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Editorial: Evidence-Based Guidelines for Publishing Articles in *Research in the Schools* and Beyond

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Total Quality Management

As Co-Editors of *Research in the Schools*, we are committed to publishing articles of the highest quality. In an effort to assure Total Quality Management (cf. Walton, 1986), we continually monitor articles submitted to *Research in the Schools*. Since assuming our duties as Co-Editors, we have noticed that many authors commit flaws—namely, errors of commission and omission--that play an important role in the demise of the manuscript, subsequently contributing to its rejection. Elsewhere, we have tried to explain why these flaws occur:

> Some of these flaws have arisen from graduate-level instruction in which research methodology and statistics are taught as a series of routine steps, rather than as a holistic, reflective, integrative process (Kerlinger, 1960; Newman & Benz, 1998); from graduate-level curricula that minimize students' exposure to quantitative and qualitative content (Aiken et al., 1990; Thompson, 1998a); from proliferations of various erroneous "mythologies" about the nature of research (Daniel, 1997; Kerlinger, 1960); from increasing numbers of research methodology instructors teaching out of their specialty areas; and from a failure, unwillingness, or even refusal to recognize that analytical and interpretational techniques that were popular in previous decades no longer reflect best practices and, moreover, may now be deemed inappropriate, invalid, or obsolete (Schmidt & Hunter, 1997). (Onwuegbuzie & Daniel, 2003, ¶ 2)

While we are not in a position to address many of these barriers to writing articles that reflect the best practices, we are in a position at least to provide evidence-based guidelines for conducting research and writing research articles that have increased chances of getting published in reputable journals in general and *Research in the Schools* in particular.

Sources of Evidence

We base our guidelines on the studies conducted by Onwuegbuzie, Waytowich, and Jiao (2005a) and Onwuegbuzie, Jiao, Waytowich, and Collins (2005). These researchers examined 52 manuscripts submitted to *Research in the Schools* over a two-year period. This number of manuscripts represented more than 50% of all manuscripts submitted to this journal over this period, thereby justifying generalizations being made to the population of manuscripts submitted to *Research in the Schools*—at least over this time period. Onwuegbuzie et al. (2005a) investigated bibliographic errors (also known as citation errors) in manuscripts submitted to *Research in the Schools*. They defined a bibliographic error as a reference cited in the body of the manuscripts that is missing from, or inconsistent with, the reference list. According to these authors, the mean number of bibliographic errors among manuscripts submitted to *Research in the Schools* was 5.87. Moreover, the mean bibliographic error rate was 28.6%, indicating that for approximately every three to four bibliographic citations made (i.e., 100/28.6 = 3.49) in manuscripts submitted to *Research in the Schools*, one of them represents some type of citation error. Interestingly, a statistically significant moderate relationship exists between the number of bibliographic errors and the decision made by the co-editors, with authors who make more than three

citation errors being four times more likely to have their manuscripts rejected than their counterparts.[1]

In a follow-up investigation, Onwuegbuzie et al. (2005) examined other errors of commission or omission made by authors who submitted manuscripts to *Research in the Schools* over a two-year period. They documented an array of conceptual, methodological, analytical, grammatical, and/or stylistic errors that are committed frequently by these authors. In addition, these researchers identified the following six errors whose presence or absence statistically significantly predicts whether or not a manuscript is rejected: (a) poorly written manuscript overall (odds ratio = 11.77); (b) confusing statistical significance with practical significance (odds ratio = 8.14); (c) inadequate literature review (odds ratio = 6.18); (d) lack of appropriate structure (odds ratio = 5.31); (e) analytical error that affects validity of findings (odds ratio = 5.31); and (f) manuscript underdeveloped (odds ratio = 1.42).

