHODS**

Here's an excerpt from a published academic article explaining how the researchers accomplished their data collection. In this study, Hawi and Samaha (2016: 83–84) study the impact cell phone addiction may have on academic performance. The information provided illustrates what is needed to assist readers in evaluating the quality of the data and the overall research project. Detailed methods sections also help those interested in replicating a study. The goal for writing a methods section of a report or article is to be as specific as possible with anything that was done that could affect the quality of the data, the interpretation of the results, and the generalizability of the findings.

### **Sampling Procedure**

“This cross-sectional study was carried out at Notre Dame University-Louaize, Lebanon. The study was the first in its field in the Arab world. It was based on voluntary participation of university students without any gender, socioeconomic, or nationality restrictions. Systematic random sampling was implemented by randomly picking the first student from the student population ordered by student identification number and then selecting each 3rd student from the list. Newly admitted students were not part of the target population. This sampling strategy was thought to reduce sampling error and bias. Participation was opened on the first day of the registration period of the spring 2014 semester over two months.”

### **Data Collection**

“Following the university research committee's approval of the research instrument, a hyperlink to the survey was added on the home page of the University's Student Information System (SIS), which allowed the selected students to access the questionnaire. The first webpage of the questionnaire presented the research purpose, informed the students that the survey would require approximately 15 min to complete, stated the authors' assurances of respondent anonymity and confidentiality, and asked respondents whether they permitted the research team to automatically obtain their real actual GPA, since the online survey was

**BOX 10.1 CONTINUED**

made available via the student information system. In all, 86.4% of the respondents gave the approval to obtain their actual GPA, leading to a sample of 293 students.”

**Measures**

“The survey questionnaire contained two sections. The first section collected demographic information, including gender, age, educational level, and academic major. The second section included the Smartphone Addiction Scale-Short Version (SAS-SV) items. Participants’ cumulative GPAs were obtained through the registrar’s office.

“The SAS-SV comprises ten items that assess smartphone use primarily to identify the level of smartphone addiction risk, but not to diagnose smartphone addiction. This scale is a shortened version of the original Smartphone Addiction Scale (SAS) that consists of 33 questions. The latter was developed based on the Internet Addiction Test but was modified to include features specific to smartphones. The SAS-SV responses are given on a 6-point Likert scale ranging from 1 Strongly Disagree to 6 Strongly Agree. The total scores ranged from 10 to 60. The SAS-SV revealed strong internal consistency (Cronbach’s alpha of 0.849).”

**Results.** This section should be an unbiased and neutral presentation of the results in the context of the research questions and hypotheses. Describe the statistical analyses, provide examples illustrating the results, and give quotations from the open-ended questions or interviews, if any. This is where your analytic skills are demonstrated as you correctly apply the best statistics for the kind of data you have. Be sure to present your results in clearly labeled tables, graphs, and other figures with a title describing in a few words what the figure or table represents, how many people responded, what statistics were used, and which ones are significant findings (usually indicated with asterisks). See the examples presented throughout this book.

**Conclusions and Summary.** The final section is where interpretations go and where you are encouraged to summarize and make sense of the findings. Here you need to clearly state what is based on speculations and what is rooted in the data. References to the theoretical and empirical findings described in the opening literature review section serve as a way of framing your conclusions. It is common to end your paper with some ideas for future research as well as with some caveats as to what went wrong, what the limitations of the study are, what should be interpreted with caution and why, and how far the results can be generalized beyond the sample. Read some of the academic articles listed in the References section of this book for examples of conclusion sections, literature reviews, methodology descriptions, and abstracts.

**References.** The last part of any paper is a complete list of references. A bibliography of what you have read should be in the academic discipline's approved style or in the format of the publication or conference receiving your submission. Although most citation styles are slight variations of each other, one of the major differences is the use of footnotes or *in-text citations*. Most social science journals avoid footnotes for citing research (and if there are any, they tend to be endnotes and put at the conclusion of the paper before the references) and instead refer to a publication in the body of the article by listing the author's name, publication date, and page number if there is a direct quote from the source. The in-text citations and the bibliographic information in the references section of the book you are now reading illustrate a typical publication style and format.

## A Presentation at a Conference

Similar to the readers of an academic journal, conference audiences are skilled in understanding the jargon of the profession and usually its methodologies. Hence, a paper presented at the annual meetings of a professional organization (such as the American Political Science Association, the American Psychological Association, and the Canadian Anthropology Society) typically follows the format of one submitted to an academic journal. Check with the different associations to find out what information and format are required for a paper to be reviewed and judged acceptable for their conferences.

