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Editorial: Citation Errors Revisited: The Case for *Educational Researcher*

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In a previous editorial, Onwuegbuzie, Frels, and Slate (2010) presented the results of a mixed analysis of 150 manuscripts submitted to Research in the Schools over a 7-year period, which revealed that citation errors were committed by 91.8% of the authors. These authors concluded that citation errors not only represented the most pervasive APA error, but citation errors also predicted whether a manuscript was accepted for publication. However, these authors questioned whether the same citation error rates would be observed among manuscripts submitted to Tier I journals. Consequently, in the present editorial, we replicate and extend their work by using mixed analysis techniques to examine the citation error rate of 88 manuscripts submitted to the highest ranked educational journal, Educational Researcher, over a 3-year period. Disturbingly, 88.6% of the manuscripts contained one or more citation errors. Further, the mean number of citation errors per manuscript was 7.83 (SD = 8.59), with the number of citation errors being as high as 42. Findings also revealed that for every 4 references included, on average, 1of them represented a citation error. A multiple regression analysis revealed that every additional author of a manuscript was associated with an increase of 3.30 citation errors, on average. Further, every additional 9 references tended to be associated with an increase of 1.00 citation error. Consequently, we provide a checklist for reducing citation errors, as well as a practice exercise. We hope that the tools and strategies we provide will help authors to prevent citation errors in the future.

In a previous editorial, Onwuegbuzie, Frels, and Slate (2010) examined the characteristics and prevalence of citation errors, which occurs when authors fail "to make certain that each source referenced appears in both places [text and reference list] and that the text citation and reference list entry are identical in spelling of author names and year" (American Psychological Association [APA], 2010, p. 174). By conducting a mixed analysis (i.e., involving the combining of quantitative analyses and qualitative analyses) of 150 manuscripts submitted to *Research in the Schools* (*RITS*) over a 7-year period, Onwuegbuzie, Frels, et al. (2010) were able to deconstruct the citation error into the following five types: (a) a work that is cited in text but does not appear in the reference list, (b) a work that appears in the text that is not consistent with the corresponding work that is presented in the reference list, (c) a work that is cited in the reference list but that does not appear in the text, (d) a work that appears in the text that is incomplete or inaccurate, and (e) a work that appears in the reference list that is incomplete or inaccurate. More than 90% (i.e., 91.8%) of authors, representing authors from every region of the United States, committed one or more of these five types of citation errors, rendering the citation error as the most prevalent citation error among *RITS* authors—being 1.6 times more prevalent than is the next most common APA error identified by Onwuegbuzie and Combs (2009)—namely, relating to the incorrect use of numbers (57.3%). Further, these *RITS* authors, on average, committed more than six citation errors per manuscript (M = 6.26, SD = 7.09). Even more notably, manuscripts that were accepted for publication (M = 3.62, SD = 3.56) contained statistically significantly and practically significantly (Cohen's [1988] d = 0.45) less citation errors than did manuscripts that were not accepted for publication

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(i.e., revise and resubmit, or reject) (M = 6.78, SD = 7.34).

Based on these and other findings, Onwuegbuzie, Frels, et al. (2010) concluded that citation errors represent a widespread problem that is committed by an unacceptably high proportion of *RITS* authors and that is an important predictor of the quality of a manuscript. As posed by Onwuegbuzie, Frels, et al. (2010), the question to be asked at this stage is: Does the high citation error rate associated with *RITS* authors represent an outlier? That is, is this high citation error rate more reflective of the amount of influence that *RITS* has on the educational community than it is reflective of a rampant problem among authors of empirical articles representing the field of education in general? Interestingly, with an editorial board of national and international scholars, with authors submitting manuscripts to *RITS* who are affiliated with institutions that represent more than one half of the states in the United States (Frels, Onwuegbuzie, & Slate, 2009), and with authors who have published articles in *RITS* being "affiliated with various school districts, the private sector, branches of the U.S. Government, and public and private universities in the United States, France, China, Guam, Israel, and Turkey" (Frels, Onwuegbuzie, & Slate, 2010, p. xiv), it is difficult to argue that *RITS* does not have national visibility. Moreover, the national visibility of *RITS* is increasing at a fast rate. For example, utilizing Harzing's (2009) *Publish or Perish* software and Google Scholar, Frels et al. (2009) reported that *RITS* articles were cited 838 times, yielding 55.87 citations per year. In less than 2 years, the number of times that *RITS* articles have been cited has more than doubled (n = 1,998), yielding 83.25 citations per year. Further, the *h*-index, which provides an index of sustained impact (Hirsch, 2005), in this same short time span, incredibly has increased from 15 to 24.

Table 1 presents impact indices for all journals associated with regional or state associations that are affiliated with the American Educational Research Association (AERA). It can be seen from this table that *RITS* has, by far, better impact indices than do any of the six other journals that are associated with a state or regional educational research association.

