



AMERICAN
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**Preparing Manuscripts for Publication
in Psychology Journals:
A Guide for New Authors**

**American Psychological Association
Washington, DC**

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Introduction

This guide provides an overview of the process of preparing and submitting a scholarly manuscript for publication in a psychology journal. Drawing on the experiences of authors of scholarly writings, peer reviewers, and journal editors, we seek to demystify the publication process and to offer advice designed to improve a manuscript's prospects of publication. To exemplify the process, we describe specific publication procedures for journals of the American Psychological Association.

As anyone planning to submit a manuscript for publication is well aware, the process of conceptualizing testable research questions, reviewing the literature, conducting experiments, performing analyses, interpreting results, and, finally, writing a paper that effectively describes the study and communicates the findings involves large investments of time and energy. When one also considers the pressure to publish in academic settings; the high rejection rates of prestigious journals, APA journals being among these; and the waiting period for a publication decision, the stress that can accompany the process becomes readily understandable.

Yet, the rewards of discovery and contribution to the literature of psychological science are substantial. In the research and writing process, scholars are likely to meet exciting challenges in developing their intellectual and creative potential. Through publication, authors have a unique opportunity to build on previous discoveries and add to the lore of science.

We therefore encourage new authors to take heart, recognizing that, like any worthwhile endeavor, developing skills in conducting research and writing scholarly manuscripts is a learning process. Those embarking on this journey need not feel alone but rather are encouraged to seek mentors and colleagues to help guide them in the genre of psychological science. It is in this spirit that the current guide was written.

We cover three areas of journal publication. First, we present an overview of the process, focusing on manuscript submission and peer review, affording readers a behind-the-scenes view of the ways in which a new manuscript might be approached by an editor or a reviewer. This is followed by a more detailed discussion of some characteristics of a strong manuscript, which are drawn alongside shortcomings that may detract from a manuscript's publication potential. Finally, because a new scholar's initial manuscript submission is often developed from the dissertation, we offer some suggestions for converting a dissertation into a journal article.

The Journal Publication Process

In this section, we provide an overview of journal publication from an editorial perspective. We consider the front end of the process, beginning with submission of a manuscript for journal publication and proceeding to consideration of the peer review process.

Submitting a Manuscript for Publication

The selection of the journal to which one's manuscript will be submitted is an important one. A manuscript of more specific, local interest may be better suited to a more specialized journal, whereas one with broad interest across subdisciplines may reach a wider audience in a journal with a more generalist approach, such as *Psychological Bulletin* or the *American Psychologist*.

A key criterion in publication decisions is the manuscript's fit for the particular journal and the readership of that journal. Colleagues and mentors in one's field are likely to be well versed in the types of manuscripts published by various journals in the field and can serve as additional resources in making the selection.

One may also wish to consider the quality and reputation of the journal. Both the journal's impact factor (a measure of how frequently its articles are cited in other journals) and its rejection rate provide indices of its quality. For APA journals, impact factors are listed in the current Periodicals Catalog of the Journals Program of the American Psychological Association (www.apa.org), and rejection rates are published annually in the archival (August) issue of the *American Psychologist*. As ethical guidelines prohibit submission of a manuscript elsewhere while it is under consideration for a particular journal, timeliness considerations may also guide one's choice.

Manuscripts for APA journals are to be submitted according to the "APA Journals Manuscript Instructions for All Authors" on the APA website as well as the specific Instructions to Authors for the journal of interest, which are published in the individual journals and also posted on the APA website. An online manuscript portal, the Journals Back Office (www.jbo.com), facilitates the process of submission, allowing authors to upload their manuscripts in a few steps through a common online entry point.

General guidelines for preparing the manuscript for submission are summarized in the *Publication Manual of the American Psychological Association* (6th ed.; APA, 2010, pp. 228–231). Authors may also find the document "Checklist for Manuscript Submission" on the APA website helpful for preparing manuscripts for APA journals.

On receipt, the journal editor may give the manuscript a preliminary read to ensure that it generally adheres to APA Style, that the content is within the purview of the journal, and that the type of article (e.g., empirical study, theoretical review) is appropriate for the journal. If a manuscript is clearly inappropriate, the editor informs the author. Otherwise, the author can expect the manuscript to undergo peer review. The review process can vary in length, but authors can anticipate a response regarding the publication decision within 2–3 months.

