

Writes of Passage: Writing an Empirical Journal Article

This article provides advice about preparing research reports for submission to professional journals in general and Journal of Marriage and Family in particular. In addition to working through all the major parts of a research paper, I provide some general advice about writing, editing, and revising. The article is intended to help new professionals improve the quality of their journal submissions and the likelihood of successful publication.

Writing research articles for professional journals is an art requiring good research skills, a clear sense of problem, and strong writing and editing skills. Assuming that years of graduate school have provided good research skills, I focus on the other requirements of writing a research article. My advice reflects the issues I most often raise when I review articles and 30 years of experience writing (and revising) research articles. I review guidelines for the major sections of the typical empirical research report and conclude with some suggestions about writing professionally. The emphasis is on writing for *Journal of Marriage and Family (JMF)*, but the general principles apply across journals and substantive areas.

WORKING THROUGH A RESEARCH PAPER

The format for a research paper is not set in stone. Each research problem is different, and

the organization of the paper will depend on whether it is exploratory research rather than theory testing. In addition, authors have some latitude in developing a personal style. Generally, however, each article needs an introduction, a literature review, a statement of the problem, description of method, results, and conclusion. The organization of the piece, the titles of various sections, and the relative weight of these sections vary from paper to paper and from journal to journal, but some general guidelines apply to reports of qualitative and quantitative research.

Abstract

An abstract should summarize your study. In a few short sentences, it should state the research hypothesis, the sample, sample size, data used, and the findings. A starting sentence such as "Using data from a national sample of n women interviewed by telephone in 2002, we examine the relationship between x and y " will allow you to squeeze a lot of information into a few words. In a bare-bones fashion, without hyperbole or exaggeration, state the findings of the study. Examine prior issues of your target journal for abstract style and be sure to comply with the maximum length specified by the journal (120 words for *JMF*).

Introduction

The introduction is critical to capturing the reader's attention and setting the tone for the paper. In approximately a single page, it should specify the research question, the data to be used, and the strengths of the design, and it

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should answer the “so what?” question. Too many authors wait until p. 13 to tell the reader whether they have 20 or 10,000 cases. It is important to be specific in the introduction about what you are going to do. Implying that you are going to do the definitive test of exchange theory in the introduction will cause trouble if the actual study is much narrower. By the end of the second paragraph, the reader should have an accurate idea of what is coming. It is not a place for extensive citations or literature review.

Literature Review

This section includes a review of both the theoretical or conceptual framework and of the prior empirical literature relevant to the topic. This material helps the reader understand the problem and how it fits with prior work. The relative weight of these two aspects varies from paper to paper, but you generally do need both.

It helps to think of the literature review as a funnel: You begin with a general overview of relevant theoretical or conceptual ideas then move through prior empirical work to a discussion of your paper. Thus, the empirical literature review is usually narrower than the theoretical framework. The literature review should lead inexorably to the research questions or statement of the problem section. By the time you get to the end of the literature review, the research questions should be obvious to the reader because they have been the focus of the review.

Unlike a dissertation, the literature review in a journal article sets up the particular research problem instead of providing a comprehensive review. You need neither to describe the evolution of the theoretical perspective you are using nor to review all the work that has ever been done on topics related to yours. You do not need to be exhaustive. There is no extra credit for listing five citations after every statement or for dragging Bourdieu into the theory. You only need to cite an article once, not each time it is relevant to a sentence in your review. When you are on well trodden ground (e.g., gender and housework), cite one or two major reviews and focus only on what is critical to your paper. Unless you are giving the material a new spin, you do not need to review prior conceptualizing. Important criteria are relevance and balance. Make sure you cover both sides of the story, for example, work that finds no relationship as well as work that does.

The literature review should support the paper that actually develops rather than the paper that was planned. If your data lead you down an unexpected trail, it may be necessary to examine new theoretical frameworks and new literature to try to make sense of the findings. If your original review does not prepare the reader for the analysis actually presented, it should be omitted—no matter how elegant or well written.

Because so much material goes into a literature review, a clear structure is essential. It may be helpful to introduce it with a statement such as “three bodies of research bear on this question: x, y, and z.” Then review each in turn with a heading. (Because they provide structure to the material, use headings freely.)