Guidelines for Authors

Based on the findings of Onwuegbuzie et al. (2005a) and Onwuegbuzie et al. (2005), in Table 1, we have presented the 35 most common errors of omission or commission made by authors who submit manuscripts to *Research in the Schools*. Using Onwuegbuzie et al.'s (2005) content-analytic framework, these 35 errors can be sub-divided into the following seven classes of errors: (a) introductory errors, (b) literature review errors, (c) procedure errors, (d) pre-analysis errors, (e) analysis errors, (f) inferential-based errors, and (g) overall writing errors. Based on this typology of errors, in what follows, we briefly present seven categories of guidelines.

Introductory Errors

These errors primarily include poorly written title, poorly written abstract, no clear rationale for the study, poorly written or no clear purpose statement, poorly written or no research question when one is needed, and the significance of the study not being made clear. Nearly two-thirds of authors (i.e., 60.4%) display errors of commission or omission that belong to this category. Common problems with titles include inconsistency between the title and purpose/research questions and/or design/procedures. Thus, it is important that authors strive for as much consistency as possible between the title and elements in their manuscripts, and be prepared to revise their titles in line with any changes that occur in the research. Titles should not promise what they do not deliver because this would falsely raise the hopes of reviewers, and leave the author subject to extreme criticism. Nor should titles be written in such a way as to suggest undue researcher bias. According to the *Publication Manual of the American Psychological Association* (APA, 2001, p. 11), the recommended length of the title is 10 to 12 words. However, it should be noted that this is a recommendation, not a stipulation. Thus, authors should write titles that are not too short that they are not representative of the articles and that are not too long that they contain unnecessary words.

Similarly, abstracts should be both informative and representative of the article. Many authors leave out important information from the abstract such as the sample size, sample characteristics, or major finding(s). APA (2001, pp. 13-14) provides a concise checklist of elements that should be included in empirical studies, reviews/theoretical articles, methodological articles, and case studies. We suggest that authors who find writing abstract difficult consult these checklists. Abstracts generally should not exceed 120 words (APA, 2001, p. 15).

Disturbingly, a high proportion of authors (40%) do not make clear the rationale of their study (Onwuegbuzie et al., 2005). That is, many authors do not delineate adequately why their study is needed. The rationale is the most important aspect of a study because it identifies the gap in the literature. The most common rationale is that few or no researchers have undertaken the study (with a citation if possible). The second most common rationale is that although several/many researchers have conducted the study, few or no researchers have studied the topic using the proposed population/instrument/setting/site/etc. The third most common rationale is that although several/many researchers have undertaken the study, the findings have been mixed. Whatever the rationale of the study, it needs to be presented clearly.

Every article should have some type of purpose statement, regardless of whether it is empirical, theoretical, methodological, or conceptual in nature. This statement should serve as a signpost for the reader, foreshadowing the scope of the article. In empirical reports (i.e., quantitative, qualitative, or mixed methods), the purpose statement should reflect the problem that the researcher wants to investigate. For other types of articles (e.g., theoretical, methodological, conceptual), the purpose statement should serve as an advanced organizer for the sections that follow. Further, towards the end of the introduction/literature review section, authors should make clear the educational significance of their study.

Table 1
Most Common Problems Identified by Reviewers of Articles Submitted to Research in the Schools over a Two-Year Period[a, b]