The Peer Review Process

Fundamental to progress in science is its nature as shared knowledge and understanding about the world. In the words of Hengl and Gould (2006), “the core goal of any scientific work is to make discoveries and explain them” (p. 3). Much of this communication occurs through the exchange of ideas and findings in scholarly publications. Essential to this constructive, communicative process is that scientists understand and work within the social conventions of their respective disciplines (Committee on Science, Engineering, and Public Policy; National Academy of Sciences; National Academy of Engineering; & Institute of Medicine, 1995).

A key convention in the publication of research is the peer review process, in which the quality and potential contribution of each manuscript is evaluated by one’s peers in the scientific community. Like other scientific journals, APA journals routinely utilize a peer review process to guide manuscript selection and publication decisions. Toward the goal of impartiality, the majority of APA journals follow an established masked review policy, in which authors’ and reviewers’ identities are concealed from each other.

APA journal reviewers are scholars selected by the action editor (typically, the journal editor or associate editor) to review a manuscript on the basis of their expertise in particular content areas of their field. To enhance objectivity, two to three peer reviewers typically are selected to evaluate a manuscript. In addition to technical expertise, criteria for selection of reviewers may include familiarity with a particular controversy or attention to a balance of perspectives (APA, 2010, p. 226). Whereas the journal editor holds final responsibility for a manuscript, the editor usually weights reviewers’ inputs heavily.

Authors can expect their manuscripts to be reviewed fairly, in a skilled, conscientious manner. Reviewers are held to demanding standards: They must (a) present a clear decision regarding publication, considering the quality of the manuscript, its scientific contribution, and its appropriateness for the particular journal; (b) support the recommendation with a detailed, comprehensive analysis of the quality and coherence of the study’s conceptual basis, methods, results, and interpretations; and (c) offer specific, constructive suggestions to authors.

“Quick Read”

After reviews are in hand but before considering the reviews in detail, the decision editor (either the editor or associate editor) scans the paper to gain an independent view of the work. This “quick read” provides a foundation for the more thorough reading that follows—it by no means determines the final decision. On the other hand, it probably parallels how authors can expect many reviewers (and readers) to approach their papers.

First, the editor scans the paper from beginning to end for obvious flaws in the research substance and writing style. If problems show on the surface, a deeper reading is likely to uncover other matters needing attention. The quick-read process is relatively simple. In the initial examination of your manuscript, the editor or associate editor will follow these general guidelines:

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- *Read the abstract.* The editor thinks about the following questions: What is the sense of the research question, methodology, findings, and interpretations? Major problems in the abstract often reflect internal flaws. The major goal in reading the abstract is to understand the research question. Is it clearly defined, relevant, and supported by the methodology? APA publication policy emphasizes *conclusion-oriented* abstracts: What did the research find, and what do the findings mean?
- *Examine the full manuscript.* If it is more than 35 typed, double-spaced pages (including references, tables, and figures), this could pose a problem for some journals. How long are the introduction and the Discussion section relative to other sections of the paper?
- *Scan the paper's headings.* Are they well organized? Does a clear structure emerge? If not, the author has not achieved coherence.
- *Scan the references.* Are they in APA Style? If not, the author is not using APA publication format.
- *Scan the tables and figures.* Do they portray the information clearly? Can they stand alone without captions? Are they well constructed and in APA Style? A “no” to any of these questions suggests problems in the author’s presentation of findings. If the text contains a large number of statistics, could they be more appropriately put into tables or figures?
- *Finish the quick read by reading a page or two from each section of the paper.* How often does the red pen jump into the mental fingers? Do problems result from sloppiness or something deeper? Are there long paragraphs (more than a page) and sentences (more than three lines)? Does the author communicate skillfully? Writing problems can signal more serious shortcomings.

The quick read leads to an initial impression of the care with which a manuscript has been prepared. Weaknesses do not necessarily speak to the quality of the research, but they do reflect barriers to understanding the work and give a sense of the paper’s quality and suitability for publication. Authors preparing their own papers should ask themselves questions like those listed above.