Statement of the Problem

This section also might be called research questions or hypotheses, but it is the crux of the paper. It acts as the link between the literature review and the method section by laying out the issues to be examined, introducing the study design, and defending the design’s appropriateness for the problem. It is both the conclusion of the literature review and the introduction to methodology. It should not introduce new ideas but should be a summary of issues you have raised in the literature review and a transition to your own study.

Hypotheses or research questions should be fairly explicit, though they need not be stated formally. The details of this section will depend on the type of research. For quantitative analysis, this should include stating the basic research questions, explaining any expectations about mediating or moderating influences, and explaining briefly what control variables will be included. For qualitative work, this section will lay out the questions to be explored.

The details of your study design go in the method section (below), but why you made your major design decisions goes in the statement of the problem. This section is where you introduce the strengths and weaknesses of your design and provide preliminary justification for your decisions. The aim is not only to introduce your design but also to help your reader reach a positive judgment about your design decisions. Especially if some aspect of your study design is going to raise eyebrows (e.g., you include only women or measurement of a key concept

is unusual), introduce the issue and explain it here. Explain the likely consequences of your decision and suggest what the reader should make of this. Thus, you might say,

To answer these questions, we used the ABCD data set from 1997. Although this study lacks measures of E and F, it does include unique data on G and H—the focus of this paper.

or

To answer these questions, we conducted in-depth interviews with 12 welfare mothers living in the San Diego metropolitan area. Although the sample is small and geographically restricted, it . . .

Method

The method section provides the bare bones of the sample, measures used, a statement about missing values, and an analysis plan. In some journals (e.g., in psychology), this material is printed in a tiny font in standardized blocks. Although *JMF* does not do this, the principle is the same: This is the place for a terse statement of what you did rather than a discussion of why you did it. You need to provide enough information so that others with access to the same data (an increasingly likely phenomenon) can replicate your work and get the same results.

Data. This section should include sample size, how respondents were selected or recruited, and from what population respondents were drawn. Information should be provided about levels of nonresponse or refusals, description of patterns of nonresponse, any oversampling procedures, and a brief discussion of any biases introduced because of the design or nonparticipation rates. In the case of a subsample drawn from a larger sample, the criteria for selection and the number omitted should be specified. Systematic assessment and reporting of selection bias is necessary. For example, are these families selective of those with better parent-child relationships or children with higher attendance? The statistical sophistication of this report will depend on method, but all studies need such a section.

Either at the end of the data section or at the beginning of results, provide some description of your sample so the reader understands the context of your data. For example, are these middle-aged, middle-class, married, White individuals with adolescent children?

Measures. This is a place for simple declarative statements with minimum justification. Specify the source of the item or scale, exact question wording, the answer categories, and how they were coded. For example, it is sufficient to state,

Following Smith and Jones (2002), marital happiness is measured by 5 statements in a 4 = *strongly agree* to 1 = *strongly disagree* format with *don't know* coded 2.5. The statements were, I am happy with my husband as a “friend to do things with,” “sexual partner,” . . .

For scales, an indicator of reliability and perhaps unidimensionality is important. If your measures are extensively used, you can provide a citation and omit extensive information about specific properties such as factor analysis.

For qualitative reports, this section is less terse and stylized, but the information provided is similar: How were the concepts coded, what reasons do we have for judging the results reliable and valid, and what method was used to analyze the data (including software, if any)?

Missing values. The bane of empirical studies is missing values. Standards for dealing with missing data in quantitative studies are increasingly high, but the critical step in all research is a description of the extent of the problem, how you handled it, and an assessment of the consequences for your findings. If the sample has 10,000 cases, but you are analyzing only 7,800, we need to know why. If you use an imputation process, describe this. The issue is not restricted to analysis of secondary data sets. Whether you drop 3 of 25 observations or 2,200 out of 10,000 cases, we need to know who was omitted, why, and the consequences of this omission for the credibility of the research.

Analytic approach. If you are using a novel statistical technique, it is useful to describe the technique briefly and give some references. If the method has been used recently in the journal, then this probably should not be more than a paragraph.

Results

The results section is the most technical part of a research article, yet it still requires strong writing skills to hold it together. The basic principle is to tell a story and develop the plot as you go along. Start with basic descriptive findings

(orient the reader and describe the major characters), test the basic hypothesis, and then elaborate on it. Throughout, you need to keep the reader's eye on the central thread and explain how the next procedure will help you follow that thread. This means reminding the reader of the hypotheses and including summaries and transitions as you move through this section. When you have completed testing a specific hypothesis, briefly tell the reader whether your supposition was supported and what the next step is in making sense of the findings. Although the discussion and the integration of the findings into the literature are reserved for the end of the paper, summarize as you go along.