Table 1

Impact Indices for All Journals Associated with Regional/State Associations Affiliated with the American Educational Research Association

Educational Association	Name of Journal	Number of Articles Published	Total Number of Citations	Mean Number of Citations per Year	*h*-index
Mid-South Educational Research Association	*Research in the Schools*	219	1,998	83.25	24
Eastern Educational Research Association	*Journal of Research in Education*	208	514	4.67	10
Mid-Western Educational Research Association	*Mid-Western Educational Researcher*	144	245	8.45	8
Northern Rocky Mountain Educational Research Association	*The Researcher*	91	246	2.83	7
Florida Educational Research Association	*Florida Journal of Educational Research*	197	446	9.10	11
Hawaii Educational Research Association	*Pacific Educational Research Journal*	15	59	2.36	4
Louisiana Educational Research Association	*Contemporary Issues in Educational Research*	238	120	40.00	4
American Educational Research Association	*Educational Researcher*	3,670	139,377	2,965.47	177

Despite this evidence of increasing impact, *RITS*, as yet, has not reached the highest echelons of journals. Thus, although some of the authors who publish articles in *RITS* are among the most prolific, it is likely that most of the prolific authors will submit manuscripts to journals with the highest impact factors. And, assuming that prolific authors tend to commit less citation errors, it is reasonable to hypothesize that journals with the highest impact factors would have manuscripts submitted to their journals that have significantly lower citation error rates. To this end, in this editorial, we replicate and extend the work of Onwuegbuzie, Frels, et al. (2010) by examining the citation error rate of manuscripts submitted to a Tier I educational journal.

Sources of Evidence

We conducted a mixed research study in which we examined 88 manuscripts submitted to *Educational Researcher* over a period of 3.5 years. The journal *Educational Researcher* was selected because, with an impact factor of 3.774, it has the highest ranking among 177 journals representing education and education research. The lead two authors of this editorial were part of the editor team (i.e., editor and associate editor) of *Educational Researcher* (2006-2010) that secured this extremely high impact factor. As such, they had access to every manuscript submitted to *Educational Researcher* during this period. The 88 manuscripts selected for study represented those manuscripts that were submitted for the first time to the *Research News and Comment* section of *Educational Researcher*—one of two sections at that time (with the other section being called *Features* that was co-edited by Patricia B. Elmore and Gregory Camilli**).** Further, these 88 manuscripts represented those manuscripts that had not been subjected to a desk reject during the internal review process (i.e., before the manuscript is sent out for external review, the manuscript was deemed inappropriate for *Educational Researcher* because it had a focus or content that was outside the scope of the journal [e.g., the topic did not pertain to an educational issue]; did not follow adequately the stipulated format for manuscripts [e.g., the manuscript resembled more of a traditional empirical report rather than an essay]; or the manuscript was written in a style that was far removed from APA [e.g., the manuscript followed Chicago Manual of style; Chicago Manual, 2003]). That is, each of the 88 manuscripts had met the criteria for being sent out for external review. These 88 manuscripts represented 52.07% of all manuscripts submitted to the *Research News and Comment* section of *Educational Researcher* over this period, which made our findings generalizable to the population of manuscripts submitted to *Educational Researcher*—at least over this period of time.

The two editors of the *Research News and Comment* section of *Educational Researcher* meticulously documented every citation error committed by these 88 sets of authors over the 3.5-year period. Alongside collecting citation error information, theses editors collected an array of information associated with each of these manuscripts, including the following: the length of the manuscript (i.e., number of pages, number of words), the length of the reference list (i.e., total number of references), topic of the manuscript, and the number of authors per manuscript. In addition, the editors documented every APA error that appeared in these 88 manuscripts. Therefore, the data set developed by these editors is as extensive as that developed by Onwuegbuzie, Frels, et al. (2010). Further, as was the case for Onwuegbuzie, Frels, et al.'s (2010) data set, the *Educational Researcher* data set is unique because only journal editors have the opportunity to collect these data.

Methodology

Using the philosophical lens of *dialectic pluralism* (i.e., representing a belief in combining multiple epistemological perspectives within the same study; Johnson, 2011), we utilized mixed analysis techniques—specifically, a sequential mixed analysis (Onwuegbuzie & Combs, 2010)—to investigate the characteristics and prevalence of citation errors in the 88 manuscripts submitted to *Educational Researcher***.** Specifically, we used a four-stage sequential mixed analysis procedure. Each of these stages is described below.

Stage 1 Analysis

The first stage involved a classical content analysis (Berelson, 1952; see also Leech & Onwuegbuzie, 2007, 2008, 2011) of the 88 manuscripts to determine the frequency of each of the five citation error themes (i.e., Not in Reference List, Not Consistent with Reference List, Not in Text, Incomplete or Incorrect Citation, and Incomplete or Incorrect Reference) identified by Onwuegbuzie, Frels, et al. (2010), which led to an a priori analysis (Constas, 1992). From this analysis, the total number of citation errors also was computed. In addition, a citation error rate was computed for each manuscript by dividing the number of citation errors by the corresponding number of references appearing in the reference list.