Actions Taken on a Manuscript

After completing a quick read, the decision editor scrutinizes the manuscript and the reviews. The following categories constitute the editorial actions that may be taken on a manuscript:

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- *Rejection.* The flaws that lead to this decision generally center on substantive or methodological issues. A manuscript is usually rejected because (a) it is outside the area of coverage of the journal; (b) it contains serious flaws of design, methodology, analysis, or interpretation; or (c) it is judged to make only a limited novel contribution to the field. Below, we further discuss problems that may increase the probability of rejection.
- *Rejection with invitation to revise and resubmit.* In some cases, manuscripts may have publication potential but are not yet ready for final publication. The study as presented may not merit acceptance as is but may warrant consideration after substantive revision (e.g., reorganizing the conceptual structure, conducting additional experiments, or modifying analyses). The action editor will give the author an invitation to revise and resubmit for another round of reviews (usually with the same reviewers). An action editor cannot guarantee acceptance of a revised manuscript, but authors who respond flexibly and attend closely to suggested revisions enhance their chances for an acceptance. Authors are advised to include a detailed cover letter outlining their responses to the revisions.
- *Acceptance.* In very few cases, a manuscript may be accepted for publication on first reading, with only minor revisions required. More typically, acceptances follow the successful revision of a manuscript previously rejected with invitation to revise and resubmit. Once a manuscript is accepted, it enters the production phase of publication. At this point, no further changes can be made by the author other than those suggested by the copyeditor.

New scholars who wish to learn more about the editorial and peer review process as it operates with APA journals are referred to “The Publication Process” (Chapter 8 of the *Publication Manual*; APA, 2010; see also Eichorn & VandenBos, 1985).

Characteristics of a Strong Manuscript

Before describing the characteristics of a good manuscript, we turn briefly to problems associated with a poor one. Bartol (1983, cited in Eichorn & VandenBos, 1985) identified chief problems as the following:

- inadequate review of the literature,
- inappropriate citations,
- unclear introduction,
- ambiguous research questions,
- inadequately described sample,
- insufficient methodology,
- incompletely described measures,
- unclear statistical analysis,
- inappropriate statistical techniques,
- poor conceptualization of discussion,
- discussion that goes beyond the data,
- poor writing style, and
- excessive length.

Sternberg (1988) gave a list of misconceptions about research manuscripts, which may help new authors avoid common pitfalls.

Beyond the more serious shortcomings highlighted above, Kupfersmid and Wonderly (1994) have drawn attention to the problems of the lack of relevancy and scientific contribution of a number of articles that are, in fact, published in professional journals. Clearly, creating a strong empirical or review manuscript that contributes to scientific knowledge requires thought and planning at each stage of the research and writing process.

Below we highlight features of substance and style that pertain to the quality of the manuscript and have bearing on its evaluation in the editorial review process. Throughout we refer to relevant sections of the *Publication Manual* (APA, 2010). The manual picks up where this guide leaves off, providing authors with a rich source of information on both substantive concerns and APA Style, which is well established as the gold standard in editorial style for a wide range of disciplines in addition to psychology.

Substantive Aspects

Central to the quality of an empirical research paper or literature review is its substantive core—that is, the research questions that are posed; the ways in which they are conceptualized; and the methodological soundness with which they are studied, assessed, and interpreted. From this perspective, we consider, in turn, various sections of the manuscript and refer the interested reader to more extensive description of the qualities of

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a strong research paper in the *Publication Manual* (APA, 2010; see also Bem, 2004; Hengl & Gould, 2006; Kupfersmid & Wonderly, 1994; Sternberg, 1988).

Title and abstract. The title and the abstract are key elements that inform the reader of the contents of the manuscript and, as a rule, are the parts of the manuscript that gain the widest exposure. Haggan (2003) observed a trend toward increasing informativeness of titles and referred to them as “texts in miniature,” which in this fast-paced world of information overload “must add to the reader’s mental representation of the world” (p. 312). Given the title’s prominence, we encourage authors to exercise thought and creativity in selecting a title that will capture the reader’s attention and clearly inform the reader of the contents within.

Similarly, the abstract is read by far more readers than is the average article. The abstract serves important purposes in summarizing the hypotheses, design, and findings of the study and in representing the article in indexing databases. Readers frequently decide whether to delve further into an article on the basis of the abstract. Thus, a well-written abstract that conveys the research questions and findings succinctly can entice readers to learn more. It is not an understatement to say that “a well-prepared abstract can be the most important single paragraph in an article” (APA, 2010, p. 26).

