

Editorial: APA Publication Manual Changes: Impacts on Research Reporting in the Social Sciences

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In 2010, the American Psychological Association (APA) published the sixth edition of its Publication Manual. We provide an overview of how this edition differs from previous editions and summarize features of the new edition that will likely impact social science research over the next several years. Both strengths and shortcomings of the Publication Manual are noted.

One of the challenges confronting researchers in the social sciences is staying current in their fields of study, not only in the content and practices, but also in research reporting and writing conventions. The elements of the American Psychological Association (APA) style first appeared in two articles (Anderson & Valentine, 1944; “Instructions,” 1929) and evolved into a formal manual published as a supplement to the *Psychological Bulletin* (American Psychological Association, Council of Editors, 1952) for the price of only \$1 (APA Publications and Communications Board Working Group on Journal Article Reporting Standards, 2008). The APA has recently published the sixth edition of its *Publication Manual* (APA, 2010). In the new edition, the authors of APA incorporate advances in computer technology, broaden the focus to include the social sciences, and reorganize the content for ease of use. Our purposes in this article are to provide an overview of these

changes and to offer speculation regarding how they might impact publication in the social sciences.

Changes in the Sixth Edition

Audience and Organization

The latest edition of the APA manual has been fundamentally restructured and streamlined for ease of use. The sixth edition (APA, 2010) is dramatically shorter than was the fifth edition (APA, 2001); going from 439 to only 272 pages. This reduction is counter to the former trend noted by Daniel (2001) when he compared elements of the first five editions and noted an increase in length and scope of each edition. The sixth edition was shortened by moving some content online and eliminating other content. Information specific to the APA was moved from the *Publication Manual* to the website (<http://apastyle.apa.org/>), both reducing the length of the *Publication Manual* and making it more reader friendly to the broader audience of readers. Information specific to writing student papers, theses, and dissertations was eliminated. One area of expansion was in the number and type of examples. Throughout the *Publication Manual*, examples are expanded to include education, business, and nursing

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to serve readers better throughout the behavioral and social sciences. The retained content is reorganized to follow the flow of the writing process, beginning with types of publications and ethical considerations for research, and continuing through (a) manuscript structure and content, (b) mechanics and writing style, and (c) displaying results and crediting sources. Also, the sample papers section (Figures 2.1 – 2.3) appears earlier in the book to provide readers with an annotated example early in the writing process. The conclusion of the *Publication Manual* contains insights into publication.

Both the reorganization of content and reduction in length should benefit researchers by making information easier to locate. Students might miss the specific sections on student papers, theses, and dissertation; yet, institutional specific requirements often are present that necessitate local guidance on these issues, and several books focused exclusively on theses and dissertations are available (e.g., Calabrese, 2006; Miller, 2009). The expanded examples and guidelines for electronic sources likely will be invaluable to all users.

Technology

Technology is impacting all aspects of the research process, from the online literature resources available that shape the literature base for research problems; to data collection through emails, online surveys, and discussion boards; to the growth of complicated analyses techniques that are now performed quickly with advanced software programs (Greenhow, Robelia, & Hughes, 2009). In the new edition, APA acknowledges the impact of advances in technology and expands the examples and guidelines for reporting electronic sources (sections 6.05, 6.31, & 6.32). New to the sixth edition are suggestions for supplemental material in the form of web-based, online archives (section 2.13). Authors may choose to display material that is lengthy, detailed, or oversized in an online file that readers may access and download. Further, APA has redesigned its website (<http://www.apastyle.org/>)—expanding tutorials, online courses, and materials for learning APA style. Authors likely will benefit from the wealth of material available on the APA website. Both authors and editors likely will benefit from APA's ability to react to changes between editions of the *Publication Manual* through the website.

Stylistic Elements

The growing emphasis on evidence-based research has led to calls (e.g., American Educational Research Association [AERA], 2006) for increasing the reporting accuracy required of both research design and results so that readers can make more informed decisions from research reports. The latest

edition of the *Publication Manual* includes a new section on standards of reporting research (Chapter 2), which relies on previous work such as the APA Publications and Communications Board Working Group on Journal Article Reporting Standards (2008). The *Publication Manual* incorporates the new reporting standards, with revised discussion of abstracts, methods, statistical results, and discussions and the new information on more stringent reporting, if followed, should contribute to better research reporting by all users of the *Publication Manual*. More specifically, the field should benefit from more transparent reporting of research protocols and easier generalizability of results across studies. In addition to the new reporting standards, readers also should observe several other stylistic changes in manuscript structure, language, and the reporting of sources.

Manuscript structure. A few changes to the proper formatting of manuscripts have been implemented. Authors should now place the running head in the page header on the same line as the page number (section 8.03). The term *Running head* remains only on the cover page and the actual running head should appear in all capital letters on each page. In the author note detailing contact information, authors may now choose to abbreviate states rather than listing complete spelling (section 2.03). The new rules for heading structure simplify the process of formatting headings (sections 3.02 - 3.03). As with the fifth edition, five levels of heading are present and authors should use each level in succession as needed. However, unlike the fifth edition, the first four levels require the use of boldface text. This use of boldface text should minimize errors in manuscript production and more clearly delineate sections for readers. In the sixth edition, authors of the *Publication Manual* no longer stipulate that one space should follow all end-of-sentence periods (section 4.01). Line spacing also is adjusted; authors may now choose to use single-spacing or double spacing in tables and figures (section 8.03)—and in selecting the spacing to use, authors are asked to “consider the readability of the table during the review process in making your decision” (p. 141). The option of smaller line spacing in tables and figures will allow authors the option of shrinking some lengthy tables and figures to fit on a single page rather than forcing readers to locate information across pages.