Stage 2 Analysis

The second stage involved creating an "inter-respondent matrix" (Onwuegbuzie, 2003, p. 396) of the five citation error themes that were extracted in the first stage such that, for each manuscript, a "1" was assigned for an error theme if the manuscript contained one or more citation error themes of this type and a "0" was assigned if the manuscript did not contain any citation error themes of this type (Onwuegbuzie, 2003; Onwuegbuzie & Teddlie, 2003)—yielding a *manuscript x citation error theme matrix* that comprised a combination of 0s and 1s (Onwuegbuzie, 2003, p. 396). The creation of this inter-respondent matrix represented quantitizing the citation error themes (i.e., converting qualitative data into quantitative data that can be analyzed statistically; Miles & Huberman, 1994; Sandelowski, Voils, & Knafl, 2009; Tashakkori & Teddlie, 1998).

The inter-respondent matrix was used to conduct a principal component analysis to determine the underlying structure of the citation error themes. This inter-respondent matrix was transformed to a matrix of bivariate associations that represented tetrachoric correlation coefficients because the citation error themes had been quantitized to dichotomous data (i.e., "0" vs. "1"). Indeed, tetrachoric correlation coefficients are justified to use when examining the relationship between two (artificial) dichotomous variables (cf. Onwuegbuzie et al., 2007). Thus, the matrix of tetrachoric correlation coefficients served as the basis of the principal component analysis. Specifically, an orthogonal (i.e., varimax) rotation was employed, combining use of the eigenvalue-greater-than-one rule (i.e., K1; Kaiser, 1958), the *scree* test (i.e., a plot of eigenvalues against the factors in descending order; Cattell, 1966; Kieffer, 1999; Zwick & Velicer, 1986), and a parallel analysis (involving extracting eigenvalues from random data sets that *parallel* the actual data set with respect to the sample size and number of variables; Thompson, 2004; Zwick & Velicer, 1982, 1986) to determine an appropriate number of factors to retain. These factors represented *meta-themes* (Onwuegbuzie, 2003), whereby each meta-theme contained at least one citation error theme. The proportion of variance explained by each factor after rotation, also known as the *trace*, yielded an effect size index for each meta-theme (Onwuegbuzie, 2003). By establishing the hierarchical relationship among the citation error themes, the verification component of categorization was empirical, rational, and technical (Constas, 1992).

Stage 3 Analysis

The third stage involved conducting a latent class analysis to determine the smallest number of clusters (i.e., latent classes) that accounts for all the associations among the citation error themes. The assumption behind this latent class analysis was that a certain number of unique citation error themes existed, and that manuscripts could be classified into a small number of distinct clusters known as latent classes based on their profiles of citation errors, such that each manuscript belonged to only one cluster. This latent class analysis represented the qualitizing of the data (i.e., converting numeric data into [qualitative] narrative profiles; Tashakkori & Teddlie, 1998).

Stage 4 Analysis

The fourth and final stage involved using the inter-respondent matrix pertaining to the citation error codes to determine which of the selected manuscript variables (i.e., number of authors, number of pages, number of words) predicted the number of citation errors. In addition, the inter-respondent matrix was used to conduct a canonical correlation analysis to examine the multivariate relationship between the five citation error themes and the selected manuscript variables.

Findings

Stage 1 Findings

The classical content analysis revealed a total of 681 citation errors across the 88 manuscripts, yielding nearly eight citation errors per manuscript, on average (M = 7.83, SD = 8.59), with the number of citation errors ranging from 0 to 42. Surprisingly, this mean number of citation errors is higher than that reported for *RITS* by Onwuegbuzie, Frels, et al. (2010) (M = 6.26, SD = 7.09, n = 150), although this difference was not statistically significant (Mann-Whitney's U = 5830.00, p = .29, Cohen's [1988] d = 0.20) [I]. The number of references in the 88 manuscripts ranged from 0 to 166 (M = 37.16, SD = 31.36), yielding citation error rates (i.e., number of citation errors / total number of references) that ranged from 0 to 425.00% (i.e., more than four times as many citation errors as references cited), with a mean citation error rate of 27.39% (SD = 58.80%). This mean citation error rate indicated that for every four references included, on average, one of them represented some type of citation error.

Disturbingly, only 11.4% of the manuscripts did not contain any citation errors, implying that 88.6% of the manuscripts contained one or more citation errors. Further, more than one in four manuscripts (27.6%) contained at least 10 citation errors, 16.1% contained at least 15 citation errors, 10.3% contained

20 or more citation errors, and 3.4% contained 30 or more citation errors. The proportion of manuscripts that contained one or more citation errors is only slightly smaller than is the 91.8% reported by Onwuegbuzie, Frels, et al. (2010) and, thus, this difference was not statistically significant ($X^2[1] = 0.75$, $p = .39$).