However, presenting the paper in person is a different story. It is not usually the most pleasant experience to have a paper read aloud to you while sitting in uncomfortable chairs in an overly air-conditioned or heated hotel meeting room. Given only 15 or 20 minutes to summarize what can be anywhere from 25 to 50 pages long does not allow for the details that should be in a written version for submission to a journal. Most conferences require that the paper not have been published already. This usually means it's a work in progress or very nearly a finished product. In either case, only key features can be presented at a meeting.

Begin with a brief statement describing the key focus and themes of the research. It is not necessary to review the literature in depth other than to say what your theoretical and empirical context is for the study. For example, instead of going through all 20 articles you researched on alcohol use among high school students, you simply state that your project grew out of sociological labeling theory and previous research that found an increase in substance use around the age of 15, or whatever the data have demonstrated. Then move on. Your goal is to share your findings, not the background research you did before you collected your data.

Highlight just enough about the sample and methodology to provide general information to the audience to assist in interpreting the results. There rarely is enough

time to go into details about the measures used and their operationalizations. Many of the specifics about the sample and the data collection procedures are best saved for a handout, website posting, or a PowerPoint presentation. Similarly, reading numbers is sure to create a glazed look and droopy heads among audience members, so it's best to save the specific findings for handouts and other means of visual presentation.

Highlighting the key findings of the data analysis should be the central task. Invoke your creative skills to describe the numerical findings verbally and clearly. Rather than say that “there is a statistically significant t-test at the .05 level showing a difference in mean scores on a happiness scale where people who post on Facebook scored 3.67 and Instagram users scored 3.84 (5 is very happy), and age has a Beta coefficient of 0.58 in a multiple regression predicting happiness,” simply state that “there is a statistically significant difference in happiness scores between two groups of social media users, and age is the strongest predictor of happiness in a multiple regression analysis.” Save the numbers for a handout or later publication.

After discussing the main findings, provide some interpretation of the results and end with a few limitations of the research and any suggestions for future research. Leave time for questions and discussion among the presenters and audience. It is crucial to prepare your presentation by rehearsing out loud and with a watch. Ideally, you should not read your paper; instead, talk about it. Imagine a conversation with a friend (or better yet, rehearse by having such a conversation about your research) and include all the pertinent information for your audience to get a clear sense of what you did and what you found.

Do not try to tell everything about your project. Stay focused on the main findings, highlight the methodology but do not get bogged down in its details, avoid extensive summaries of previous research and theories, and raise some provocative questions that the data have suggested. Your objective is to engage the audience in thinking about the topic in a new way or to hear some fascinating findings. It is not necessary to report everything you found, because you have very limited time. Those details should be made available to anyone who would like to read the finished version, ideally when it is published in an academic journal. Think of your public presentation as an extended version of an “executive summary.” Many of these suggestions apply to giving a talk about your study in a classroom setting or at less formal conferences.

## **Professor Evaluating Your Thesis**

Many undergraduates are expected to complete a “senior thesis” to graduate with honors or as part of the requirements for their major. For those in graduate school, a thesis or dissertation is central to most master's and doctoral degree programs. A

thesis is a very detailed report of your research in which you demonstrate mastery of the literature, expertise in designing relevant methodologies, skills with statistical data analysis, and creative insights in interpreting your findings. Not unlike an academic article in a professional journal, most theses follow the same format, often written as chapters. What is specifically needed for your thesis and format should be supplied to you by those who supervise the research or who are in charge of overseeing the guidelines for conducting and reporting research.

After an initial introduction setting out the themes and purposes of the project, there is usually a very extensive literature review. Most reviews of prior research that appear in scholarly journals are abbreviated versions of what might be in a dissertation. Here you are expected to show off your command of the field, demonstrate how extensively you prepared by citing relevant previous studies, and synthesize the broad literature into meaningful interpretive categories and themes. In many theses, this is where you develop some new theoretical perspectives and ideas. It is also after this review that you present your research questions and hypotheses.

Within the limitations of what is likely to be an underfunded project, you next describe the methodology. Like the material required for a journal article, you spell out in detail your sampling strategies, describe the respondents who filled out your questionnaire, explain the measurements and operationalizations, and discuss the procedures you used to collect the data. This section or chapter should provide enough specific information for others to not only evaluate the results properly but also to allow them to replicate the research design.