Some journals use structured abstracts, in which participants, methods, results, and conclusions are set off in separate sections. Regardless of whether these elements are formally set off, authors should include these aspects of the study and seek to provide the information accurately and coherently and in a nonevaluative manner.

Introduction. A strong introduction engages the reader in the problem of interest and provides a context for the study at hand. In introducing the research concern, the writer should provide a clear rationale for why the problem deserves new research, placing the study in the context of current knowledge and prior theoretical and empirical work on the topic. Responsible scholarship stipulates that the writer properly credit the work of others. Whereas it is impractical to exhaustively describe all prior research, the most current and relevant studies should be cited. Swales and Feak (2004) identified four cornerstones of the introduction in a research paper, advising authors

- to establish current knowledge of the field;
- to summarize previous research, providing the wider context and background and the importance of the current study;
- to set the stage for the present research, indicating gaps in knowledge and presenting the research question; and
- to introduce present research, stating its purpose and outlining its design.

Within this framework, the writer states the hypotheses of the current study and their correspondence to the research design (APA, 2010, pp. 27–28).

Method. In both quantitative and qualitative research, the use of appropriate methods of participant sampling, study design, measures, and statistical analysis critically influences the study’s methodological soundness. Calfee and Valencia (2007) suggested that good methodology can be described by the two “Cs”—clean and clear.

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The soundness of the study hinges on *clean* methodology, that is, use of appropriate, valid, and unflawed methods of sampling and use of instruments, procedures, and analysis. In a clean study, Calfee and Valencia (2007) noted that the researcher ensures that

- sample variables are free of confounding influences (e.g., education is controlled for),
- recruitment and sampling techniques are appropriate,
- measures are reliable and valid for assessing the variables of interest, and
- the statistical procedures are appropriate and sufficiently sophisticated to examine the data and are carried out appropriately.

The ideal Method section is written in a *clear* manner, such that another researcher could duplicate the study. Toward this end, the writer should provide a thorough description of methods of recruitment, participant characteristics, measures and apparatus, and procedures. Recruitment methods and effects of attrition should be articulated. The writer should take care to thoroughly describe the sample with regard to demographic characteristics, including notation of any characteristics that may have bearing on the results (e.g., socioeconomic status). This information assists the reader in understanding the characterization of the current sample and the degree to which results may be generalizable. Measures should be appropriately referenced, including notation of their reliability and validity, and any adaptations to their customary use should be noted. In a clear study, the author explicates the research design and plan for analysis, noting whether conditions were manipulated or naturalistic, whether groups were randomly assigned, and whether the design explored variables within or between participants (APA, 2010).

Results and discussion. The Results section should include a summary of the collected data and analyses, which follows from the analytic plan. All results should be described, including unexpected findings. Authors should include both descriptive statistics and tests of significance. The *Publication Manual* provides information on tests of significance, including null hypothesis testing, effect sizes, confidence intervals, inferential statistics, and supplementary analyses.

In the Discussion section, the writer evaluates and interprets the findings. This section should begin with a statement of support or nonsupport for the original hypotheses in light of the findings. If the hypotheses were not supported, the author considers post hoc explanations. In interpreting the results, authors consider sources of bias and other threats to internal validity, imprecision of measures, overall number of tests or overlap among tests, effect sizes, and other weaknesses of the study (APA, 2010, p. 35).

Limitations and a discussion of the importance of the findings should conclude the discussion. Providing a link to future research, the author may offer recommendations for further study. More specific recommendations are more useful. As Skelton (1994) observed, researchers too often end their papers with a recommendation that is “too imprecise to be operationalized, or too grand to be implemented by a decision at much lower than a ministerial level” (p. 459).

Tables and figures. Tables and figures are particularly valuable for conveying large amounts of information and for showing relationships among data. The expanding development of advanced tools for graphic display provides authors with greater flexibility and capability for illustrating their results. Such tools can convey information in visually engaging ways that facilitate the reader's understanding of comparisons and evaluations of change over time. Authors should avoid duplicate reporting of data but instead should decide on the most comprehensible ways of presenting the information, whether it is through text or through tabular or graphic form.

Good tables and figures should be structured according to APA Style and be clear and self-explanatory so that, with their captions, they can stand apart from the text. In addition to Chapter 5 of the *Publication Manual* on displaying results, the interested writer may wish to consult the APA publication, *Displaying Your Findings* (Nicol & Pexman, 2010), as well as the article on this topic published in the *American Psychologist* (Smith, Best, Stubbs, Archibald, & Roberson-Nay, 2002).