Table 2 presents the mean, standard deviation, and range regarding the number of citation errors pertaining to each of the five citation error themes for both the *Educational Researcher* manuscripts and Onwuegbuzie et al.'s (2010) *RITS* manuscripts, as well as the *t* values and effect sizes comparing both sets of mean citation errors. It can be seen that whereas for the *RITS* manuscripts, authors committing citation errors associated with in-text citations not being presented in the reference list (i.e., Not in Reference List) and citation errors associated with citations in the text and the reference list not being consistent (i.e., Not Consistent with Reference List) were almost equally the most prevalent; for the *Educational Researcher* manuscripts, the citation errors associated with citations in the text and the reference list not being consistent was by far the most prevalent. Interestingly, after using the Bonferroni adjustment to control for the inflation of Type I error (e.g., Chandler, 1995; Ho, 2006; Manly, 2004; Vogt, 2005), four of the 10 pairwise comparisons (i.e., nonparametric dependent samples *t* test) were statistically significant (i.e., $p < .005$). Specifically, Incomplete or Incorrect Citation errors were statistically significantly less prevalent than were all other error themes, namely, Incomplete or Incorrect Reference errors ($d = 0.63$), Not in Text errors ($d = 0.55$), Not in Reference List errors ($d = 0.73$), and Not Consistent with Reference List errors ($d = 1.07$)—representing moderate to large effect sizes. Comparing the *Educational Researcher* and *RITS* manuscripts revealed that the *Educational Researcher* manuscripts, on average, contained more citation errors pertaining to the following four error themes: Incomplete or Incorrect Citation errors were statistically significantly less prevalent than were all other error themes, namely, Not Consistent with Reference List errors, Not in Text errors, Incomplete or Incorrect Reference errors, and Not in Text errors. The *RITS* manuscripts, on average, only had a greater number of Not in Reference List citation errors. However, only the Incomplete or Incorrect Citation errors yielded a statistically significant difference with a small-to-moderate effect size ($d = 0.31$).

A series (i.e., $n = 10$) of nonparametric (i.e., Spearman) correlations, after applying the Bonferroni adjustment to control for the inflation of Type I error, revealed two statistically significant findings. Specifically, authors who committed Not Consistent with Reference List errors were statistically significantly more likely also to commit Not in Reference List errors ($r_s[86] = .50$, $p < .001$) and Not in Text errors ($r_s[86] = .48$, $p < .001$). Using Cohen's (1988) criteria, both of these relationships were large.

Stage 2 Findings

As did Onwuegbuzie, Frels, et al. (2010), a principal component analysis was used to determine the number of factors underlying the five citation error themes. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was greater than .5 (i.e., KMO = .59) and Bartlett's test of sphericity was statistically significant ($X^2[10] = 30.37$, $p < .001$), which justified the principal component analysis. The eigenvalue-greater-than-one rule (i.e., K1; Kaiser, 1958) indicated that two factors (i.e., meta-themes) be retained, as did the *scree* test. In addition, a parallel analysis was conducted as a validity check to the K1 and scree test (Zwick & Velicer, 1982, 1986). For the current data of 88 manuscripts and five variables (i.e., citation error themes), a series of (i.e., $n = 1{,}000$) random data matrices of size 88 x 5 was generated, and eigenvalues were computed for the correlation matrices for the original data and for each of the 1,000 random data sets. The eigenvalues derived from the actual data then were compared to the eigenvalues derived from the random data, in order to identify the number of components that account for more variance than do the components derived from random data. This parallel analysis also suggested retaining two factors.

This two-factor solution is presented in Table 3. Using a cutoff correlation of 0.3, recommended by Lambert and Durand (1975) as an acceptable lower bound for pattern/structure coefficients, Table 3 reveals that the following citation error themes had pattern/structure coefficients with large effect sizes on the first factor: Not in Reference List, Not Consistent with Reference List, and Not in Text; and the following citation error themes had pattern/structure coefficients with large effect sizes on the second factor: Incomplete or Incorrect Citation and Incomplete or Incorrect Reference. As was the case for Onwuegbuzie et al.'s (2010) study, the first meta-theme (i.e., Factor 1) was labeled *Missing or Inconsistent Citations/References*, and the second meta-theme (i.e., Factor 2) was termed *Erroneous Citations/References*.

Table 2

Stage 1Findings: Themes, Frequencies, Formulated Meanings, and Selected Examples of Citation Errors

Mean (and Standard Deviation, Range) Number of Citation Errors per Manuscript					
Citation Error Theme	Formulated Meaning	*Educational Researcher* (Present Study) (n = 88)	*Research in the Schools* (Onwuegbuzie, Frels, & Slate, 2010) (n = 150)	Mann-Whitney U	Cohen's d Effect size
Not in Reference List	Work that is cited in text but does not appear in the reference list	1.93 (3.06, 0-17)	2.06 (4.04, 0-30)	6264.00	0.04
Not Consistent with Reference List	Work that appears in the text that is not consistent with the corresponding work that is presented in the reference list	2.16 (2.32, 0-9)	2.05 (1.99, 0-11)	6138.50	0.05
Not in Text	Work that is cited in the reference list but that does not appear in the text	1.64 (3.34, 0-22)	1.49 (2.79, 0-18)	6242.00	0.05
Incomplete or Incorrect Citation	Work that appears in the text that is incomplete or inaccurate	0.31 (0.74, 0-3)	0.19 (0.85, 0-9)	5739.50	0.15
Incomplete or Incorrect Reference	Work that appears in the reference list that is incomplete or inaccurate	1.38 (2.27, 0-39)	0.72 (2.08, 0-17)	5084.50*	0.31

*Statistically significant at the Bonferroni-adjusted alpha level of .05 (i.e., .05/5).