A major decision that confronts qualitative and quantitative researchers is deciding how much to include and where to stop. The best guide to this should be your introduction and statement of the problem, which should have identified the major question and story line. This should help you avoid getting tangled up in interesting (but not central) issues such as relationships with control variables. If it is not set up in your theory section, it is probably a different paper.

Some pointers for quantitative reports. Although specifics will depend on whether you are using regression or structural equations, some problem areas that come up in many reports are worth noting:

- Significant or meaningful? In any data set, but especially those with very large samples, substantively unimportant differences may be statistically significant at the conventional .05 level. You can solve some of this problem mechanically by using a more demanding probability level. At the other end of the spectrum, a very small sample may lack the power to find that a substantively important effect is statistically significant. Regardless of sample size, it is important to consider the substantive importance of the findings instead of relying on statistical significance. For example, you might calculate effect sizes or report predicted scores for those with low and high values of key independent variables. Deal and Anderson (1995) provide a good discussion of this and a variety of issues relating to reporting research results.
- Interaction terms. Make sure that your interaction terms were hypothesized in the statement of the problem and have a reasonable

justification in theory or prior work. Too often interactions appear to be ad hoc data dredging. Report how many tests you ran (and how), and how many were significant.

- Make your text comprehensible to readers independent of the tables. Not all readers will want to study the tables, and the report should read clearly by itself.

Special pointers for qualitative reports. Because my own research is quantitative and I am rarely asked to review qualitative work, I refer the reader to three useful articles that will help with qualitative reports. In the 1995 special issue on Paradigms and Designs, Ambert, Adler, Adler, and Detzner (1995) discuss common errors in reporting that make qualitative reports hard to evaluate and make reviewers less inclined to trust them. More recently, Belgrave, Zablotzky, and Guadagno (2002) provide advice to qualitative researchers who are writing for (or at least being reviewed by) quantitative researchers. Finally, Sarah Matthews's article in this issue provides tips on organizing and writing qualitative reports.

Summary, Discussion, Conclusion

Although headings may vary, articles need to end with a summary, a discussion, and a conclusion. The summary does just that: It summarizes the key findings. This summary section (one or two paragraphs) can serve as the basis for the abstract, and many readers will rely on it to get the gist of your paper.

The discussion section links the findings back to theory and prior empirical work, pointing out where your results support Smith or contradict Jones and where you explore new ground. The answer to the "So what?" question raised in the introduction should appear here. Explain how your research advances the field and what we know now that we did not know earlier. The discussion also assesses the strengths and weaknesses of the study design: How confident can we be of these findings? Where should we be cautious? At this point, you should bring back the issues you raised in your statement of the problem, for example, sample restrictions, causal order, and so on. You need to be honest, but you do not need to make these issues the major point of the section. The discussion often includes the ubiquitous call for future research. Although it

can be pretentious to suggest that your work can set a research agenda for the field, it is as critical to specify what you have left unanswered as it is to specify what you have learned.

Finally, you need a conclusion, a paragraph that wraps it all up, a sound bite if you will. Make this a positive statement about how your work advances the field and why the paper is important. This should be about the same topic as the introduction.

References

Pages of references count against a journal's limited number of pages and against the manuscript length guidelines (30 pages for *JMF*), so citations should be limited to those that are necessary—as a rough approximation, 4 double-spaced pages for a 20-page manuscript. Think about the following issues when checking this section: (a) All citations in the text should be in the reference section, and no citations should be listed that are not in the text. Reviewers may try to follow up your references, and sloppiness here is likely to raise suspicions of sloppy work in places where it is not so visible. (b) Use the format preferred by the target journal (*JMF* requires APA style). (c) Reviewing the reference section is a good check on the suitability of the manuscript for a particular journal. If your reference section includes few or no references to *JMF*, for example, *JMF* might not be a suitable journal for your manuscript. (d) Scan the dates of your references to see whether your literature review has become dated since it was first written. If there are no references to the past 2–3 years, it is probably wise to pause and review the most recent work.

Acknowledgments

You probably did not do this without help. In a sentence or two on the title page, give credit to people who funded, advised, or reviewed you. If the paper has been given at a professional meeting, this should be reported.