Ethical Considerations

In planning for and conducting a study, researchers should consult the “Ethical Principles of Psychologists and Code of Conduct” (APA, 2002) as well as the ethical guidelines of the institution where the research was conducted. The APA Ethics Code requires that researchers ensure approval by relevant institutional review boards and obtain informed consent from all participants. Fulfillment of these requirements should be noted in the Method section. Researchers should take care to exercise proper conduct in administering measures and carrying out experiments with participants. When applicable, participants should be thoroughly debriefed, and such procedures should be indicated in the manuscript.

Style

Style in scholarly manuscripts can refer to various aspects of the writing technique. Here, we highlight *editorial style* and *writing style*. Authors preparing a manuscript for submission will want to attend closely to APA editorial style, the mechanics of convention laid out in the *Publication Manual*—the decisive resource for capitalization, italics, abbreviations, heading structure, and so forth. The *Publication Manual* also includes guidance on avoiding bias in language, which is particularly important in demonstrating sensitivity to such concerns as participants' mental illness and cultural background.

A strong manuscript will demonstrate the author's command of writing style in the academic genre of a research article. Tardy and Swales (2008) characterized writing genres in the following way:

Written texts are known to have culturally preferred shapes that structure their overall organization and influence their internal patterning. These shaping forces,

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at both general and local levels, are neither incidental nor accidental; rather, they exist to provide orientations for both readers and writers. (p. 565)

Learning the language of the genre will contribute to the production of a technically sound, well-written manuscript. In the case of an empirical research article, perhaps the most apparent feature is its standard structure, which follows some variation on the format of Introduction–Method–Results–Discussion. Beyond this organizational frame, however, there are a number of major and more subtle features that characterize the empirical research article.

A good research article hinges on its coherence and organization. These aspects of the article are influenced by the ways in which the study evolves from the data. Whereas a typical psychology research article will follow a standard framework of ordered sections, as noted above, a coherent article is not usually written in the order of these sections but instead develops from the data analyses. As expressed by Bem (2004) in his chapter on the empirical research article,

There are two possible articles you can write: (a) the article you planned to write when you designed your study or (b) the article that makes the most sense now that you have seen the results. They are rarely the same, and the correct answer is (b). (p. 186)

Although the research paper should be guided outward from the hypotheses and resulting data, the paper should be guided by ideas and one’s point of view. As stated by Sternberg (1988), “Facts are presented in service of ideas: to help elucidate, support, or refute these ideas. They provide a test against which the validity of ideas can be measured” (p. 4). Along these lines, an organizing principle of strong research papers is to convey central features first, followed by more peripheral or less important aspects (Bem, 2004).

Whereas selectivity in presentation is important, it is crucial to present facts objectively, both those that refute and those that support one’s position. “Scientists demand that scientific reporting be scrupulously honest. Without such honesty, scientific communication would collapse” (Sternberg, 1988, p. 5).

Additional suggestions for writing accurate, clear, and concise research articles are provided in Chapter 3 of the *Publication Manual*, which discusses continuity and transitions, tone, precision, word choice, and grammatical principles. Another source of useful information is the APA Style website (www.apastyle.org).

Converting One's Dissertation Into a Journal Article

Beginning scholars will often choose to develop a journal article from a doctoral dissertation (or master's thesis) as an initial submission for publication. In this section, we first provide some considerations regarding the status of the dissertation with regard to its potential for publication. We then offer suggestions for converting the dissertation into a publishable manuscript. Often this involves reducing a document of over 100 pages to perhaps one third its original length. In particular, we highlight the following features most likely to distinguish the two types of documents: brevity, extent of literature review, data analyses, writing style, and interpretation of results.

Deciding to Submit the Manuscript

First, the writer will want to consider whether the study merits publication in a journal article—specifically whether the findings tell a compelling story or answer important questions and whether the research makes a novel contribution to the literature. If the study is deemed worthy of publication, consideration should be given to such issues as whether all of the original research questions should be included in the present study and whether the results warrant additional experiments that could assist in answering the research questions more fully.