Table 3

Stage 2 Findings: Summary of Themes and Factor Pattern/Structure Coefficients from Principal Component Analysis (Varimax): *Two-Factor Solution*

	Factor Coefficients[1]		
Theme	1	2	Communality Coefficient
Not in Reference List	**.58**	.29	.42
Not in Text	**.68**	-.05	.46
Not Consistent with Reference List	**.83**	.02	.69
Incomplete or Incorrect Citation	-.16	**.84**	.73
Incomplete or Incorrect Reference	.33	**.64**	.52
Trace	1.61	1.20	2.81
% variance explained	32.26	23.99	56.26

[1]Coefficients in bold represent pattern/structure coefficients with the largest effect size across the two themes using a cut-off value of 0.3 recommended by Lambert and Durand (1975).

The *trace* (i.e., the proportion of variance explained, or eigenvalue, after rotation; Hetzel, 1996) revealed that the *Missing or Inconsistent Citations/References* meta-theme (i.e., Factor 1) explained 32.26% of the total variance, and the *Erroneous Citations/References* meta-theme (i.e., Factor 2) accounted for 23.99% of the variance. These two meta-themes combined explained 56.26% of the total variance, yielding a large effect size (Henson, Capraro, & Capraro, 2004; Henson & Roberts, 2006). The corresponding total variance explained that was reported by Onwuegbuzie, Frels, et al. (2010) was similar, at 51.99%.

The manifest effect size (i.e., actual error rate per meta-theme) associated with the two meta-themes was as follows: *Missing or Inconsistent Citations/References* (83.7%) and *Erroneous Citations/References* (51.2%). Figure 1 displays the thematic structure (i.e., relationships among the citation error themes and the citation error meta-themes), including the manifest effect sizes and latent effect sizes. This figure represents what Onwuegbuzie and Dickinson (2008) referred to as a crossover visual representation, which involves integrating both quantitative and qualitative findings within the same display.

Stage 3 Findings

The latent class analysis on the five (dichotomized) citation error themes indicated that the optimal number of clusters was two (L^2 = 20.97, df = 20, p = .40, Bootstrap p = .50). Figure 2 displays these two distinct groups of manuscripts. This figure shows that Cluster 1 (comprising 69.0% of manuscripts) is relatively high with respect to four of the citation error themes (i.e., Not in Reference List errors, Not Consistent with Reference List errors, Not in Text errors). In contrast, Cluster 2 (comprising 31.0% of manuscripts) is relatively low on all five citation error themes. As can be seen from Figure 2, Not in Reference List errors (Wald = 6.57, p = .001, R^2 = 16.77%), Not Consistent with Reference List errors (Wald = 5.81, p = .016, R^2 = 61.49%), and Not in Text errors (Wald = 7.37, p = .007, R^2 = 16.35%) statistically significantly discriminated the two clusters, whereas Incomplete or Incorrect Citation errors (Wald = 0.03, p = .87, R^2 = 0.05%) and Incomplete or Incorrect Reference errors (Wald = 2.61, p = .11, R^2 = 8.19%) did not. Examining the R^2 values indicates that Not Consistent with Reference List errors had the most variance explained by the two-cluster model.

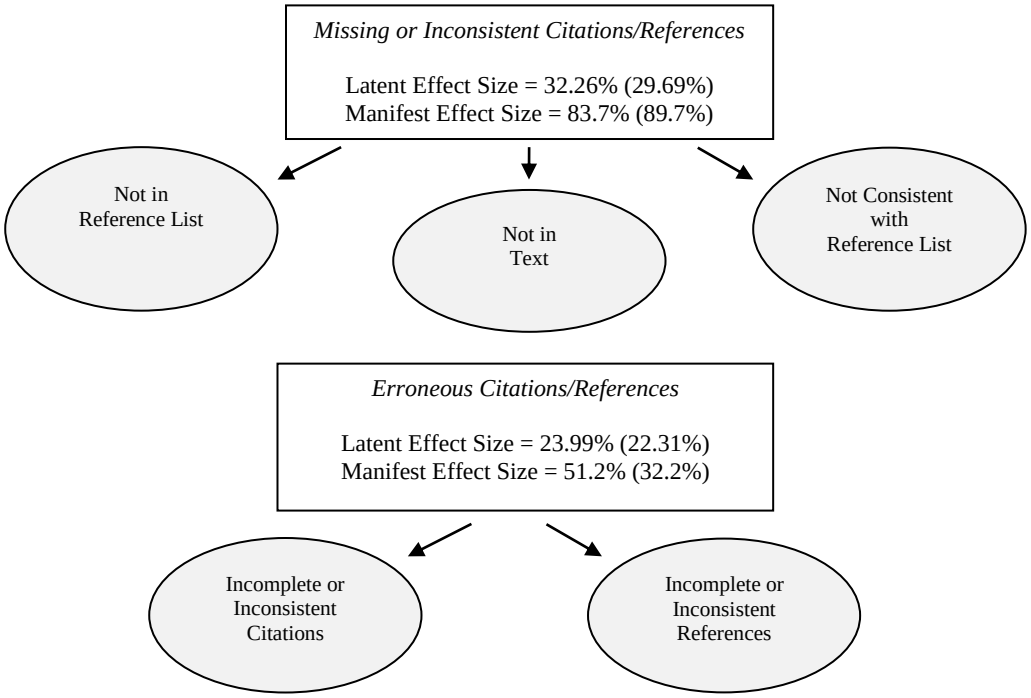

Figure 1. Stage 2 Findings: Thematic structure pertaining to citation errors, with effect sizes pertaining to Onwuegbuzie et al.'s (2010) study in parentheses.