Problems Identified by Reviewers	Frequency (%)
No discussion of model assumptions (e.g., normality)	91.0
Citation error	86.5
Not discussing any a priori or post-hoc statistical power considerations	86.4
Analytical error (e.g., stepwise regression) that affects validity of findings	77.0
Significant number of grammatical/spelling errors	77.0
No discussion of limitations (e.g., internal validity, legitimation) of findings	65.0
Non reporting of effect sizes	64.0
Not every statement of fact/findings supported by one or more citations	48.8
Important procedural information omitted	47.0
Lack of appropriate structure (i.e., element(s) presented out of sequence)	40.0
Inadequate literature review	40.0
Rationale of study unclear	40.0
One or more contradictory statements	40.0
Incorrectly states that tests are reliable/valid instead of scores	38.0
Score reliability not reported	38.0
Lack of adjustment for Type I error (e.g., Bonferroni)	36.0
Poorly written research questions or no research question when needed	35.0
Omitted one or more important statistic (e.g., degrees of freedom, *p*-value)	33.0
Confused statistical significance with practical significance	33.0
Statements made in discussion section that represent over-generalization	30.0
Poorly written purpose statement or no purpose statement when needed	28.0
Poorly written title	23.0
Poorly written abstract	23.0
Poorly written manuscript overall	23.0
Inadequate information about instrument(s) (e.g., number of items unknown)	19.0
Repetitious information provided	19.0
Manuscript underdeveloped	16.0
Lack of or poorly written theoretical/conceptual framework	16.0
Clearly insufficient statistical power	14.0
Discussion of findings too brief	14.0
Vague or inconsistent figures or tables	9.5
Piecemeal publishing indicated	7.0
Sample size unclear or contradictory	7.0
Significance of study unclear	4.7
Characteristics of participants not presented adequately	4.7

[a] For problems associated with only quantitative research (e.g., non-reporting of score reliability), percentages are a function of only the quantitative and mixed methods studies.
[b] This Table is adapted from Onwuegbuzie et al. (2005) and Onwuegbuzie et al. (2005a).

Research questions are interrogative statements that represent "an extension of the statement of the purpose of the study in that it specifies exactly the question that the researcher will attempt to answer" (Johnson & Christensen, 2004, p. 77). While research questions do not always need to be specified, it should be noted that all empirical studies have at their core at least one research question, whether or not it is specified. Unfortunately, some authors do not realize that research questions can provide more clarity to the purpose statement by illuminating the specific details of the study. When research questions are included, they are often poorly written. In quantitative research, researchers should avoid starting a research question

with the word "Do" or "Is" because these questions prompt "yes/no" responses, which, in turn, place undue emphasis on null hypothesis significance tests (NHSTs), possibly to the exclusion of indices of practical significance (Onwuegbuzie & Leech, 2005a). Good quantitative questions should identify the population and dependent variable(s), whether they represent descriptive, comparative, or relationship research questions. Qualitative research questions are "open-ended, evolving, and non-directional" (Creswell, 1998, p. 99) and typically attempt to obtain insights into particular educational, familial, and social, processes and experiences that exist within a specific location and context.

Literature Review Errors

Errors associated with reviews of the literature include reviews that are underdeveloped, contain a disproportionate amount of dated citations, do not include the most classic or influential citations, contain statements which represent findings that are not supported by citations, and do not include a clear theoretical/conceptual framework. Literature reviews should be comprehensive, current, and contain primary sources that are relevant to the problem under investigation, with clear connections being made between the present study and the previous research. Further, the review should relate previous studies to the problem explicitly, should contain references that have been compared and contrasted adequately, and should logically flow in such a way that the references least related to the problem are discussed first and the most related references are discussed last. Also, the theoretical/conceptual framework should be delineated clearly (cf. Wilson & Onwuegbuzie, 1999). For an in-depth discussion of writing literature reviews, we refer readers to the excellent articles by Dellinger (2005) and Boote and Beile (2005).

Procedure Errors

More than one-half of authors (i.e., 58.3%) display errors of omission that belong to this category. These errors, which are as common in both quantitative (57.5.0%) and qualitative (60.0%) studies, include not (adequately) providing information about the sampling design (i.e., sample size, sampling scheme, sample characteristics), data collection strategies (e.g., instrument(s)), and research design. With respect to the sampling design, both quantitative and qualitative researchers not only should identify the initial sample size, but they should also specify the final sample size in light of any attrition. While a few researchers do not specify the sample size, some provide sample sizes in more than one place in the manuscript (e.g., "Abstract" and "Participants" section) that contradict one another. Some quantitative researchers provide sample sizes that are not consistent with the degrees of freedom presented for their inferential tests. For example, when conducting a one-way analysis of variance (ANOVA), the sample size should be equal to the sum of the *F*-test numerator degrees of freedom and the denominator (i.e., error) degrees of freedom plus 1. Unfortunately, this lack of consistency between the sample size and degrees of freedom currently is a problem for 10% of quantitative researchers who submit manuscripts to *Research in the Schools*.