Language. As with previous editions, in the new edition, APA guidelines specify the reduction of bias in language. The sixth edition contains extended recommendations for use of proper language with respect to gender, sexual orientation, racial and ethnic identity, disabilities, and age (sections 3.12 – 3.16). Authors should use parallel designations for racial and ethnic identity such as choosing either color or

cultural heritage rather than mixing the descriptors (e.g., *African Americans* and *European Americans* rather than *African Americans* and *Whites*). Further, a new section presents issues related to use of historical language because historical language might conflict with the recommendations for avoiding bias in language (section 3.17). Although the recommendations for language use toward reducing bias are expanded, the recommendation in previous editions of the *Publication Manual* to avoid the use of the term *subjects* does not appear in the new edition. Rather, according to the *Publication Manual*,

the more general terms *participants* and *subjects* are also in common usage. Indeed, for more than 100 years the term *subjects* has been used within experimental psychology as a general starting point for describing a sample, and its use is appropriate. (p. 73)

With respect to the use of numbers in text, one addition and two sets of deletions have been made. The sixth edition of the *publication manual* includes an exception to the recommendations for the use of numerals when discussing *approximations* of days and months (e.g., “about *twelve* days” rather than “about *12* days”; Section 4.31). The deletion also favors the use of words over numbers in that the former requirement to use numerals for numbers below 10 grouped with those numbers above 10 was dropped. Authors may now write that researchers “conducted five trials in the first study and 12 trials in the second study”—mixing the use of numerals and words. According to authors of the *Publication Manual*, “A combination of numerals and words in these situations increases the clarity and readability of the construction. In some situations, however, readability may suffer; in such a case, spell out both numbers” (p. 113). With respect to the second deletion, whereas for the fifth edition, figures were to be used to express “numbers that represent time; dates; ages; *sample, subsample, or population size; specific numbers of subjects or participants in an experiment* [emphasis added]; scores and points on a scale; exact sums of money; and numerals as numerals” (APA, 2001, p. 124), for the sixth edition, figures are to be used to express “numbers that represent time; dates; ages; scores and points on a scale; exact sums of money; and numerals as numerals” (APA, 2010, p. 112). That is, figures are no longer used for *sample, subsample, or population size; specific numbers of subjects or participants in an experiment*.

Citations and references. The new edition of the *Publication Manual* contains expanded guidance on proper use of citations and avoidance of plagiarism, with a new section on self-plagiarism (section 1.10). The most dramatic changes are with

respect to electronic sources. New guidelines are present for use of electronic sources, such as what to include for publication information and formatting citations for electronic sources with no page numbers (sections 6.05 & 6.32). For example, for an online citation without page numbers or visible paragraph numbers authors should include the heading and the number of paragraphs following the heading in the citation (e.g., Hughes, Onwuegbuzie, Daniel, & Slate, “Citations and references,” para. 1).

New guidelines are also present for referencing electronic sources such as the recommendation to include digital object identifiers (DOIs) whenever they are available (section 6.31). Specifically, DOIs are unique numbers assigned by the publisher for electronic referencing of published work. In a reference list, authors should place the DOI at the end of the reference (e.g., doi:123456789) with no punctuation after the DOI, and with the lowercase text used to denote *doi*. Although the presentation of DOIs, where available, provides authors with additional work, use of the CrossRef website (i.e., <http://www.crossref.org/>) should substantially facilitate the process.

Another change pertaining to the referencing of electronic sources is dropping the recommendation to list a retrieval date for on-line sources. In the fifth edition of the *Publication Manual*, authors were instructed to include a retrieval date in reference citations for on-line sources. Now, the writers of APA recommends that authors only include the retrieval date for material that may change over time. To assist users with the expanded use of electronic sources, the *Publication Manual* provides new examples for a variety of on-line sources such as data sets and software, Internet message boards, archival documents, wikis, blogs, and podcasts.

Other changes of a non-electronic nature include repeated citations, presenting publisher location, and the citing of six or more authors. In the fifth edition, when a citation was repeated within a paragraph, the year could be omitted from the repeated citations within the paragraph provided that the citation could not be confused with other sources. In the sixth edition, the year may only be omitted from citations included in the narrative; however, the year may not be omitted from parenthetical citations (section 6.11). In the references section, both the city and state are required to identify publisher location (section 6.30). In the previous edition, states were not required for seven *major U.S. cities* (i.e., Baltimore, Boston, Chicago, Los Angeles, New York, Philadelphia, and San Francisco), and countries were not required for 10 major non-U.S. cities (i.e., Amsterdam, Jerusalem, London, Milan, Moscow, Paris, Rome, Stockholm, Tokyo, and Vienna). Finally, the suggested format for references with more than six authors has been

changed (section 6.27). Previously, the first six authors were listed followed by *et al.* Now for works with more than seven authors, references should list the first six authors followed by three ellipses and the final author's name.

The expanded guidance for proper citation of and reference to electronic sources was a timely addition to the *Publication Manual*. Although it might take authors time to adapt to the new reference format and include DOIs, the inclusion of DOIs should make retrieval of sources easier for readers. Omission of the retrieval date will shorten references. The requirement of identifying states for all cities as part of the publisher location also is a positive change because the state or the country of some of the included major cities might not be obvious to all readers—especially readers from countries that are not represented by any of these cities.

Statistical Presentation

Authors and editors of meta-analyses should find the expanded coverage of meta-analysis helpful. The latest edition of the *Publication Manual* includes a new section on meta-analyses, a sample meta-analysis paper, and standards for reporting meta-analyses (section 2.10, Figure 2.3, & Appendix Table 4). For the reporting of all statistics, authors should “include sufficient information to allow the reader to fully understand the analyses conducted.... What constitutes sufficient information depends on the analytic approach” (APA, 2010, p. 116). Perhaps the greatest change in statistical presentation is the guideline to include not only effect sizes in the reporting of statistics, but also associated confidence intervals as part of the *sufficient information for readers* (section 4.44). To assist with the reporting of confidence intervals, the *Publication Manual* provides new examples of proper formatting in both text and tables (sections 4.10 & 5.15). Overall, the guidance on displaying data in graphs and tables is expanded and suggestions for preparing figures reduced. New table examples of a hierarchical multiple regression and a multilevel model are included (Tables 5.13 & 5.15), and the analysis of variance (ANOVA) table has been removed. Expanded guidance also is available for reporting of *p* values to two or three decimal places and instructions to report the exact probabilities except for *p* values less than .001 (section 4.35).

Publication Process

The new edition of the *Publication Manual* contains expanded guidance on the publication process and features new sections on peer review and the editorial decision-making process (sections 8.01 - 8.02). Novice authors should find valuable the information in the new sections, such as a description

of the peer review process and a listing of the types of decisions they can receive about their manuscript submission. Both novice and experienced authors might appreciate the four figures displaying a sample cover letter, ethical compliance form, disclosure of interests form, and copyright permission form (Figures 8.1 – 8.4). Although forms may vary from the APA forms, the content of the forms should help to clarify expectations for authors.

