

Writing the Empirical Social Science Research Paper:  
A Guide for the Perplexed

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Abstract

Students sometimes find the general process of writing an empirical research paper to be daunting. Yet, when the process is approached in a systematic way, students can become more comfortable with the writing and standard formatting used in an empirical article. Accordingly, the current paper serves as a template for the budding social scientist. In it, I describe the various sections of a research paper in order to illustrate the structure of an introduction, methods section, results section, and discussion section in a format fitting for the 6<sup>th</sup> edition of the American Psychological Association. As in most empirical research papers, the first section is an abstract, a short outline of the paper that clarifies both what the paper will be examining, what is found, and in most cases a one line explanation of why the findings are important to the field. Accordingly, this paper should help to clarify the process of producing an empirical article.

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Broad bold statements interest readers. Hence, the empirical paper is best initiated with a large-scale statement about the phenomenon of interest, making a clear case for why the general topic of the paper is worthy of examination.<sup>1</sup> Papers always have some reference to the real world, and it is important to make it evident that there is a real-world relevance for the topic of the paper near the beginning of a manuscript. In the current case, our concern focuses on how ideas are written and expressed. Clear and well-structured writing (even if somewhat formulaic) makes it possible for others to comprehend your ideas and your research. A straightforward first paragraph, like a well-written paper, ensures that readers are aware of your thesis and gives them a reason to care.

At some point by at least the second paragraph, the writer of an empirical paper should make it clear what kinds of things you will be studying. The first series of paragraphs – comprising approximately a page and a half – should move from a broadly general phenomena of interest to a set of relatively specific concerns. This miniature introduction or “baby intro” lays out some general context for a study and brings readers logically to the basic question of interest in a study. In the first paragraph, we saw that this paper is concerned with helping to convey written ideas to a reader. By the end of the baby intro, we reveal a more concrete question as the focus of the study: “How should one structure an empirical social scientific research paper to best express the results of a study?” Two things are of note when moving from the general topic of interest to this more specific question. First, this question is considerably narrower than the overall subject of examination: we are honing in on subjects of increasing relevance to the current study. Second, this more specific question is NOT yet the hypothesis of the paper. The hypothesis, which will come later, will pose an answer to the question that will be evaluated in the study.

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<sup>1</sup> Note that a paper should begin with a claim that is easily supported. Grandiose and unsupported statements might lead instead to a skeptical readership. Footnotes, such as this one, can be used to clarify such points.

The current paper addresses questions regarding best practices for writing the empirical social science research paper.<sup>2</sup> It will explore the way to write each of the sections of the empirical social science research paper in turn and will discuss cases where the social science research paper may deviate from research write-ups used in other disciplines.

### **The Empirical Research Paper**

Empirical research papers are used to express the results of quantitative (and sometimes qualitative) scientific data on real world phenomena. It is therefore important that such papers define the specific ideas they wish to address. In this case, a casual reader might wonder what is meant by the notion of an “empirical social science research paper.” Like many concepts that researchers use in their studies, this is jargon – language that is understood only by a specialized group of people – and needs to be defined.

Subsections in the larger introduction serve two purposes. First, they provide some kind of definitional context – or conceptualization – of the concepts that will be addressed.

Second, they provide a forum for discussing other literature that might be relevant to the phenomena of interest and even to the particular study.

### **The Social Science Paper**

Papers in the social sciences differ from those in other fields. In explaining the concepts of interest, we might want to use a subsection to further clarify how, for instance, papers in the social sciences might differ from those of other domains. This paper, for example, uses a format based on the 6<sup>th</sup> edition of the Publication Manual of the American Psychological Association (often shortened to “APA 6<sup>th</sup>”; American Psychological Association, 2009). That manual includes specifications for how subsections should be organized, how citations should be included, and generally what the paper’s organization should look like. Each edition differs from the last (cf. American Psychological Association, 2001).<sup>3</sup> Of course, the specific text and numbers in a research paper must originate with the author. Ideas that come from others, even when

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<sup>2</sup> It is thus more limited than references on best practices in more generalized writing, such as Strunk and White (1999).

<sup>3</sup> This is an in-text citation. It says that more can be learned about this particular matter by consulting a text called “American Psychological Association, 2001” that can be found in the “References” section at the end. “cf.” at the beginning of this means that what was said here should be compared to the earlier source.

paraphrased, must be clearly cited.

### **The Empirical Social Science Research Paper**

The design of the social science research paper moves in the introduction from the general to the specific (see also: Bem, 1987). As we narrow in on the concept of interest, we refer more specifically to norms of a particular field of interest and to particular studies of increasing relevance to what will be examined in the current manuscript. If a large number of studies have been done on a particular phenomenon, we might even include additional subsections or sub-subsections that outline these studies. And we must be careful to cite only those papers that are directly relevant to the research being presented with particular focus on classical studies and newer work. The review should not be a grab bag of articles that mention a particular area of study, but rather just the work you need to cite to support your thesis and to do so in a compelling way. Note, however, that a thesis is usually best supported by carefully addressing both complementary and contradictory claims.