Onwuegbuzie and Leech (in press-a) identified 24 sampling schemes (5 random sampling schemes and 19 purposive sampling schemes) available to quantitative and qualitative researchers; yet, virtually no researcher, whether quantitative or qualitative, specifies the sampling scheme used. Alongside lack of information about the sample size and sample characteristics, not specifying the sampling scheme makes it difficult for other authors to replicate a study. Moreover, lack of information about the sampling design (i.e., sample size and/or sampling scheme) renders it difficult for readers to assess interpretive consistency (i.e., the consistency between the inferences made in studies and the sampling design used; Collins & Onwuegbuzie, 2005). In addition, to delineating the sampling design, researchers should delineate the data collection strategies used. This includes providing complete information about all instruments used, whether quantitative (e.g., rating scale, standardized test) or qualitative (e.g., instrument schedule, observation coding form). The developer of each instrument must be identified (with a citation), as well as information about how each instrument was administered for the study, such as who administered each instrument, when, where, and to whom. It should be made clear whether the instrument is pre-existing or developed specifically for the study, with a rationale provided for selection of the instrument. For quantitative instruments, researchers should specify the number of items contained in each scale/subscale, range of scores, and what high/low scores represent. Also, "cut" scores should be presented where appropriate. In qualitative studies, researchers should make it clear the level of structure (e.g., semi-structure vs. unstructured), length, location, setting, and number of rounds per person of interviews/focus groups/observations.

The research design of the quantitative (i.e., historical, descriptive, correlational, causal-comparative/ quasi-experimental, experimental; cf. Johnson & Christensen, 2004), qualitative (e.g., biography, ethnographic, auto-ethnography, oral history, phenomenological, case study, grounded theory; cf. Creswell, 1998; Denzin & Lincoln, 2005), and mixed methods (e.g., sequential, concurrent; cf. Creswell, Plano Clark, Guttman, & Hanson, 2003;

Leech & Onwuegbuzie, 2005; Tashakkori & Teddlie, 2003) studies should be delineated. For experimental and quasi-experimental research, the exact design (e.g., single subject design, pretest-posttest control group design, nonequivalent control group design) also should be specified. By providing sufficient information about the sampling design, data collection strategies, and research design both researchers and readers will be in a position to assess within-design consistency (i.e., "consistency of the procedures/design of study and from which the inference emerged" Teddlie & Tashakkori, 2003, p. 40).

Pre-analysis Errors

Pre-analysis errors represent errors of commission or omission pertaining to analyses that do not directly answer the research question(s) or hypotheses. Pre-analysis errors are not an issue in qualitative research because of its nonlinear, emergent, and interactive nature. In fact, any pre-analysis undertaken in qualitative research would be considered part of the major analysis. However, the overwhelming majority (i.e., 92.3%) of quantitative manuscripts submitted to *Research in the Schools* contain one or more pre-analysis errors. The most pervasive pre-analysis errors are (a) not discussing the extent to which the assumptions associated with a statistical test hold, (b) not making statistical power considerations, (c) not reporting score reliability, and (d) incorrectly stating that the test is reliable/valid.