With respect to the abstract, whereas APA previously suggested a maximum of 120 words (APA, 2001, p. 23), the sixth edition standards now acknowledge that “word limits vary from journal to journal and typically range from 150 to 250 words” (APA, 2010, p. 27). This statement could influence journals with abstract word limits of 120 words to consider increasing the word limit and such a change would benefit authors as they strive to include all required information within the specified word limit. Indeed, this increase in word count in the abstract is consistent with the recommendation of Hahs-Vaughn and Onwuegbuzie (2010) and Hahs-Vaughn, Onwuegbuzie, Slate, and Frels (2009). Finally, a slight change is present in the suggested order of manuscript pages; appendixes should now follow tables and figures (section 8.03).

Shortcomings

Bearing in mind the changes that have occurred in reporting of results and the crediting of sources (e.g., due to the proliferation of electronic sources) in the field of social and behavioral sciences since the publication of the fifth edition in 2001, it is difficult to argue that the sixth edition does not represent an improvement over its predecessor. Indeed, little doubt exists that the authors of APA have made great strides to facilitate authors in their quest to comply with the style guide. In particular, this latest *Publication Manual* includes an updated and expanded website specific to APA style issues (i.e., <http://www.apastyle.org/>). This website includes a pdf file containing corrections to the first printing (July, 2009), frequently asked questions about the corrections, additional information about APA style, additional information about the *Publication Manual*, and additional frequently asked questions. Keeping with the times, the website also contains a blog containing weekly entries written by experts about numerous aspects of writing and style (e.g., publication ethics, precision in reporting research, reference style, and clear expression of ideas). Excellent training materials also are provided (e.g., APA, 2009a, 2009b, 2009c; Nicol & Pexman, 2010). An online course also has been developed (<http://www.apastyle.org/learn/courses/4210700.aspx>). According to this website,

This online course is designed to give students, researchers, and instructors who are familiar with past editions of the Publication Manual an in-depth understanding of changes in the Sixth Edition. The overarching goals that guided the revision are noted along with all chapter-level changes.

Examples and chapter quizzes are provided to help readers familiarize themselves more quickly with new and expanded content, and an end-of-course assessment allows readers to test and refine their knowledge. Individuals are required to meet a passing score of 75% or higher. Individuals are allowed two attempts to successfully complete the program. If the individual is unsuccessful on the second attempt, access to the online test will no longer be available.

This course has been reviewed and approved by the APA Office of Continuing Education in Psychology (CEP) to offer continuing education credit for psychologists. The APA CEP Office and the APA Office of Publications and Databases maintain responsibility for this program and its content. (Description section, para. 1-4)

The learning objectives of this course are to increase awareness of ethical standards related to publication, of reporting standards for scientific writing, and of recommended practices for communicating the results of scholarly inquiries; become familiar with discussions of these topics in the Publication Manual of the American Psychological Association, Sixth Edition; [and] apply guidelines on recommended publishing practices to the conceptualization and conduct of research and to the planning and execution of writing projects. (Learning Objectives section, para. 1-4)

These resources should help authors in general and students in particular to become familiar with APA style. Combs, Onwuegbuzie, and their colleagues also have written a series of articles documenting the most common APA errors contained in manuscripts submitted to two journals: *Research in the Schools* (i.e., Onwuegbuzie & Combs, 2009; Onwuegbuzie, Combs, & Frels, 2010b; Onwuegbuzie, Combs, Slate, & Frels, 2009) and *Educational Researcher* (i.e., Onwuegbuzie, Combs, & Frels, 2010a). These errors represented violations to the fifth edition because virtually all of these errors remain as errors under the sixth edition. Interestingly, Onwuegbuzie et al. (2010b) documented that manuscripts containing nine or more different APA errors were 3.00 times (95% Confidence Interval [CI] = 1.31, 6.87) more likely to be rejected, suggesting the importance of compliance to the APA style guide. Other works related to APA

errors that beginning and emergent scholars might find useful include Onwuegbuzie, Waytowich, and Jiao (2006) and Waytowich, Onwuegbuzie, and Jiao (2006). These researchers investigated the prevalence of citation errors in manuscripts submitted to a journal and in dissertation proposals, respectively. As noted by these authors, a citation error occurs when the following APA stipulation is violated in some way:

Each reference cited in the text must appear in the reference list, and each entry in the reference list must be cited in the text. Make certain that each source referenced appears in both places and that the text citation and reference list entry are identical in spelling of author names and year. (p. 174)

Further, authors of APA (2010, p. 180) state that

Because one purpose of listing references is to enable readers to retrieve and use the sources, reference data must be correct and complete.... Authors are responsible for all information in their reference lists. Accurately prepared references help establish your credibility as a careful researcher.

Onwuegbuzie and Daniel (2005) documented that 86.5% of authors who submit manuscripts to *Research in the Schools* for consideration for publication commit one or more citation errors. Onwuegbuzie et al. (2006) reported that the mean number of citation errors was 5.87 ($SD = 7.88$; Range = 0 to 48), with a mean citation error rate (i.e., number of citation errors divided by the number of total citations in the manuscript) of 28.63% ($SD = 27.37\%$). Further, Onwuegbuzie et al. (2006) noted that articles with more than three citation errors were 4.01 (95% CI = 1.22, 13.17) times more likely to be rejected than were articles with three or less citation errors. Waytowich et al. (2006) documented that the number of missing or inconsistent citations present in the doctoral students' dissertation research proposals ranged from 2 to 53 ($M = 12.64$, $SD = 10.66$), with a citation error rate ranging from 5.00% to 90.91% ($M = 33.45\%$, $SD = 21.15\%$).