### **The Current Paper**

The current manuscript demonstrates how to proceed with writing an empirical social science research paper. After outlining the concepts of interest and referring to the relevant literature, we need to state clearly the specific target of the current study and propose hypotheses (or potentially research questions) that we will in some way test using the methods we will propose below. In this case, I predict that you will find it considerably easier to write an empirical research paper when utilizing the normal structure for empirical social science research papers. Note that here you must be very clear about what you mean when you use the terms empirical research paper and writing as well as what you mean by the term “easier.” Each can be defined in many ways. Do we think, for example, that after reading this document, it will take you less time to actually craft the paper or will it be “easier” because knowing the outline for a paper will help you develop a clearer set of expectations. In either case, at the end of your introduction, you must state the hypothesis that offers succinct definitions for your terms. As an example, here I hypothesize the following relationships: Writing in a consistent format like the one proposed here increases the likelihood that a person will get published. And reading this article will help you form a thesis, do better literature review

sections, and get a better grade than you would have had you not read this paper.

## **Methods<sup>4</sup>**

### **Data / Participants**

The current study does not use real data. This is because we are demonstrating the structure for such a paper rather than running a true empirical analysis. A typical social science paper will, however, use data collected via some sort of research design. If we had either real data or participants, we would want to clarify here where the data will be coming from. Generally this means you would have a Data or Participants subsection that tells you how many people were in the study, how many were males, females, from lower or middle socio-economic groups, age and any other demographic relevant to your study. Don't use fillers here that are not relevant. In general no one cares how tall your participants are or what color hair they have. Commonly, you will want to tell the reader about things like the sampling procedure used to identify respondents (how did you choose people, from which sampling frame, and how many did you choose?). If you did not either (1) use a nationally representative sample or (2) use a participant pool of college undergraduates, you should probably specify some reason why you choose the population you did. If your observations were not individuals that you recruited, you will want to identify the source(s) of any data used. This could be, for example, from a secondary data source, where the data were collected by prior researchers, and your paper is about a new analysis of the data that speaks to your thesis.

### **Variables / Procedures**

In additional subsections of the methods, you will want to make it clear exactly what was measured, how the measurement took place, and – if some experimental manipulation was done – what that manipulation involved (very specifically). And we mean very specifically, because this section reviews procedures in a way that allows others to replicate your experiment. If the reader could not do exactly what you did, then this section is not written clearly enough. To the extent that design decisions raise obvious concerns, they should be addressed in the text of this section. More nuanced

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<sup>4</sup> Can be divided into sections for each of multiple studies (Study 1, Study 2, etc.) if that reflects a more consistent story for the reader.

issues with interpretations of the findings are generally better left to the discussion section below.

This part of the empirical paper should also list all measures used. If you are giving your participants an IQ test, then you tell the reader which IQ test you administered and why you chose that test over others. If you are measuring how reading a particular paper (this one) makes writing easier, it is here that you tell us what measures you will use to assess or “operationally define” the concept “easier.” And if you were using results from survey data, include the full question wording and answer choices for the measures used. It is sometimes easier to break apart your measures as those that assess the independent or predictor variables and those that assess the dependent or outcome variables, using subheaders for each.

### **Analysis**

After clarifying what was involved in your study, you will want to lay out exactly how the data resulting from the study will be analyzed. If you have multiple hypotheses, you may want to propose separate analyses for each hypothesis. The analysis section should report the names of statistical tests used and the standards with which their results were evaluated.

Although writing the methods section is fairly mundane, the section is also commonly one of the most important parts of the paper. Without this information, it would be impossible for another researcher to follow the same procedure that you followed. Replication is a critical standard for social science; lacking sections on how data were collected, what procedures were used, and how those data were analyzed, even the most carefully conducted research becomes unscientific.

### **Results**

You found something; report this fact. And try to report the research in a way that parallels the question you asked. If your hypothesis was about reading this paper and ease of writing, then you want to give the demographics of your sample first (what was the average age of the participants in the groups that read or did not read (control group) the paper, the average socio-economic status level of the two groups and the average outcomes on your ease of writing tasks. Then you get to tell the reader what you found

that directly addressed your question. Was reading this paper related to particular outcomes in ease of writing?

If your hypothesis is supported by your data and analysis, you might point to a table or figure that illustrates your evidence. Make sure you explain how the numbers in the table or figure lead to your interpretation. Note that this table must stand alone and be interpretable to the reader even if he or she did not read the text. If your hypothesis is not evidenced by your data and analysis, describe how the results in the same table lead to such a conclusion (or fail to provide clear evidence, as the case may be). Repeat this process for each of your analyses. Note, however, that you should not talk about the larger significance of the findings in this section. You should only report what you found and how that relates to the data you used. Subsections here are typically reserved for results from differing analyses.