As can be seen in Table 1, not discussing assumptions associated with NHSTs was the single most common error committed by authors. This high prevalence rate is consistent with the literature (Keselman et al., 1998; Onwuegbuzie, 2002). Assumptions that typically should be assessed and discussed include those pertaining to linearity, distributional shape (i.e., univariate normality, multivariate normality, outliers), independence, and homogeneity (e.g., homogeneity of variance, homogeneity of regression slopes, sphericity). As we have noted previously,

> Regardless of the inferential statistical technique used, unless assumptions are checked, the extent to which an analytical error prevails is unknown. With knowledge of the extent to which assumptions are violated, researchers are in a position to interpret findings within an appropriate context. However, when it is unknown whether assumptions have been met, data interpretation can be extremely misleading and invalid. (Onwuegbuzie & Daniel, 2003, ¶ 38)

Not making statistical power considerations represents the third most common error committed by authors submitting quantitative research articles to *Research in the Schools*. Again, this high prevalence rate is supported by the extant literature (Keselman et al., 1998; Onwuegbuzie, 2002). Ideally, while designing their studies, researchers should conduct a priori statistical power analyses to put themselves in the position to select a sample size that is large enough to lead to a rejection of the null hypothesis for a given effect size. In addition, researchers should consider conducting post-hoc power analyses, wherein statistically non-significant findings are assessed in light of the sample size by using the observed (true) effect to investigate the performance of a NHST (Onwuegbuzie & Leech, 2004). For a recent, in-depth discussion of power analyses, including how to conduct power analyses by hand, we refer readers to Onwuegbuzie and Leech (2004).

As recommended by the American Psychological Association (APA) Task Force on Statistical Inference, authors always should "provide reliability coefficients of the scores for the data being analyzed even when the focus of their research is not psychometric" (Wilkinson & Task Force on Statistical Inference, 1999, p. 595). Although 38% of authors who submitted manuscripts to *Research in the Schools* failed to provide reliability coefficients for their data, this percentage is much less than that reported in literature, which has been found to range from 64.4% (Vacha-Haase, Ness, Nillsson, & Reetz, 1999) to 86.9% (Vacha-Haase, 1998); nevertheless, this rate of non-reporting of reliability coefficients in *Research in the Schools* still is unacceptable. Further, when interpreting indices of score reliability (e.g., test-retest, coefficient alpha, KR-20) and validity (e.g., criterion-related validity, construct-related validity), authors should never make statements that suggest that reliability and validity are functions of tests, because they are only functions of scores (cf. Onwuegbuzie & Daniel, 2002, 2004; Thompson & Vacha-Haase, 2000; Vacha-Haase, Kogan, & Thompson, 2000; Witta & Daniel, 1998). In addition, quantitative researchers should specify all statistical software used to analyze their data.

Analysis Errors

As found by Onwuegbuzie et al. (2005), more than three-fourths of authors who submitted manuscripts to *Research in the Schools* committed analysis errors of commission or omission. In quantitative research, these errors included inappropriately using stepwise procedures (cf. Thompson, 1995), inappropriately using analysis of covariance in the presence of non-random assignment (cf. Henson, 1998), inappropriate treatment of multivariate data (e.g., multivariate analysis of variance followed by a univariate analyses;

cf. Keselman et al., 1998), not following up (appropriately) statistically significant interactions (e.g., examining whether the interaction is ordinal or disordinal; incorrectly following-up an interaction effect with a simple effects analysis; Daniel & Onwuegbuzie, 2000), using between-subject analyses to analyze within-subject data (cf. Maxwell & Delaney, 2004), utilizing exploratory factor analyses (EFAs) to conduct confirmatory factor analyses (CFAs) and/or not reporting all appropriate statistics for EFAs and CFAs (Daniel, 1989, 1990; Henson, Capraro, & Capraro, 2004; Hetzel, 1996; Kieffer, 1999; Schumacker & Lomax, 1996), using an analysis that is not consistent with the scale of measurement (e.g., using race as a continuous variable), and reporting tables and figures that are vague or inconsistent with the text.