Tables

Table format varies depending on the questions and the methodology, but standards also exist. *JMF* has an especially transparent set of table requirements on its Web site www.ncfr.org/jmf. For other journals, check their Web sites

or, failing that, follow the format of published versions. A few other guidelines are listed below:

- Tables should be understandable without scanning the text. This means clear, substantive titles and variables named so they are immediately comprehensible. Variable names such as “race” or “gender” are useless. Name dummy-coded variables with the category that is coded “1,” for example “Latino” or “Female,” or put notes at the bottom of the table explaining the coding. Names should match the highest score. For example, if $4 = \text{often cannot pay the bills}$ and $1 = \text{never has trouble paying the bills}$, call the variable Economic Hardship, not Economic Well-Being.
- Space is at a premium. This generally means three or four tables maximum.
- In descriptive tables, put the dependent variable at the top.
- Discuss the tables from top to bottom and from left to right.
- If the same variables are in two tables, they should be in the same order on both.
- Do not use programming labels in the tables or in the text, and, in general, avoid acronyms as well. Develop short variable names, such as Marital Satisfaction instead of MARSAT, and use them in text and tables. Even if you need to say “young adults” 50 times, do not resort to YAs.
- Double-check tables for reliable formatting in electronic submission. Tables that print out neatly on your printer may be all askew when printed by the reviewers. Saving them as a pdf file is one sure way to solve the problem.

Supplemental Materials

Generally, you should strive to produce a manuscript that stands on its own without the need for appendices or supplements. A scan of *JMF* shows that few issues include any articles with appendices. In the case of questionnaires or detailed reports of survey methodology, reference to a Web site is the best strategy.

GENERAL ADVICE

Focus, Focus, Focus

A journal article should tell a story, preferably just one story. The focus should be stated

clearly on the first page and should remain central and obvious throughout the paper. Although it should go without saying, experience suggests it bears repeating: The focus should be the same in the abstract, the introduction, the literature review, the analysis, and the conclusion.

Length

Journal space is at a premium, and most journals have suggested page limits for the entire manuscript (*JMF* suggests a 30-page limit). This translates to something like 20–22 pages of text, 4 pages of references, and four tables. Within this general guideline, a complex paper with a complex study design may require 35 pages, and a narrowly focused paper may be too long at 25 pages. Although it may be painful, a succinct presentation will help you avoid extensive theory discussions, unnecessary literature reviews, and tangential analysis.

If you are cutting down a larger report (e.g., a dissertation), start writing from scratch rather than trying to save paragraphs or even sentences. Often, the article will be narrower in scope than the dissertation, so the theory and literature review will need to be refocused. In addition, the terse format of a journal article requires an entirely different approach than the more discursive and comprehensive writing of a dissertation.

Have Others Read It and Heed Their Advice

When your manuscript is ready, ask two or three colleagues, preferably those with publishing experience, to read it. Ask them to write a review of it or at least to talk to you about it. Despite how dumb you think their comments are, pay attention to them. If they did not understand something that you think is perfectly clear, the reviewers probably will not either. If they did not get the point, the reviewers are also likely to miss it. Even if you did explain it, obviously you did not explain it well enough. Your colleagues will undoubtedly be more patient with you and nicer than the reviewers, and they may read it more carefully. Addressing your colleagues' critiques is probably just the tip of the iceberg, however, and you should not be surprised if journal reviewers have different or more extensive comments.

Edit Your Own Work Thoughtfully

Learning to edit your own work is a hard-won skill. Although there are many guide books, I continue to rely on Strunk, White, and Angell's (2000) *The Elements of Style* (or any edition). Read it carefully and often until such rules as "Use the active voice," "Omit needless words," and "Avoid a succession of loose sentences" are ingrained. The American Psychological Association's (2001) *Publication Manual* is also a useful reference.

Subject/verb agreement and correct use of commas are simple but critical requirements. More than a few mistakes give the impression of carelessness that can color the reader's opinion about your research work. Remember that 80% of articles submitted to top journals such as *JMF* are rejected. You want to make it clear in every way that you are in the other 20%.

In addition to checking for technical correctness, scan your work for flabby writing and for unnecessary paragraphs, sections, and words. The classic topic sentence remains a good idea, and a paragraph should hang together and cover a single topic. Look for coherence within a paragraph and examine the transition from one sentence, one paragraph to the next.