The sixth edition's new ethics sections on issues such as "determining authorship and terms of collaboration, duplicate publication, plagiarism and self-plagiarism, disguising of participants, validity of instrumentation, and making data available to others for verification" (APA, 2010, p. 5) are extremely welcome for both the graduate student and the seasoned scholar. The location of these sections is particularly appealing. For example, the sections on plagiarism and self-plagiarism have been moved from being almost buried in the fifth edition (i.e., pp. 349-350) to near the beginning of the sixth edition (pp. 15-16)—making these sections much more visible. Also appealing is the expanded discussion of

the journal publication process, including a delineation of “the author’s responsibilities in manuscript preparation and at each subsequent stage of publication” (APA, 2010, p. 4). According to the APA’s own website,

The *Publication Manual of the American Psychological Association* is the style manual of choice for writers, editors, students, and educators in the social and behavioral sciences. It provides invaluable guidance on all aspects of the writing process, from the ethics of authorship to the word choice that best reduces bias in language. Well-known for its authoritative and easy-to-use reference and citation system, the *Publication Manual* also offers guidance on choosing the headings, tables, figures, and tone that will result in strong, simple, and elegant scientific communication.

We agree with these statements and applaud the APA Publications and Communications Board, the six-member *Publication Manual* Revision Task Force, the seven *Publication Manual* Revision Working Groups, the APA Council of Editors, the various APA boards and committees, several writing instructors and coaches, and the APA Office of Publications and Databases, and all other individuals and groups involved in developing the sixth edition of the *Publication Manual*.

Notwithstanding, the present APA manual does have some shortcomings. A good starting place for a discussion on shortcomings is to evaluate whether the shortcomings discussed by Daniel and Onwuegbuzie (2007) regarding the fifth edition have been addressed in the sixth edition. Daniel and Onwuegbuzie (2007) outlined the following five issues associated with the fifth edition of the *Publication Manual*: (a) inappropriate phrases such as “Have the instruments been demonstrated to have satisfactory reliability and validity?” (p. 6) (cf. Onwuegbuzie & Daniel, 2002, 2004; Thompson & Vacha-Haase, 2000; Vacha-Haase, Kogan, & Thompson, 2000; Witta & Daniel, 1998); (b) not all the instructions for presenting data stemming from inferential analyses required that the author include any measure of effect size (e.g., analysis of variance tables; p. 160); (c) the example given for reporting regression results is limited to the presentation of regression (*b* and β) coefficients (p. 132), and no mention is made of structure coefficients (cf. Courville & Thompson, 2001; Henson, 2002; Thompson & Borrello, 1985); (d) contradictory statements regarding the number of authors needed to use the *first author et al.* format from the onset (i.e., “When a work has six or more authors, cite only the surname of the first author followed by *et al.* (not italicized and with a period after ‘al’) and the year for the first and subsequent citations” [italics in original],

p. 209 vs. “After the sixth author’s name and initial, use *et al.* to indicate the remaining authors of the article” [italics in original], p. 241); and (e) bias toward quantitative research and ignorance of both qualitative research and mixed methods research, providing qualitative and mixed methods researchers with minimal explicit guidance for writing reports that are consistent with APA style.

Inappropriate phrases. We are encouraged that all references to instruments (e.g., tests) being reliable and/or valid appear to have been removed in the sixth edition and replaced with more appropriate language. For example, on page 29, APA (2010) state that “The latter section often includes description of...(c) measurement approaches (including the psychometric properties of the instruments used).” However, some inappropriate statistical language still exists. In particular, in Table 5.3 (pp. 131-132), which provides an example of a factor analysis table, the word “loadings” is used on six occasions to refer to coefficients in factor matrices. Yet, this word is an extremely vague term considering that “loading” may have very different meanings for different analysts. For factor analyses, when an oblique rotation is conducted, the word *loading* does not make it clear whether the author(s) is referring to pattern coefficients or structure coefficients. Conversely, when orthogonal rotation is used (e.g., varimax rotation)—as is the case in Table 5.3—the pattern coefficients and structure coefficients are identical, and thus the author(s) should replace the phrase *loading* with *pattern/structure coefficients* (cf. Thompson, 2004).

Another problem with Table 5.3 is that important information is omitted regarding exploratory factor analysis. In particular, the final communality estimates should have been included in the table. Also, what criteria were used to determine the number of factors (e.g., K1, scree plot)? Additionally, ideally, the proportion of variance explained by each factor should have been presented at the foot of the table (cf. Henson, Capraro, & Capraro, 2004; Henson & Roberts, 2006; Hetzel, 1996; Kieffer, 1999; Onwuegbuzie & Daniel, 2003; Thompson, 2004; Tinsley & Tinsley, 1987) because this index could serve as a form of effect size. For an example of how to report exploratory factor analysis results in table form for orthogonal rotations, see Henson et al. (2004). We would have preferred a table such as the one in Henson et al.’s (2004) article to have been used rather than the example used in the sixth edition.

Reporting of effect sizes. We applaud the increased emphasis of effect sizes and associated confidence intervals in the sixth edition that is presented on page 34, as follows:

For the reader to appreciate the magnitude or

importance of a study's findings, it is almost always necessary to include some measure of effect size in the Results section. Whenever possible, provide a confidence interval for each effect size reported to indicate the precision of estimation of the effect size. Effect sizes may be expressed in the original units (e.g., the mean number of questions answered correctly; kg/month for a regression slope) and are often easily understood when reported in original units. It can often be valuable to report an effect size not only in original units but also in some standardized or units-free unit (e.g., as a Cohen's *d* value) or a standardized regression weight. Multiple degree-of-freedom effect-size indicators are often less useful than effect-size indicators that decompose multiple degree-of-freedom tests into meaningful one degree-of-freedom effects—particularly when the latter are the results that inform the discussion. The general principle to be followed, however, is to provide the reader with enough information to assess the magnitude of the observed effect.

Also, we are encouraged that the inferential-based tables that are used as exemplars in the sixth edition provide effect-size estimates and/or confidence intervals of point estimates. However, the table checklist in section 5.19 (p. 150) is somewhat vague with respect to the use of effect sizes. Here, the following checklist questions are posed:

Are confidence intervals reported for all major point estimates? Is the confidence level—for example, 95%—stated, and is the same level of confidence used for all tables and throughout the paper?

and

If statistical significance testing is used, are all probability level values correctly identified? Are asterisks attached to the appropriate table entries only when needed (as opposed to stating exact probabilities)? When used, is a probability level assigned the same number of asterisks in all tables in the same paper?