However, the three most common analysis errors committed by quantitative researchers (Onwuegbuzie et al., 2005) were (a) incorrectly reporting or failure to report statistical indices (e.g., degrees of freedom, *p*-values, failure to report the criteria used for determining statistical significance in MANOVA), (b) not controlling for Type I error rate (e.g., Bonferroni adjustment; cf. Maxwell & Delaney, 2004), and (c) failure to report effect sizes. While the first two errors are committed by approximately one-third of authors who submitted quantitative studies to *Research in the Schools*, the third error —not reporting effect sizes, is committed by two-thirds of these authors. Although this rate is similar to that reported in other studies (e.g., Keselman et al., 1998; Onwuegbuzie, 2002), it is unacceptable. Indeed, the editorial policy of *Research in the Schools*, as is the case for at least 22 other journals, is that effect sizes (i.e., variance-accounted for effect sizes or standardized mean differences) be reported and interpreted along with results of all statistical significance tests.

Kirk (1996) has identified 61 different effect-size indices, while Huberty and his colleagues (e.g., Huberty & Lowman, 2000) have developed new indices of effect size that they call Group Overlap indices. Thus, authors have several effect-size indices from which to choose. However, in computing and interpreting effect sizes, researchers should be cognizant of nine major concerns and limitations of effect-size estimation identified by Onwuegbuzie and Levin (2003): (*a*) effect sizes can vary as a function of one's research objective (i.e., theory application or effects application); (*b*) effect sizes can vary as a function of one's research design and experimental conditions; (*c*) researchers can select from a variety of effect-size measures to argue different (possibly self-serving) points; (*d*) guidelines for interpreting effect size magnitudes are inconsistent and generally arbitrary; (*e*) effect sizes can vary as a function of sample size and sample variability; (*f*) effect sizes are sensitive to departures from normality; (*g*) effect sizes can vary as a function of the variability of the outcome measure (both between and within samples); (*h*) effect sizes can vary as a function of the reliability of the outcome measure; and (*i*) effect sizes can vary as a function of the scale of measurement used (i.e., nominal, ordinal, interval, ratio).

With respect to qualitative research, authors should specify what analytical technique was used. Unfortunately, with the exception of Miles and Huberman (1994), virtually all qualitative textbooks pay scant attention to data analysis techniques (e.g., Creswell, 1998), focus only on one data analysis technique (e.g., discourse analysis; Phillips & Jorgensen, 2002), and/or do not provide explicit details as to how to analyze qualitative data (Denzin & Lincoln, 2005). However, Leech and Onwuegbuzie (2005) have identified more than 20 different qualitative data analysis techniques. Also, as conceptualized by Constas (1992), researchers should make clear the following: (a) where the responsibility or authority for the creation of categories resided (i.e., participants, programs, investigative, literature, or interpretive); (b) what the grounds were on which one could justify the existence of a given set of categories (i.e., external, rational, referential, empirical, technical, or participative); (c) what the source was of the name used to identify a given category was identified (i.e., participants, programs, investigative, literature, or interpretive); and (d) at what point during the research process were the categories specified (i.e., *a priori*, *a posteriori*, or iterative). Further, qualitative researchers always should make it clear whether any qualitative software (e.g., N6, NVIVO, Ethnograph, HyperResearch, Atlas-ti) was used to analyze the data.

Further, qualitative researchers should describe in detail any verification procedures used (e.g., prolonged engagement, persistent observation, triangulation, contextualization of observations, method of constant comparison, checking for representativeness of sources of data, checking for researcher effects, weighing the evidence, examining extreme cases, checking for spurious relations, examining rival explanations, looking for negative evidence, obtaining feedback from informants, leaving an audit trail, thick description, assessing structural relationships, use of referential material, theoretical sampling; cf. Maxwell, 1992, 1996; Miles & Huberman, 1994).