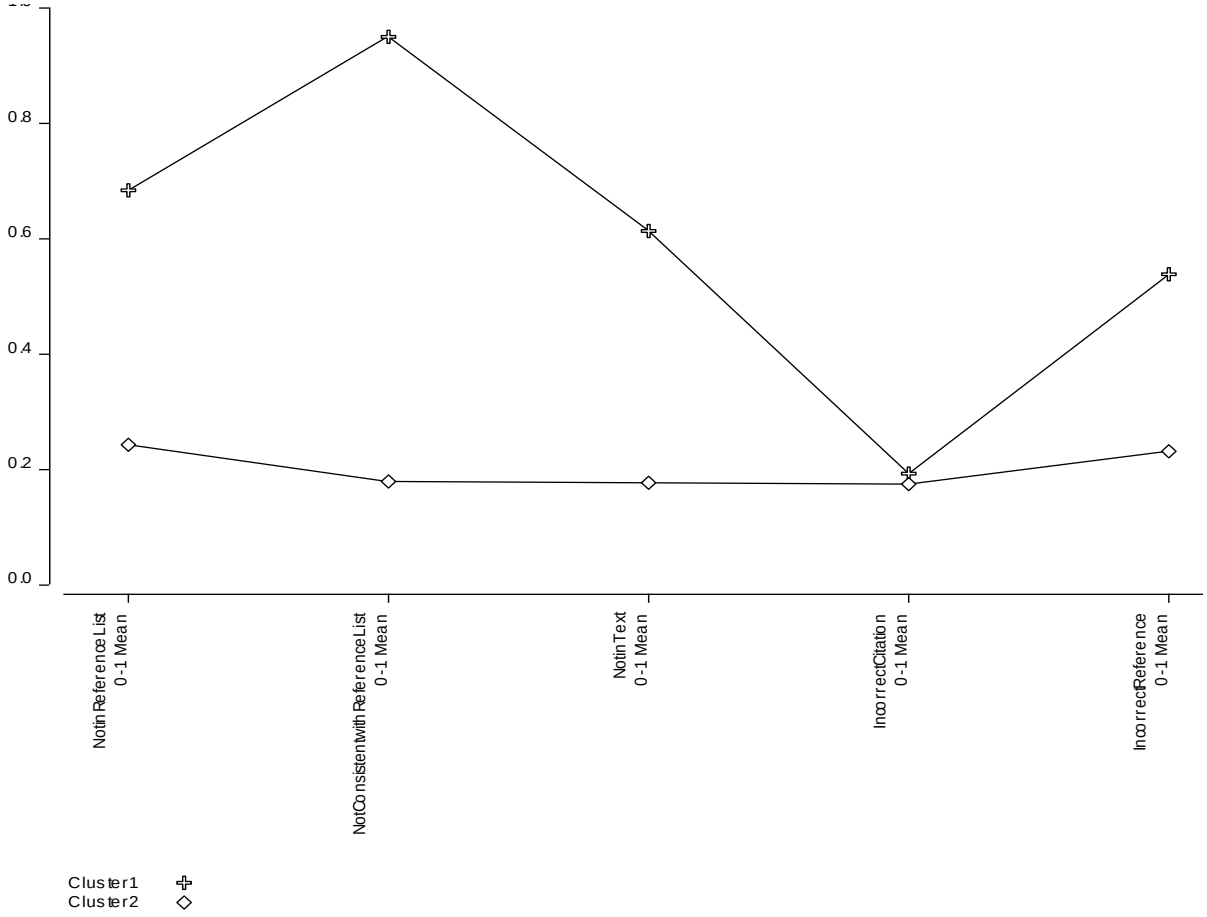

Figure 2. Stage 3 Findings: Profiles of the manuscripts with respect to the citation error themes.

Stage 4 Findings

Correlation analysis. A series (i.e., n = 4) of nonparametric (i.e., Spearman) correlations, after applying the Bonferroni adjustment to control for the inflation of Type I error, revealed that the number of citation errors was statistically significantly related to the number of references in the reference list (r_s[86] = .55, p < .001), the number of manuscript pages (r_s[86] = .38, p < .001), the number of manuscript words (r_s[86] = .49, p < .001), and the number of authors (r_s[86] = .43, p < .001). Using Cohen's (1988) criteria, all of these relationships were in the moderate-to-large or large range. Although the first three relationships were not surprising, the fourth relationship was extremely surprising because it indicates that as the number of authors of a manuscript increases, so do the number of citation errors. This finding, which is extremely disturbing, is consistent with Onwuegbuzie, Frels, et al. (2010), who documented a relationship between these two variables.