Presentation of your results and data analysis are the core of a thesis. This may take one or more chapters, depending on how the data are organized and what the research questions are. The use of tables, graphs, and other figures is an excellent way of showing what you have found. It is also important to remember that even if none of your hypotheses were supported, no findings may be findings in themselves. Sometimes demonstrating that there is no relationship between some variables or that, for example, there are no differences in study habits and grades among students in a variety of majors, can be a revelation.

Your conclusions reflect a scholarly interpretation of the data and should demonstrate your expertise in the field. Reference to the extensive literature you reviewed allows you to contextualize the research and the findings in the theories and empirical studies that came before. Here also is the place to mention any shortcomings about the project and ideas for future research on the topic. A bibliographic list of the extensive readings ends the thesis in the format required by the department or professional field. After it is evaluated and approved by your professor and perhaps other readers, you graduate with a sense of accomplishment and evidence of your abilities to carry out scholarly research.

## Employer or Workplace Committee

And you thought doing theses to complete a degree was the last time you had to do this kind of research! Many people find themselves in work situations where they are asked to carry out some research for their company. Often this involves evaluation research, where the effectiveness of some program or new policy implementation needs to be investigated. Or perhaps the nonprofit community service agency for which you volunteer seeks help in designing a study to evaluate its programs and the clients' satisfaction with them. You are asked by your employer or some board to present the results of your project.

In many cases, the suggestions described previously also apply here. Presenting this kind of research is often a combination of speaking to the general public and at a professional conference. It is unlikely that you will be asked to go into the depths you normally would for an honors thesis, or with the jargon and theoretical details of an academic article. Yet you must be able to demonstrate a sophisticated and scientifically sound research design because any related policy decisions can have profound impact on people's lives. In any case, you have to provide at least an executive summary that clearly and succinctly summarizes the key findings of your research and any relevant methodological points. Being able to condense a major project into one or two pages of information is a skill well worth working on when dealing with employers and other agency boards and organizations.

An extensive literature review is usually not presented in such reports, although doing one best serves your own personal interests because it becomes the source of information about what others have already discovered in this area. If you are hired by the university to study attrition and retention rates, it pays to read the numerous studies that were conducted previously. Why reinvent the wheel? See what measures other researchers used, what questions they addressed, and how they approached the topic, and then modify according to your own unique situation. However, it may not be necessary to write up as detailed a summary as you would be expected to do in a thesis or even an academic article. The key is to present the context for your study and the necessary comparison figures so that those hearing the results can properly interpret what you found.

Careful attention to the methodology is crucial because what you report can easily be discredited if there are major problems with the sampling, operationalizations of the measures, and the overall research design. It is necessary, then, to detail what you did when presenting your findings, whether in writing or in an oral presentation, and to explain your decisions.

Results of your data analysis are more than likely being distributed to people who do not have extensive knowledge of the range of statistical procedures employed.

Again, some of the statistical analyses may be for your own background information, so that you can say with confidence what the findings are and whether they are statistically significant. Many agencies and workplaces are satisfied with descriptive data, cross-tabulations, and graphs. More complex data analyses, such as multiple regression, ANOVA, and even the simpler statistics like chi-square, Pearson  $r$  correlation, and  $t$ -tests, rarely get presented to employers and agency boards, unless there is some expectation to do so by those who are qualified to read and interpret the information. Statistics could be placed in an appendix or an online website page with an occasional reference in the report that statistical analyses of the data were completed, that these verify the significance of the results presented, and that they are available upon request.

Many agencies or employers ask that you also present interpretations and suggestions for policy changes in light of the findings. However, some would rather leave that to the agency or another committee formed to make sense of the results and implement policy changes in the workplace. Again, this depends on the organization and the goals of the study; you should be clear about the expectations when you are assigned the project. So, for example, if you uncover with a multiple regression analysis that the quality of the campus facilities is a more important explanation than the quality of the courses for a rise in attrition rates at the university, then you may be asked to account for this and what you would recommend to change it. Or you might find that the data from an evaluation of a training program for new employees at the organization you studied indicate that they should be compensated for participation in a three-day orientation program. Depending on your role in the project, you might be asked to contribute a recommendation, so you suggest that the employer should implement a training compensation program.

### **Grant or Funding Agency**

If you were fortunate enough to have your research funded through some grant or funding agency, then the requirements for disseminating the results of your study were probably spelled out when you received the grant. Normally, a report is due by a specified date, and it can vary from a copy of the entire thesis or research project to a long executive summary of five to ten pages.