Inferential-Based Errors

Inferential-based errors are errors in which the inferences made by the researcher (i.e., interpretations) do not stem from the findings. One of the most common inferential-based errors that is committed by a significant proportion of authors is confusing statistical

significance with practical significance. Authors who commit this error erroneously assume that a small *p*-value (e.g., $p < .01$) indicates a "highly significant finding" instead of merely representing a statistically significant finding. These authors associate a *p*-value as providing information about the importance of a finding. This error typically leads to authors under-interpreting associated *p*-values when sample sizes are small and the corresponding effect sizes are large and to over-interpreting *p*-values when sample sizes are large and effect sizes are small (e.g., Daniel, 1998a, 1998b). On account of this common confusion between significance in the probabilistic sense (i.e., statistical significance) and significance in the practical sense (i.e., effect size), we recommend, as we have elsewhere (e.g., Daniel, 1998a), that authors insert the word "statistically" before the word "significant," when interpreting the findings of a null hypothesis statistical test. In addition, as did many authors who contributed to the second special issue of *Research in the Schools*, we recommend that authors report and interpret confidence intervals (Daniel, 1998a, 1998c; Ernest & McLean, 1998; Levin, 1998; McLean & Ernest, 1998; Nix & Barnette, 1998a, 1998b; Thompson, 1998b).

Another prevalent inferential-based error is making inferences that represent over-generalizations. Such over-generalizations occur when findings are generalized to a population that is not adequately represented by the underlying sample typically due to use of a relatively small sample size and/or lack of random sampling techniques. This is a concern in quantitative (e.g., Johnson & Christensen, 2004), qualitative (Onwuegbuzie & Leech, 2005b), and mixed methods (cf. Collins & Onwuegbuzie, 2005) research.

However, the most common inferential based error was failure to discuss (adequately) the limitations of the findings—committed by two-thirds of authors (Onwuegbuzie et al., 2005). With respect to quantitative research, authors should discuss all pertinent threats to internal and external validity. With regard to qualitative research, authors should discuss threats to verification/trustworthiness/legitimation/ authenticity/credibility/transferability/dependability/co nfirmability of the data (e.g., Creswell, 1998; Guba & Lincoln, 1989; Lather, 1993; Lincoln, 1995; Lincoln & Guba, 1985; Maxwell, 1992, 1996; Miles & Huberman, 1994). Frameworks such as the Quantitative Legitimation Model (Onwuegbuzie, 2003; which contains 50 sources of invalidity for the quantitative research at the data collection, data analysis, and data interpretation stages of the study) and the Qualitative Legitimation Model (Onwuegbuzie & Leech, in press-b; which contains 29 elements of legitimation for the qualitative research at the data collection, data analysis, and data interpretation stages of the study) can be used to assess the legitimacy of the qualitative and quantitative phases of the study, respectively.

Overall Writing Errors

Writing errors characterize most manuscripts submitted to *Research in the Schools*. Indeed, all authors commit errors that fall into this category. These include citation errors (as mentioned previously), as well as a significant number of grammatical (e.g., spelling errors, vague statements, nonsensical statements, contradictory statements), stylistic (e.g., lack of appropriate structure, repetition), and APA errors. Errors that appear in tables and figures include headings that are not representative of the table/figure and non-use of the word processor's automatic table creator to create tables that lead to format and spacing errors.

Authors should take every possible measure to avoid writing errors. In particular, authors should use the spell checking and grammar checking options that are available with most word processing software. When possible, authors should ask their experienced and diligent colleagues to proof-read their manuscripts before they are submitted. If the proof-reader provides extensive feedback, then we suggest that they be included as a co-author (cf. APA, 2001). With respect to avoiding citation errors, authors might consider using bibliographic software (e.g., RefWorks, 2004). In any case, there is no excuse for authors committing citation errors because of the potential consequences that citation errors have for document retrieval, verifying data, social factors, and credibility of the author(s) (Waytowich, Onwuegbuzie, & Jiao, in press).