When you present tables or figures in your results, carefully describe at least some of the data in your tables and figures to make it clear to a reader how the tables work and what interpretations can be gleaned from them. Many sophisticated readers will, in fact, be more interested in the tables and figures than in the text you write. Tables and figures that are clear and accompanied by straightforward descriptions help show the reader why your interpretation of the numbers in the tables was appropriate.

### **Presentation of Data**

The likelihood of publication was related to the use of this kind of paper writing style in the data presented here (Figure 1).<sup>5</sup> A manuscript that follows none of the style guidelines was predicted to have zero chance of publication while a paper following all of the guidelines presented was predicted to have more than a one-in-four chance of being published. Hence, the findings presented in this figure are in concert with the notion that writing in the presented format has the potential to increase the likelihood that a paper will be published.

Reading this paper was also related to a variety of positive outcomes in additional data (Table 1). Specifically, we see that respondents who reported reading this paper were considerably more likely to report that they got an A (26% vs. 6%,  $p=.01$ ; Table 1,

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<sup>5</sup> Note that the current paper uses fake data for demonstrative purposes. Any real research project would require data that were carefully collected through observation or experimentation.

row 2), and also were more likely to say that they were now researchers (17% vs. 4%,  $p=.03$ ; Table 1, row 3). Readers did not report being any happier than non-readers, however ( $p=n.s.$ ; Table 1, row 1). Hence, these data indicate that reading this paper is related to improved performance, but not happiness.

Tests of statistical significance should always accompany your results. This is important in part because a visual interpretation of the data can be misleading. By providing significance tests, you show that the results objectively match what you are describing. Note that the lack of statistical significance on the happiness result means that it is not even interpreted here, and since it is not even relevant to the hypothesis, it probably should not be included at all. Norms of what statistics should be presented and how tables should be laid out vary considerably across different subfields of the social sciences. The critical point, however, is that data must be directly presented, statistical tests need to be used, and the numbers have to be explained.

### **Discussion**

Now, infuse your findings with meaning. Show the reader how they address questions larger than the narrow spectrum of your hypotheses and your data. Reflect on the broader questions posed at the end of your baby intro. Repeat what you see as your most important findings first. Then develop and show the reader what you think the findings mean. Each finding should relate back to the literature that you used in the introduction. How did your findings fill that gap you posed and why is it important in the broader field of inquiry? Again, subsections can be used to discuss different aspects of your findings. Think broadly about what your findings could indicate about what was happening in your study. But also, be careful not to overstate what you have; the discussion should only address topics in the literature you used as your foundation. Note also that your results do not need to perfectly confirm your hypotheses. It is important to be particularly clear and thorough in this section. Often, as the author of a paper, you have thought more about this issue than your readers. Your readers may not have the same sense of the data, and walking them through your interpretation can be very helpful.

### **Limitations and Future Studies**

All studies have flaws and limitations. Ignoring them does not make them go

away. Although you should have addressed many limitations in your design, be forthcoming about what could not be done and what might still need to be fleshed out in the future. Not only will doing so make you more honest, it will also help you think of good projects to define your future research agenda. You can note, however, that certain potential concerns are unlikely as long as you show why you might think this would be the case.

Indeed, this very paper is limited in that it shows only a single framework for writing an empirical social science manuscript. Other styles exist in other fields and even across the social sciences. It can be valuable at times to vary from this rigid structure. For some purposes, such as book chapters, this structure is not particularly effective. Now even though you have just been humble, you can note why these limitations do not truly undermine your study. In this case, you need to master the basic style of a research paper before your variations on that style can be considered art. And heck, the straightforward manuscript style has done wonders for the communication of complex ideas.

It is also nice to point the way forward in this section of the paper by telling the reader what can be done to address the hypothesis even more effectively. Perhaps a future study could directly ask readers of this paper whether they found it easier to write an empirical paper after encountering this example or could carefully examine the quality of manuscripts produced by students who did and did not read this paper. Further work could even produce a similar example that would apply to book chapters or to other fields of research.

## **Conclusions**

The empirical social science research paper has a fairly simple and straightforward structure. Laying out research in this manner can make things easier to read and easier to write, summarizing your work and findings in a way that others can interpret and quickly evaluate. Optionally, you can provide some direct conclusions at the end of the paper. These are your take-aways – make sure they sum up what you want readers to get out of your paper.

References

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Tables

Table 1 - Data Showing Happiness, Publication Status, and Researcher Status Among Readers and Non-Readers

	Means			Test Statistics		
	Readers	Non-Readers	Difference	T Statistic	df	p Value
Happy	45.28%	47.92%	-2.63%	.26	97.9	.79
Got An A	26.42%	6.25%	20.17%	-2.86	82.3	.01
Now a Researcher	16.98%	4.17%	12.81%	-2.15	80.9	.03

Figures

Figure 1 –Data Examining Likelihood of Publication as a Function of Paper Style.