Multiple regression analysis. *An all possible subsets* (APS) multiple linear regression (Onwuegbuzie & Daniel, 2003; Thompson 1995) was used to identify an optimal combination of independent variables (i.e., number of references in the reference list, number of manuscript pages, number of manuscript words, number of authors) that predicted the number of citation errors[2]. Using this analytical technique, all possible models involving some or all of the independent variables were examined. This method of analysis, which has been advocated by many statisticians (e.g., Onwuegbuzie & Daniel, 2003; Thompson 1995), involves conducting separate regression analyses for the one possible set of four independent variables, all four possible trios of independent variables, all six possible pairs of independent variables, and all four

independent variables singly—yielding the fitting of 15 multiple regression models. These 15 models then were compared to identify the best subset of independent variables according to the criteria of (a) the maximum proportion of variance explained (R^2) and (b) Mallow's C_p (Myers, 1986; Sen & Srivastava, 1990). The APS multiple regression analysis revealed that a model containing two variables provided the best fit to these data. In fact, the four-variable model only increased the proportion of variance explained by 3.2%. In addition, Mallow's C_p was closer in value to the number of regressor variables (Myers, 1986; Sen & Srivastava, 1990) with the two-variable solution, than with any other variable solution.

The selected model indicated that the following two variables contributed statistically significantly ($F[2, 86] = 14.31$, $p < .001$) to the prediction of the number of citation errors: the number of authors and the number of references in the reference list. These two variables combined to explain 31.6% of the variation in the number of citation errors (Adjusted R^2 = 29.4%). Using Cohen's (1988) criteria for assessing the predictive power of a set of independent variables in a multiple regression model, the proportion of variance explained indicates a large effect size, because it exceeded 26%.

With respect to the assumptions for the selected two-variable multiple linear regression model, the Durbin-Watson coefficient of 2.08 was sufficiently close to 2 to suggest that for any two observations, the residual terms were uncorrelated (i.e., lack of autocorrelation), which was a desirable outcome. In addition, an examination of the standardized residuals pertaining to each of the participants revealed that only one manuscript (i.e., manuscript #52) had a standardized residual that exceeded 2.00 (i.e., 4.44). This manuscript, which was written by two authors and contained 44 references, yielded 41 citation errors—the second highest number of citation errors—likely explaining why the number of citation errors was difficult for the model to predict. Nevertheless, because this number represented only 1.14% (i.e., 1/88) of the total sample of manuscripts, the number of manuscripts with large standardized residuals was less than the 5% that might have been expected by chance, which suggested little cause for concern.

An examination of the tolerance statistics, the variance inflation factors, and the condition indices of the selected regression model indicated strongly that no multicollinearity was present. In particular, both variance inflation factors (VIFs), which represent the extent that the variance of an individual regression coefficient has been inflated by the presence of collinearity, were much less than 10, suggesting little evidence of multicollinearity (Myers, 1986). In fact, both variance inflation factors were very close to 1.00 (i.e., both VIFs = 1.03), which indicated no relationship between the two independent variables. Condition indices, which represent the ratio of the largest to the smallest eigenvalues, also provided information about the strength of linear dependency between the independent variables. Both condition indices (3.15 for the number of authors and 4.65 for the number of references) were much less than 1,000 (Myers, 1986), again suggesting that no multicollinearity was present**.** Further, both tolerance statistics were greater than .2 (.97), which also suggested a lack of multicollinearity (Field, 2009).

The following additional influence diagnostics were examined: (a) the overall influence of a case on the model (i.e., Cook's distance); (b) the influence of the observed value of the dependent variable over the predicted values (i.e., Leverage); (c) the number of estimated standard errors (for each regression coefficient) that the coefficient changes if the *i*th observation was set aside (i.e., DFBeta, Standardized DFBeta); (d) the number of estimated standard errors that the predicted value changes if the *i*th point is removed from the data set (i.e., DFFit, Standardized DFFit); and (e) the influence of the observed value over the variance of the regression parameters (i.e., covariance ratio). Using criteria recommended in the literature (e.g., Field, 2009; Myers, 1986), the 52nd manuscript (of the set of 88 manuscripts), which had the only absolute standardized residual that exceeded 2, generated the following influence statistics: (a) Cook's distance = .012 < 1, suggesting that it did not have undue influence on the model; (b) Leverage = $.0025 < (2[p + 1])/n)^3 = .068$, which suggested that it did not have a large influence over the regression coefficients; (c) Standardized DFBeta for the number of authors = 0.24 and Standardized DFBeta for the number of references = 0.075, both of which are < |-2|, which suggested that this manuscript did not have undue influence on the model parameters; and (d) Standardized DFFit = 0.71 < |-2|, which suggested that this manuscript did not have an undue influence on the predicted value. Only the covariance ratio value (i.e., 0.34) suggested a cause for concern because it was less than $1 - (3[p + 1]/n) = 0.90$, thereby suggesting that deleting the 52nd manuscript from the analysis might have improved the precision of the model. However, because the other indices did not exceed the cutpoint, this manuscript was retained.