Summary and Conclusions

The purpose of the present editorial was to provide evidenced-based guidelines for conducting research and writing research articles that have increased chances of getting published in reputable journals in general and *Research in the Schools* in particular. From the studies of Onwuegbuzie et al. (2005a) and Onwuegbuzie et al. (2005), 35 of the most common errors of omission or commission made by authors were presented (Table 1). Nineteen of these errors were committed by one-third of more authors, with seven of these errors made by 64% or more of authors. These 35 errors fall into the following seven classes of errors: (a) introductory errors, (b) literature review errors, (c) procedure errors, (d) pre-analysis errors, (e) analysis errors, (f) inferential-based errors, and (g) overall writing errors.

The present editorial has both highlighted the most frequent errors committed by authors and has provided guidelines for good practice. Authors may wish to

review the table of 35 errors (i.e., Table 1) when preparing their manuscripts in an effort to avoid common shortcomings of manuscripts. Also, authors may wish to use the evidence-based checklist in Appendix A that we have created to serve as a guide before submitting their manuscripts to *Research in the Schools* or to any other journal. Thus, we hope that by reading this editorial, researchers who are interested in submitting manuscripts to *Research in the Schools* and elsewhere will be in a better position to write manuscripts that are publishable. This can only be beneficial for researchers, reviewers, editors, and readers alike.

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Note

[1] These researchers also report high citation error rates for other journals. In particular, Onwuegbuzie, Waytowich, and Jiao (2005b) found that among a sample of manuscripts submitted to *American Educational Research Journal*, a top-tier journal, the mean number of bibliographic errors was 8.00 (*SD* = 7.77), which is even higher than that observed for *Research in the Schools*. For a sample of articles submitted to *Educational and Psychological Measurement*--another top-tier journal--Onwuegbuzie, Waytowich, and Jiao (2005c) documented that the mean number of bibliographic errors was 3.00 (*SD* = 3.92) and that the relationship between the number of citation errors and whether or not a manuscript was rejected was statistically significant and large ($r = .52$, $p < .05$), with manuscripts submitted to *Educational and Psychological Measurement* with three or more citation errors being 12.50 times more likely to be rejected than are manuscripts with two or fewer citation errors.

Appendix A
Evidence-based checklist for manuscript submission

1. Does the manuscript contain any introductory errors (e.g., poorly written title, poorly written abstract, no clear rationale for the study, poorly written or no clear purpose statement, poorly written or no research question when one is needed, significance of the study unclear)?

2. Does the manuscript contain any literature review errors (e.g., reviews that are underdeveloped, contain a disproportionate amount of dated citations, do not include the most classic or influential citations, contain statements which represent findings that are not supported by citations, do not include a clear theoretical/conceptual framework)?

3. Does the manuscript contain any procedure errors (e.g., not (adequately) providing information about the sample size, sampling scheme, sample characteristics, data collection strategies, research design)?

4. Does the manuscript contain any pre-analysis errors (i.e., errors of commission or omission pertaining to analyses that do not directly answer the research question(s) or hypotheses)?

5. Does the manuscript contain any analysis errors (e.g., inappropriate use of stepwise procedures, analysis of covariance, and treatment of multivariate data; not following up (appropriately) statistically significant interactions, using between-subject analyses to analyze within-subject data, utilizing exploratory factor analyses (EFAs) to conduct confirmatory factor analyses (CFAs) and/or not reporting all appropriate statistics for EFAs and CFAs; using an analysis that is not consistent with the scale of measurement, reporting tables and figures that are vague or inconsistent with the text; incorrectly reporting or failure to report statistical indices; not controlling for Type I error rate; failure to report effect sizes)?

6. Does the manuscript contain any inferential-based errors (e.g., confusing statistical significance with practical significance, making inferences that represent over-generalizations, failing to discuss (adequately) the limitations of the findings)?

7. Does the manuscript contain any overall writing errors (e.g., citation errors, grammatical errors, stylistic errors, APA errors, errors that appear in tables and figures)?