Follow the Guidelines Established by the Journal

Each journal has guidelines for the text, headings, tables, figures, and references. These may be included in the first or last issue of each year or, increasingly, on the journal's Web site. Following these guidelines carefully is important to putting your work in the top 20%. In addition to reducing problems at the editing stage, it demonstrates a professional approach to writing, and it signals to the editor and reviewers that you have made a thoughtful decision about crafting this piece for this journal (as opposed to sending it to a half dozen journals in succession without revision). *JMF* has an unusually helpful Web site. Follow its links to advice on table guidelines, information for authors, APA style guidelines, and preparation of figures. In addition to these technical matters, it is often useful to scan recent issues of your target journal carefully for style and content.

Learn From Your Mistakes

Learn from editors rather than fight them. If you are lucky enough to have your work copyedited by a professional or if one of your colleagues is a good copyeditor, do not just make the changes they suggest, but think about why they made the changes and make a note to yourself to avoid the error in the future.

The same is true with rejected manuscripts. Although it is tempting just to file that fat envelope of dense criticism because it is too painful to read, you really must consider carefully what you have been criticized for and figure out how to avoid it in the future. Probably, these are senior scholars who have given hours of their time to assess your work. If you can avoid defensiveness, their advice should be valuable. In addition, you may be able to address the concerns and have your work accepted in another journal.

Revising Manuscripts

Some papers are rejected outright. You may, however, get some version of a “we’ll be willing to look at it again if you revise it as suggested.” These phrases may be hard to decode, and you should go over them with a more experienced colleague to figure out whether this means “Take care of these few things and publication is practically guaranteed” or “We are willing to look at a revision, but we do not have much faith in your ability to make all these changes and it hardly seems worth your effort.” You can talk to the editor to help you figure out this message.

Even scholars with 10-page lists of publications can probably count on the fingers of one hand the number of manuscripts that have been accepted outright without a request for some revision. This means that revising is a central skill. Some general advice from someone who does not need all five fingers to count manuscripts that have been accepted outright: The first reading of the reviews almost always is more daunting than it really is. Give yourself a few days to get over your initial dismay, and then analyze the reviews and the editor’s letter systematically. I make a photocopy of the reviews, and then put a number in the margin for each concrete suggestion. After I do this, I consider whether it is possible to make each change and, if it is not possible, whether a stronger explanation and more references will allow me

to make a compelling argument for the way I did it.

My experience is that reviewers’ suggestions substantially improve my papers. Although some revision requests are minor, editors seldom ask for or are fooled by cosmetic revisions. Revisions often require a lot of work—perhaps rebuilding the data set, reanalyzing it, and refocusing the literature review. The end result is usually a much better paper. Occasionally, you may continue to believe that the way you did it first was just as good if not better than the reviewer suggests. In this case, you may have to decide whether you would rather be right or be published, at least in this journal. Finally, although persistence in revision often pays off, it is vital to recognize when the major critique centers on a fatal flaw that cannot be fixed (e.g., there is too little variance on the independent variable, the data are too old). In this case, the most sensible response is sometimes to chalk this up to experience and move on to a more fruitful project.

If you get a revise and resubmit that leans toward the encouraging end of the continuum, do it now! Do not wait for the journal to change editors, the editor to change her mind, or someone else to publish it before you. Regardless of whether you decide to revise for the original journal or to submit it to another journal, do not put it off. The longer you wait, the harder it will be to pick it up again, and the less likely you will be to get to it.

Responding to a revise and resubmit includes two parts, of almost equal weight: the revised manuscript and the response to the editor and reviewers. Most new professionals have zero training on this aspect of research, so ask senior colleagues to let you see some of their response letters before you start. The response should get the same amount of careful attention as the revision itself, so edit it carefully and have someone else read it before you send it. This response should not repeat all the material changed in the revised manuscript. Instead, it should summarize the issues and give the page number where the new material is found.

Conclusion

Writing is a craft, and each paper you write will make the next one easier to write. Nevertheless, even the most senior scholars are familiar with the revise and resubmit letter, and occasionally, their papers are rejected out of hand. Sometimes,

a paper one journal rejects will get accepted by another journal (after revision, maybe even a better journal), but we all have papers that become permanent residents of the file drawer. It is not the experience of rejection that distinguishes the successful from the unsuccessful writers, but the response to it.

Happy writing.

NOTE

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