Although effect-size estimates represent point estimates, not all authors might be aware of this and, thus, we would have preferred if the phrase “effect size” had been used in both sets of checklist questions above. Another concern with the above checklist is that no question is present in which researchers are prompted to control for the inflation of the Type I error rate, such as by using Bonferroni's adjustment (cf. Chandler, 1995; Ho, 2006; Manly, 2004; Vogt, 2005). Consistent with the *Publication Manual's* inattention to inflation in Type I error, some of the tables (e.g., Table 5.6) do not provide any adjustment for Type I error.

Reporting structure coefficients in regression tables. In the sample hierarchical multiple regression table in Table 5.13, it is noteworthy that the change in the proportion of variance is reported for each step. However, as was the case in the fifth edition, no structure coefficients are reported. Thus, readers of this table would not be able to assess whether multicollinearity was present or whether any of the variables served as suppressor variables (Onwuegbuzie & Daniel, 2003; Thompson & Borrello, 1985).

Use of *et al.* The sixth edition of the *Publication Manual* is now consistent regarding the use of “*et al.*”: “When a work has six or more authors, cite only the surname of the first author followed by *et al.* (not italicized and with a period after *al.*) and the year for the first and subsequent citations” (p. 175). We applaud this consistency.

Bias toward quantitative research. Slightly more attention to the reporting of qualitative research appears to have been paid in the sixth edition compared to the fifth edition. In particular, the Sample Word table in the fifth edition has been replaced with a table of “Inductively Developed Thematic Categories” (Table 5.16). However, it is clear that the inequity has not been redressed. In fact, as noted by APA (2010), “New content in Chapter 4 includes guidelines for reporting inferential statistics and a significantly revised table of statistical associations” (p. 5). More specifically, as was the case for the fifth edition, multiple descriptors exist that pertain to the reporting of *quantitative* data (e.g., statistical and mathematical copy; statistical functions; statistical methods; statistical power; statistical symbols; statistical values; statistics; p. 270)—as should be the case. However, few descriptors exist that pertain to the reporting of *qualitative* data. Moreover, and even more disturbingly, the *Publication Manual* does not include descriptors for reporting qualitative methods, data, data analysis, and inferences. For example, on pages 36-37, a whole section is devoted to *meta-analyses*. Yet, no mention is made of the qualitative counterparts of meta-analyses, which include meta-syntheses (e.g., meta-ethnography; Noblit & Hare, 1988) and meta-summaries (Sandelowski & Barroso, 2003). Thus, disturbingly, as noted in Zeller and Farmer (1999), who critiqued the fourth edition of the *Publication Manual*—and which still appears to be accurate for the sixth edition of the *Publication Manual* more than 10 years later—“Judging from its structure and content, it would seem that, at best, the *Manual* is indifferent to qualitative research or, at worst, inhospitable to qualitative research's assumptions about knowledge and language” (p. 10). Nor are there any descriptors pertaining to mixed research. For instance, none of the 16 model tables

or 12 model figures represent displays that contain a combination of quantitative and qualitative tables—what Onwuegbuzie and Dickinson (2008) refer to as *crossover displays*. Thus, as noted by Daniel and Onwuegbuzie (2007), qualitative researchers and mixed methods researchers have minimal explicit guidance for writing reports that are consistent with APA style.

This lack of attention to qualitative research and mixed research in the sixth edition of the *Publication Manual* prevails despite the fact that standards have been published for both approaches (AERA, 2006; Choudhuri, Glauser, & Perego, 2004; Elmore, Camilli, Onwuegbuzie, & Mallette, 2007; Leech & Onwuegbuzie, 2010a, 2010b). However, perhaps this serious omission can be predicted when one examines the names of the seven *Publication Manual* Revision Working Groups. One of these groups is called “Statistics,” which comprised the following nationally renowned statisticians/quantitative researchers: Mark Applebaum (Co-Chair), Harris Cooper (Co-Chair), Geoff Cumming, Michael Edwards, Joel Levin, and Abigail Panter. Yet, there were no *Qualitative Research* and *Mixed Methods Research* *Publication Manual* Revision Working Groups. We recommend that such Revision Working Groups are established for the seventh edition of the *Publication Manual*.

New concerns. We welcome the requirement of reporting DOIs to assure accuracy in tracking electronic documents. However, we are concerned about how many authors will strictly follow this stipulation. And because a substantial proportion of journals articles do not (as yet) have DOI numbers, it would be extremely time-consuming for reviewers, editors, proof-readers, and copyeditors to check that every available DOI has been presented in every reference list. As such, presently, and for the foreseeable future, it is extremely challenging for editors to enforce this APA rule. In turn, it is possible for authors not to be held accountable for providing DOI numbers in a non-rigorous manner. And yet, with the aid of CrossRef’s website, we have determined that it takes less than 30 minutes to provide a DOI numbers for anything other than the longest reference lists. As such, it is imperative that instructors of college students, advisors/supervisors, thesis/dissertation committee members, mentors, co-authors, and editors strive to establish a *culture of DOI documentation*.

An additional concern relates to levels of heading. As per the fifth edition, the sixth edition has five levels of heading (section 3.03, pp. 62-63). However, unlike the fifth edition, the sixth addition requires that bold text be used for four of these five headings (Levels 1-4). We like the fact that the levels of heading in the current *Publication Manual*

are more hierarchical (i.e., “top-down progression” [p. 62])—which was not the case in the previous edition, with the order being Level 5, Level 1, Level 2, Level 3, and Level 4. However, we find it potentially problematic that one of the headings in the sixth edition (i.e., Level 5) is not consistent with the other headings with respect to use of boldface text. We would have preferred if all headings had been bolded. Further, we would have preferred if more than five levels of headings had been accommodated because, on occasions, some of us—as well as other authors we have known—have had a need for six or more levels of heading within a manuscript. For example, Level 1 could have been as follows: **CENTERED, BOLDFACE, UPPERCASE HEADING**. This use of all uppercase text would have yielded six levels of heading. In fact, we would have preferred if the stipulation in the *Publication Manual* regarding levels of heading had not restricted authors only to five levels of heading. Rather, the combination of location (i.e., centered vs. flush left vs. indented), capitalization (lowercase vs. uppercase), and font (italicized vs. non italicized) could have been used to create a rule (e.g., holding other components constant: uppercase headings are higher in level than are lowercase headings; centered headings are higher in level than are flush left which are higher in level than are indented headings; non italicized are higher in level than are italicized headings) that allows more than five levels of headings when they are needed. Of course, authors could be cautioned to use these headings sparingly, but providing more flexibility in the number of headings allowed would make the *Publication Manual* even more writer-friendly.