It is also very likely that, in order to have received the grant, you have already sent the agency a detailed proposal that included a literature review and extensive methodological procedures. Most funding agencies pay particular attention to the methodology and the ethical dimensions of the project for research with human subjects. Typically, a recommendation from the Institutional Review Board (IRB)

is required. A budget was likely also requested, and your final report may have to account for how the money was actually spent.

A grant report usually includes a summary of the data analysis, the statistics used, and your interpretations of the results. You are expected to demonstrate how the objectives and other goals you described in the initial grant proposal were or were not achieved. As always, reporting the limitations of the study and providing ideas for future research topics are good ways of concluding your summary to the agency. The format of a report follows the outline of topics and sections required in most academic articles and theses. The exact kinds of information requested are normally discussed in the granting agency's guidelines.

## THE JOURNEY FINISHES

Congratulations! You have completed your journey along the research trail. A few final words are in order: It's one thing to read about doing research; it's another to actually do it. Imagine reading about how to drive a car or play the piano and never actually driving or playing. It's the same with research. You cannot read it and think that you now know how to do it. Just like driving a car and playing the piano, you have to practice, practice, practice. You have to get out there and drive, play, and research.

Do not expect to do research exactly the way it sounds in this book. Research involves making trade-offs and compromises. It may seem ideal to get a random sample, but what happens when that generates a low response rate? You compromise and seek out a convenience sample. Sure you would like to have an interval/ratio measure of income, but when many respondents refuse to answer, you realize that you might have to compromise to reduce nonresponses and ask the question using ordinal categories of income instead.

Typically, research lurches forward, is set back for any number of reasons (delays in getting questionnaires completed, typos and other errors only noticed later, funding problems, computer glitches, and other petty annoyances), gets refined when some other unexpected finding emerges in your data, or reinterpreted when another article is discovered that sheds new theoretical light on your results. Your findings may lead to a modification of the theory you started out with in an ongoing deductive and inductive process. Although the report or article you complete presents a summary in a linear fashion and thereby reinforces the illusion, it might make for interesting reading if you included a list of shortcomings and caveats, along with a few of the ways your project veered from the standard journey.



## Positivism

Because this book focuses on survey research methods and does not cover such techniques as content analysis, field methods, and other qualitative research designs, remember that writing a questionnaire to gather data carries with it some assumptions about the nature of reality and how we understand it. It is just one way of apprehending social phenomena and not the only way. It has its limitations, and it has certain strengths. And it is based on a particular belief about understanding the world around us called positivism.

*Positivism* is the system of thought developed in the early 1800s in France by Auguste Comte, a philosopher and founder of sociology, that emphasizes empirical data, reasoning, and the use of scientific principles to explain social phenomena. It is a philosophy of knowledge that stresses the experiential, that is, what is experienced through the senses and what is measurable using scientific techniques. Positivism believes reality is something that can be assessed, measured, and discovered logically. Opposed to this view of the world is the more metaphysical and humanistic belief that ideas are personal and cannot be measured scientifically. All human ideas, including the scientific method, are subjective creations. Truth is not something easily measured.

Whichever philosophy of knowledge makes sense to you, at least understand that choosing a questionnaire survey method implies signing on to a philosophy that assumes that the phenomena you wish to study are measurable and open to empirical assessment. Doing survey research can answer some questions, and then only with the limitations imposed by its methods. It is just one way of understanding the opinions and behavior of humans, but not the only one. The use of multiple techniques, what is sometimes called *triangulation* or *mixed-methods*, to understand complex phenomena is ideal. Sometimes a self-report questionnaire should be combined with face-to-face interviews and participant observation of behavior to comprehend more fully the complex behaviors and attitudes you wish to study.

However, in face of the limitations imposed by funding and time, the selection of the most appropriate methodology must be determined by the nature of the phenomenon and population under scrutiny and the research questions you want answered. Clearly, a study involving young children who cannot read or people with cognitive limitations should not depend on survey research that uses questionnaires. Research focused on how people behave in particular situations, such as children at play or employees at work, may best be served with participant observation field methods. It is never ideal to begin by saying you want to write a questionnaire and then choose your topic.

Let the research problem lead you to the best methodology. And if a questionnaire serves the goals of your project, then let this book be your guide for the research journey.