The author may also want to consider such factors as whether the current sample size provides sufficient power to merit publication and whether additional analyses might clarify ambiguous findings. Consultation with colleagues can help the author evaluate the status of the manuscript and its potential for publication as well as the selection of an appropriate journal to which to submit one's manuscript.

Adapting a Dissertation for Publication

Once a decision is made to convert a dissertation into an article, the author will want to focus attention on adapting the manuscript to an empirical article (or literature review) for publication. By attending to brevity and focus, relevant data analyses, appropriate interpretation of results, and writing style, authors can enhance the fit of a manuscript for journal publication. Editors and reviewers readily recognize an article that has been hastily converted from a dissertation. Whereas most reviewers are generous with their time and knowledge in guiding a new colleague through the publication maze, greater effort on the part of the author to make these adjustments at the front end is likely to increase the manuscript's potential for serious consideration.

Brevity and focus. Throughout a manuscript to be considered for journal publication, brevity is an important consideration, particularly in the Introduction and Discussion sections. In a dissertation, the writer's task is to demonstrate breadth of knowledge on a topic as well as the skills to fully explore the research problem under consideration. In contrast, an empirical article must maintain a clear focus. The abstract

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may need to be condensed to meet the length requirements of the journal. Whereas *Dissertation Abstracts International* accepts abstracts of up to 350 words, journal abstract requirements are likely to be more limited. For most APA journals, the maximum length is 250 words.

One of the major challenges in the dissertation's transformation is that of paring the more comprehensive literature review characteristic of a dissertation to a more succinct one suitable for the introduction of a journal article. The writer's task is one of selectivity, in which he or she takes care to preserve the relevant substance while omitting extraneous material. The writer will want to edit the text to material relating to the more immediate context of the research questions.

Selection of sources is similarly important. Given the rapidly expanding literature, it is generally impractical to exhaustively review prior research in a journal article. The author should nonetheless take care to reference the most relevant and current studies and avoid omitting key studies pertinent to the research problem. Citation of reviews and meta-analyses can guide the interested reader to the broader literature while providing an economical way of referencing prior studies. Depending on the timing of rewriting, the author should review the most recent literature to avoid overlooking relevant studies that may have been published since the writing of the dissertation.

Evaluation of analyses. The researcher should be selective in choosing analyses for inclusion in the journal article. An unbiased approach is important to avoid omitting study data. However, reporting every analysis that may have been run for the dissertation often is not feasible, appropriate, or useful in the limited space of a journal article. Instead, analyses that directly address the research questions should be retained and more supplemental analyses excluded. Prior to submitting the manuscript, the researcher may also wish to consider whether the existing data would be better explained by additional or more sophisticated analyses. Sternberg (1988) noted that the Results section should be organized so that the most important results are listed first, followed by results of secondary or post hoc analyses.

Interpretation of results. In writing the Discussion, researchers should focus on interpreting the results in light of the research questions. In particular, Calfee and Valencia (2007) advised new authors to be aware of tendencies to overinterpret their data. Taking into account sample size and composition, effect size, limitations of measurement, and other specific considerations of the study is important to avoid extrapolating beyond the data.

A strong Discussion section notes areas of consensus with and divergence from previous work. New authors should make particular efforts to attend to connections with existing literature. Such attunement strengthens the communicative function of the research article within the framework of the broader scientific literature.

Writing style. New scholars are advised to familiarize themselves with the details of APA Style. In addition to the general considerations on style noted above, two points are worth highlighting here. First, a manuscript that closely follows APA Style guidelines is likely to make a more seamless presentation, with fewer features to distract the reviewer from the content of the paper. Second, in some cases, there are differences

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between formatting requirements specific to one's university or dissertation publishing services and journal style requirements. Areas of difference can involve tables and figures, organization of sections, and reference lists. For example, theses and dissertations may include bibliographies, which list additional sources beyond those included in the reference list. In such cases, the reference list will need to be edited to include only those references cited in the submitted manuscript.

Conclusion

Although conducting research and writing publishable articles invokes challenges that involve considerable investments of time and energy, intellectual rigor, and fortitude, we encourage new scholars and researchers to take the progressive steps of developing their manuscripts for submission to psychology journals. Bringing to fruition the hard work of one's research and sharing one's findings with the scientific community can bring personal rewards. Beyond such rewards, it is through the continued communication of theoretical developments, carefully planned and executed research, and discovery that the field of psychological science and application can advance.

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