An additional concern associated with the levels of headings is that whereas with the fifth edition of the *Publication Manual*, the title of manuscripts that appears on page 3 and the table titles represented one of the five levels of headings (Level 1 and Level 3, respectively), these titles are not consistent with any of the five levels of headings in the sixth edition of the *Publication Manual*. This is also the case for the “Abstract,” “References,” and “Footnotes” headings. Nor do the authors of the sixth edition provide any rationale as to why these headings do not fall under any of the five levels of headings. Thus, as editors of journals, we are not surprised to observe that some authors are inappropriately bolding some of these headings.

Another concern pertains to the number of spaces that follow end-of-sentence periods. As noted previously, the authors of the fifth edition stipulated that one space should follow end-of-sentence periods. However, the authors of the sixth edition do not make it clear how many spaces should follow the period that appears at the end of a sentence. On pages 87-88

(section 4.01), the writers of the *Publication Manual* state that authors should “Insert one space after: commas, colons, and semi-colons; periods that separate parts of a reference citation; and periods of the initials in personal names (e.g., J. R. Zhang).” However, omission of the word *periods* from this stipulation would seem to suggest that more than one space should be inserted after periods—presumably two spaces. Unfortunately, the authors of the *Publication Manual* do not make this clear. On page 88, they do suggest that “Spacing *twice* after punctuation marks at the end of a sentence aids readers of draft manuscripts” [emphasis added]. However, this sentence is problematic for two reasons. First, the phrase “aids readers” suggests that the authors of the *Publication Manual* are providing a recommendation or guideline here rather than a stipulation. And, recommendations typically are difficult to enforce. Second, and even more importantly, the authors of the *Publication Manual* do not make it clear what they mean by “draft manuscripts.” In particular, does a “draft manuscript” represent an earlier version of a manuscript before the *final* manuscript is submitted to a journal editor(s) for review for possible publication? Does a “draft manuscript” represent the *final* manuscript that is submitted to a journal editor(s) for review for possible publication? Does a “draft manuscript” represent the *final* version of a manuscript that has been accepted for publication by a journal editor and revised and resubmitted to the journal editor for a final time? Does a “draft manuscript” represent the *final* version of a manuscript that is sent to the copyeditor for typesetting?

Interestingly, when one of our doctoral students posed the question via the APA website of how many spaces should follow end-of-sentence periods, she received the following response from an APA representative:

Thank you for your interest in APA Style. I understand your confusion, and this guideline has generated quite a response from many of our readers. Although spacing twice after end punctuation is regarded as “correct” by some, it is also regarded as “incorrect” by others, and both camps (although, admittedly, mostly the latter) have taken the time to weigh in on this style change. Two spaces at the end of a sentence is merely recommended, and only in draft manuscripts. It is not a requirement, and writers should use the spacing convention that makes the most sense to them. So there’s a little more flexibility here than some of the more proscriptive practices and we can all be right. Thanks again to everyone for weighing in on this topic!”

As can be seen, this response is not definitive, which is problematic.

Another concern relates to the use of numbers expressed in numerals versus numbers expressed in words. According to the authors of the fifth edition, figures should be used instead of words when a number less than 10 is “grouped for comparison with numbers 10 and above (and that appear in the same paragraph)” (APA, 2001, p. 123). However, as noted previously, this stipulation does not appear in the sixth edition. Because the stipulation remains for authors to “use numerals to express numbers 10 and above” (APA, 2010, p.111), our assumption is that authors should use words for a number less than 10 even it is grouped for comparison with numbers 10 and above. Thus, the examples of “3 of 21 analyses,” “of 10 conditions... the 5th condition,” and “5 and 13 lines” that appear in the fifth edition (p. 123) now become “three of 21 analyses,” “of 10 conditions... the fifth condition,” and “five and 13 lines” under the sixth edition—which we believe affect readability—as do phrases such as “first-, third-, and 10th-grade students” and “eight, 12, and 102 occasions.” Because the authors of the sixth edition did not specify that *words* should be used (instead of figures) when a number less than 10 is paired with one or more numbers that are greater than or equal to 10, it is not clear whether this omission is inadvertent or deliberate. Thus, we suspect that the grouping of numbers will cause confusion for authors.

A final concern relates to the two sample papers on pages 41-59. Although we welcome the inclusion of sample papers, it should be noted that they contain several violations to the sixth edition of the *Publication Manual*. First, some of the sentences represent anthropomorphisms (cf. APA, 2010, p. 69), such as the following: “This experiment considers the case...” (p. 55). Second, the papers contain some colloquial language (cf. APA, 2010, p. 68), such as the following: “Indeed, a couple of prior studies have provided evidence...” (p. 43). Third, several instances exist wherein the passive voice is used (cf. APA, 2010, pp. 73, 77, 81), such as in the Participants section on page 44 (e.g., “Younger adults...were recruited...”; “There were 30 additional participants...”). Further, the abstract on page 41 did not contain all the elements as prescribed in the sixth edition of the *Publication Manual*. For example, the abstract did not include all the “specifying pertinent characteristics” of the participants (APA, 2010, p. 26). Readers are informed only that the participants were “Young and older adults” (p. 41)—without the age ranges being specified. Interestingly, the abstracts contained only 82 words, which is considerably fewer words than the required/suggested maximum for both the fifth edition and sixth edition of the *Publication Manual*. Thus, we believe that

further editing of the two sample papers is needed. Alternatively, the authors of the sixth edition of the *Publication Manual* could have created sample papers specifically for sixth edition of the *Publication Manual* that did not contain such APA errors.

Conclusion

In the present editorial, we have highlighted both the major changes—that represent strengths—in the sixth edition of the APA *Publication Manual* and the major limitations. The fifth edition of the *Publication Manual* was published during the *Web 1.0* era, which represented a predominantly *read-only* technological environment (Greenhow et al., 2009). In contrast, the sixth edition has been published during the *Web 2.0* era, a term coined in 2004, which marks the transition of the Web 1.0 into a “read-and-write” environment (McManus, 2005, para. 1). Thus, it is encouraging that the sixth edition reflects the Web 2.0 technological advances in ways that the fifth edition could not accomplish. The new ethics sections are also noteworthy because they provide key information from which both beginning and experienced researchers can benefit.