## REVIEW: WHAT DO THESE KEY TERMS MEAN?

|                   |                        |                       |
|-------------------|------------------------|-----------------------|
| Abstract          | In-text citations      | Refereed double-blind |
| Academic journal  | Journal article format | reviews               |
| Audiences         | Literature review      | Triangulation or      |
| Ethics            | Open access journal    | mixed-methods         |
| Executive summary | Positivism             |                       |

## TEST YOURSELF

Take this statistical finding: Researchers found a 0.65 Pearson  $r$  correlation between scores on a Likert-type social justice scale (where 1 = low belief in social justice and 5 = very strong belief in social justice) and the number of times respondents had volunteered in the previous six months at a homeless shelter or equivalent nonprofit organization.

Indicate how you would write up this result for the following:

1. An academic journal
2. A presentation to a nonprofit organization
3. A report to a city council debating cutting funds to a local social service agency
4. An online blog you write
5. A Twitter statement (limit 140 characters!).

## INTERPRET: WHAT DO THESE REAL EXAMPLES TELL US?

1. Here is an excerpt from a report from the Pew Research Center (2017b) on cybersecurity. Discuss what is here and what more you would like to know that you feel should be included in a write-up of the methods section of the report:

“The analysis in this report is based on a Pew Research Center survey conducted from March 30 to May 3, 2016, among a national sample of 1,040 adults, 18 years of age or older, living in all 50 U.S. states and the District of Columbia. Fully 262

respondents were interviewed on landline telephones, and 778 were interviewed on cellphones, including 477 who had no landline telephone. The survey was conducted by interviewers at Princeton Data Source under the direction of Princeton Survey Research Associates International. A combination of landline and cellphone random-digit-dial samples was used; both samples were provided by Survey Sampling International. Interviews were conducted in English and Spanish. Respondents in the landline sample were selected by randomly asking for the youngest adult male or female who was at home.”

2. For a public presentation of ongoing research looking at the effectiveness of Learning Communities in community colleges, Brock (2010: 3-4) wrote this summary. On the basis of just this excerpt taken from a larger report, discuss what is included and what further information you would like to know. How does this presentation summary differ from a more formal academic journal publication?

“The Learning Communities targeted incoming freshmen, the great majority of whom required developmental English. Students in Learning Communities were placed into groups of 15–25 that took three courses together: an English course geared toward their level of proficiency; a regular college course like introductory psychology or sociology; and a student success course, taught by a college counselor, that covered effective study habits and other skills necessary to succeed in college. Faculty who taught in the Learning Communities were expected to coordinate assignments and meet periodically to review student progress. The idea was to build social cohesion among students and faculty and to help students apply the concepts and lessons across the courses.

“More than 1,500 students participated in the Learning Communities evaluation and were, as noted, randomly assigned to either a program group that participated in Learning Communities or a control group that took regular, unlinked courses. The students were young (mostly 17 to 20 years old), low income, and highly diverse in terms of race and ethnicity. The research team tracked program and control group members for two years and found that students in the Learning Communities were more likely to feel integrated at school and be engaged in their courses. They also passed more courses and earned more credits during their first semester, moved more quickly through developmental English courses, and were more likely to take and pass an English skills assessment test that was required for graduation. It is important to note that these effects, while statistically significant, were generally modest. For example, after four semesters, students in the program group earned an average of 33.2 college credits, compared with an average of 30.8 credits for the control group (a difference of less than one course). Moreover, contrary to expectations, the Learning Communities did not have an immediate effect on persistence.”

## **CONSULT: WHAT COULD BE DONE?**

The local newspaper has heard about a study looking at truancy at the town's high school that has data potentially damaging to the reputation of the teachers and administrators at the school. It also links truancy with substance abuse and violent threats to other students.

1. What kinds of questions would you advise the reporters to ask about the study?
2. What advice would you give the researchers who are about to release their findings?
3. What kinds of information about the study should be included in all reports of it by the study directors as well as the media?

## **DECIDE: WHAT DO YOU DO NEXT?**

For your study on how people develop and maintain diverse friendships, especially on social media, respond to the following items:

1. In what different ways would you present your findings if you were reporting the results to (a) a school board concerned about friendship issues in the local high school, (b) the board members of a company that sponsored the research, (c) racial and religious organizations interested in bridging differences among diverse groups, (d) an academic journal, (e) the local news media and online blogs, and (f) first-year college students during orientation week?
2. What ethical issues should you be attentive to when presenting the data in each of these situations?