It is also encouraging to see that APA is paying attention to the larger discussion in the field regarding quantitative-based methodological reporting issues. Unfortunately, as lamented by Daniel and Onwuegbuzie (2007), qualitative-based and mixed methods-based methodological reporting issues are ignored. Thus, as recommended earlier, we urge members of the APA Publications and Communications Board to appoint a Qualitative Research Revision Working Group and a Mixed Methods Research Revision Working Group and to make sure that some of the other Revision Working Groups have representatives who consider themselves qualitative researchers and mixed methods researchers. It is only by establishing APA task forces, councils, working groups, boards, and committees which are as methodologically diverse as possible that the *Publication Manual* can be maximally inclusive. Nevertheless, we conclude that the sixth edition of the *Publication Manual* represents a substantial improvement over its predecessor.

The sixth edition of the APA *Publication Manual* will have an impact on the scholarship of the social sciences for the next several years. Thus, it is important that those individuals who use the manual become as familiar with it as possible and strive to write with discipline (Onwuegbuzie & Combs, 2009). To this end, we hope that our article will be beneficial to authors and editors. For authors and editors who are familiar with the fifth edition of the *Publication Manual*, we hope that our article will help them to identify the major changes that have

been implemented in the sixth edition, thereby preventing them from having to wade through the *Publication Manual* to identify the changes. For authors (e.g., students, beginning authors) and editors who are not familiar with the fifth edition, we hope that our article will provide a useful overview of the sixth edition. Finally, by outlining some of the major limitations of the sixth edition, we hope that our article will be useful to those persons who will be responsible for future editions.

References

- American Educational Research Association. (2006). Standards for reporting on empirical social science research in AERA publications. *Educational Researcher*, 35(6), 33-40.
- American Psychological Association. (2001). *Publication manual of the American Psychological Association* (5th ed.). Washington, DC: Author.
- American Psychological Association. (2009a). *Concise rules of APA Style: Instructor's resource guide, sixth edition*. Washington, DC: Author.
- American Psychological Association. (2009b). *Mastering APA Style: Instructor's resource guide, sixth edition*. Washington, DC: Author.
- American Psychological Association. (2009c). *Mastering APA Style: Student's workbook and training guide, sixth edition*. Washington, DC: Author.
- American Psychological Association. (2010). *Publication manual of the American Psychological Association* (6th ed.). Washington, DC: Author.
- American Psychological Association, Council of Editors. (1952). Publication manual of the American Psychological Association. *Psychological Bulletin*, 49(Suppl., Pt 2).
- Anderson, J. E., & Valentine, W. L. (1944). The preparation of articles for publication in the journals of the American Psychological Association. *Psychological Bulletin*, 41, 345-376.
- APA Publications and Communications Board Working Group on Journal Article Reporting Standards. (2008). Reporting standards for research in psychology: Why do we need them? What might they be? *American Psychologist*, 63, 839-851. doi:10.1037/0003-066X.63.9.839

- Calabrese, R. L. (2006). *The elements of an effective dissertation and thesis: A step-by-step guide to getting it right the first time*. Lanham, MD: Rowman & Littlefield Education.
- Chandler, C. R. (1995). Practical considerations in the use of simultaneous inference for multiple tests. *Animal Behaviour*, *49*, 524-527. doi:10.1006/anbe.1995.0069
- Choudhuri, D., Glauser, A., & Peregoy, J. (2004). Guidelines for writing a qualitative manuscript for the *Journal of Counseling & Development*. *Journal of Counseling & Development*, *82*, 443-446.
- Courville, T., & Thompson, B. (2001). Use of structure coefficients in published multiple regression articles: β is not enough. *Educational and Psychological Measurement*, *61*, 229-248. doi:10.1177/0013164401612006
- Daniel, L. G. (2001, November). *Changes in the APA Publication Manual: How the fifth edition will affect research reporting in the social sciences*. Paper presented at the meeting of the Mid-South Educational Research Association, Little Rock, AR.
- Daniel, L. G., & Onwuegbuzie, A. J. (2007). Editorial: Effective use of APA in style manuscript preparation. *Research in the Schools*, *14*(1), i-x.
- Elmore, P. B., Camilli, G., Onwuegbuzie, A. J., & Mallette, M. H. (2007). Editors' notes. *Educational Researcher*, *36*, 185-186. doi:10.3102/0013189X07304053
- Greenhow, C. M., Robelia, E., & Hughes, J. (2009). Web 2.0 and classroom research: What path should we take now? *Educational Researcher*, *38*, 246-259. doi:10.3102/0013189X09336671
- Hahs-Vaughn, D. L., & Onwuegbuzie, A. J. (2010). Quality of abstracts in articles submitted to a scholarly journal: A mixed methods case study of the journal *Research in the Schools*. *Library and Information Science Research*, *32*, 53-61. doi:10.1016/j.lisr.2009.08.004
- Hahs-Vaughn, D. L., Onwuegbuzie, A. J., Slate, J. R., & Frels, R. K. (2009). Editorial: Bridging research-to-practice: Enhancing knowledge through abstracts. *Research in the Schools*, *16*(2), xxxvii-xlv.
- Henson, R. K. (2002, April). *The logic and interpretation of structure coefficients in multivariate general linear model analyses*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
- Henson, R. K., Capraro, R. M., & Capraro, M. M. (2004). Reporting practice and use of exploratory factor analyses in educational research journals: Errors and explanation. *Research in the Schools*, *11*(2), 61-72.
- Henson, R. K., & Roberts, J. K. (2006). Use of exploratory factor analysis in published research. *Educational and Psychological Measurement*, *66*, 393-416. doi:10.1177/0013164405282485
- Hetzl, R. D. (1996). A primer on factor analysis with comments on patterns of practice and reporting. In B. Thompson (Ed.), *Advances in social science methodology* (Vol. 4, pp. 175-206). Greenwich, CT: JAI Press.
- Ho, R. (2006). *Handbook of univariate and multivariate data analysis and interpretation with SPSS*. London, England: Chapman & Hall.
- Instructions in regard to preparation of manuscript. (1929). *Psychological Bulletin*, *26*, 57-63.
- Kieffer, K. M. (1999). An introductory primer on the appropriate use of exploratory and confirmatory factor analysis. *Research in the Schools*, *6*(2), 75-92.
- Leech, N. L., & Onwuegbuzie, A. J. (2010a). Guidelines for conducting and reporting mixed research in the field of counseling and beyond. *Journal of Counseling and Development*, *88*, 61-69.
- Leech, N. L., & Onwuegbuzie, A. J. (2010b). Guidelines for conducting and reporting mixed research in the field of stress and coping and beyond. In G. S. Gates, W. H. Gmelch, & M. Wolverton (Series Eds.) & K. M. T. Collins, A. J. Onwuegbuzie, & Q. G. Jiao (Vol. Eds.), *Toward a broader understanding of stress and coping: Mixed methods approaches* (pp. 77-104). The Research on Stress and Coping in Education Series (Vol. 5). Charlotte, NC: Information Age Publishing.
- Manly, B. F. J. (2004). *Multivariate statistical methods: A primer* (3rd ed.). London, England: Chapman & Hall.
- McManus, R. (2005, August 6). Web 2.0 is not about version numbers or betas. *Read/WriteWeb*. Retrieved from http://www.readwriteweb.com/archives/web_20_is_not_a.php
- Miller, A. B. (2009). *Finish your dissertation once and for all! How to overcome psychological barriers, get results, and move on with your life*. Washington, DC: American Psychological Association.

- Nicol, A. A. M., & Pexman, P. M. (2010). *Presenting your findings: A practical guide for creating tables, sixth edition*. Washington, DC: American Psychological Association.
- Noblit, G., & Hare, R. (1988). *Meta-ethnography: Synthesizing qualitative studies*. Newbury Park, CA: Sage.
- Onwuegbuzie, A. J., & Combs, J. P. (2009). Writing with discipline: A call for avoiding APA style guide errors in manuscript preparation. *School Leadership Review, 4*, 116-149.
- Onwuegbuzie, A. J., Combs, J. P., & Frels, R. K. (2010a). *Prevalence and characteristics of APA style guide errors in manuscripts submitted to Educational Researcher*. Manuscript submitted for publication.
- Onwuegbuzie, A. J., Combs, J. P., & Frels, R. K. (2010b). *Prevalence and characteristics of APA style guide errors in manuscripts submitted to Research in the Schools*. Manuscript submitted for publication.
- Onwuegbuzie, A. J., Combs, J. P., Slate, J. R., & Frels, R. K. (2009). Editorial: Evidence-based guidelines for avoiding the most common APA mistakes in journal article submissions. *Research in the Schools, 16*(2), ix-xxxvi.
- Onwuegbuzie, A. J., & Daniel, L. G. (2002). A framework for reporting and interpreting internal consistency reliability estimates. *Measurement and Evaluation in Counseling and Development, 35*, 89-103.
- Onwuegbuzie, A. J., & Daniel, L. G. (2003, February 12). Typology of analytical and interpretational errors in quantitative and qualitative educational research. *Current Issues in Education [On-line], 6*(2). Retrieved from <http://cie.ed.asu.edu/volume6/number2/>
- Onwuegbuzie, A. J., & Daniel, L. G. (2004). Reliability generalization: The importance of considering sample specificity, confidence intervals, and subgroup differences. *Research in the Schools, 11*(1), 61-72.
- Onwuegbuzie, A. J., & Daniel, L. G. (2005). Editorial: Evidence-based guidelines for publishing articles in *Research in the Schools* and beyond. *Research in the Schools, 12*(2), 1-11.
- Onwuegbuzie, A. J., & Dickinson, W. B. (2008). Mixed methods analysis and information visualization: Graphical display for effective communication of research results. *The Qualitative Report, 13*, 204-225. Retrieved from <http://www.nova.edu/ssss/QR/QR13-2/onwuegbuzie.pdf>
- Onwuegbuzie, A. J., Waytowich, V. L., & Jiao, Q. G. (2006, December). Bibliographic errors in articles submitted to scholarly journals: The case for *Research in the Schools*. *Academic Exchange Extra*. Retrieved from <http://asstudents.unco.edu/students/AE-Extra/2006/12/index.html>
- Sandelowski, M., & Barroso, J. (2003). Creating metasummaries of qualitative findings. *Nursing Research, 52*, 226-233. doi:10.1097/00006199-200307000-00004
- Thompson, B. (2004). *Exploratory and confirmatory factor analysis: Understanding concepts and applications*. Washington, DC: American Psychological Association.
- Thompson, B., & Borrello, G. (1985). The importance of structure coefficients in regression research. *Educational and Psychological Measurement, 45*, 203-209.
- Thompson, B., & Vacha-Haase, T. (2000). Psychometrics is datametrics: The test is not reliable. *Educational and Psychological Measurement, 60*, 174-195. doi:10.1177/0013164400602002
- Tinsley, H. E. A., & Tinsley, D. J. (1987). Uses of factor analysis in counseling psychology research. *Journal of Counseling Psychology, 34*, 414-424. doi:10.1037/0022-0167.34.4.414
- Vacha-Haase, T., Kogan, L. R., & Thompson, B. (2000). Sample compositions and variabilities in published studies versus those in test manuals: Validity of score reliability inductions. *Educational and Psychological Measurement, 60*, 509-522. doi:10.1177/00131640021970682
- Vogt, W. P. (2005). *Dictionary of statistics and methodology: A nontechnical guide for the social sciences* (3rd ed.). Thousand Oaks, CA: Sage.
- Waytowich, V. L., Onwuegbuzie, A. J., & Jiao, Q. G. (2006). Characteristics of doctoral students who commit citation errors. *Library Review, 55*, 195-208. doi:10.1108/00242530610655993
- Witta, E. L., & Daniel, L. G. (1998, April). *The reliability and validity of test scores: Are editorial policy changes reflected in journal articles?* Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.
- Zeller, N., & Farmer, F. M. (1999). "Catchy, clever titles are not acceptable": Style, APA, and qualitative reporting. *International Journal of Qualitative Studies in Education, 12*(1), 3-19. doi:10.1080/095183999236303