The partial and semi-partial correlation coefficients indicated that the number of authors (19.0% unique variance explained) was a better predictor of the number of citation errors than was the number of references (12.6% unique variance explained). An examination of the structure coefficients, using a cutoff correlation of 0.3

recommended by Lambert and Durand (1975) as an acceptable minimum coefficient, suggested that both independent variables made important contributions to the model. Thus, in summary, the selected final regression model suggested that the manuscripts with the most citation errors tended to have the highest number of authors and the highest number of references. The regression equation was as follows:

Number of Citation Errors = -1.38 + 3.30 * Number of Authors + 0.11 * Number of References

This equation indicated that among manuscripts submitted to *Educational Researcher*, every additional author of a manuscript was associated with an increase of 3.30 citation errors, on average. Further, every additional nine references tended to be associated with an increase of 1.00 citation error.

Canonical correlation analysis. A canonical correlation analysis was conducted to examine the multivariate relationship between the citation error themes and selected demographic variables (i.e., number of references in the reference list, number of manuscript pages, number of manuscript words, number of authors). Because five citation error themes were correlated with four manuscript variables, four canonical functions were generated.

The canonical correlation analysis revealed that the four canonical correlations combined were statistically significant ($p < .01$; $R_{c1} = .57$; Wilk's Lambda = .52). However, when the first canonical root was excluded, the remaining three roots were not statistically significant ($p = .23$; $R_{c2} = .41$; Wilk's Lambda = .77). Similarly, when the first two canonical roots were excluded, the remaining two roots were not statistically significant ($p = .60$; $R_{c3} = .22$; Wilk's Lambda = .93), and when the first three canonical roots were excluded, the remaining root was not statistically significant ($p = .45$; $R_{c4} = .16$; Wilk's Lambda = .97). Together, these results suggested that the first canonical function was statistically significant and practically significant (Canonical $R_{c1}^2 = .33$) (Cohen, 1988), but the remaining roots were not statistically significant. Thus, only the first canonical function was interpreted.

Data (i.e., standardized function coefficients and structure coefficients) pertaining to the first canonical root are presented in Table 4. Again, using a cutoff correlation of 0.3 (Lambert & Durand, 1975), the standardized canonical function coefficients revealed that the following two citation error themes made important contributions: Not in Reference List and Not in Text, with Not in Text making the largest contribution. With respect to the manuscript variable set, number of authors, number of manuscript pages, and number of manuscript words made noteworthy contributions, with number of manuscript words making the most noteworthy contribution. The structure coefficients revealed that three citation error variables made noteworthy contributions: Not in Reference List, Not Consistent with Reference List, and Not in Text. Again, Not in Text made the largest contribution. The square of the structure coefficient indicated that Not in Text explained 60.8% of the variance. With regard to the manuscript variable cluster, all four variables made noteworthy contributions, with the number of manuscript words making the greatest contribution for the second time, explaining 67.2% of the variance. Comparing the standardized and structure coefficients suggested multicollinearity with Not Consistent With Reference List because the structured coefficient associated with this variable was large, whereas the corresponding standardized coefficient was relatively small (Onwuegbuzie & Daniel, 2003). Multicollinearity also was suggested with number of references for the same reason. Thus, the multivariate relationship between citation error themes and the manuscript variables was mainly characterized by the relationship between citation errors associated with Not in Reference List and Not in Text on the one side, and number of authors, number of manuscript pages, and number of manuscript words on the other side. Interestingly, in Onwuegbuzie, Frels, et al.'s (2010) study, the number of authors and the length of manuscript similarly were related to the five citation error themes.

Unfortunately, because the *Educational Researcher* editors accepted only one of these 88 manuscripts the first time, it was not possible to examine any relationships between the number of citation errors and the decision made by the editors regarding the manuscript's suitability for publication. However, the fact that every manuscript with a high number of citation errors was rejected for publication is unlikely to be a coincidence.

Discussion of Findings

Our current editorial provides even more compelling evidence that the citation error represents, by far, the most prevalent APA error. Moreover, the present findings indicate that not only do citation errors permeate manuscripts that are submitted to *RITS* (91.8% prevalence rate) but they similarly pervade manuscripts that are submitted to the foremost journal in education, namely, *Educational Researcher* (88.6% prevalence rate). From our experience as editors of *Educational Researcher*, we can verify that a high proportion of authors who submit manuscripts to *Educational Researcher* are among the most prolific of authors. Thus, it can be concluded that citation errors are not only committed

by beginning authors, but also they are being committed by prolific authors. Indeed, the characteristics of citation errors for both the *Educational Researcher* manuscripts and *RITS* manuscripts were very similar, including the distributions of the five citation error themes, the thematic structure pertaining to the citation errors, the profiles of the manuscripts with respect to the citation error themes, and the relationship of the number of authors and the length of the manuscript to the citation error themes.

In our previous editorial on citation errors, we surmised that the 91.8% citation error rate for *RITS* authors likely represents a lower bound when one takes into account that these manuscripts were submitted before the writers of sixth edition of APA stipulated that authors include digital object identifiers (DOIs) whenever they are available (cf. section 6.31). According to the writers of the sixth edition of [APA] *Publication Manual*, DOI numbers represent unique numbers assigned by the publisher for electronic referencing of published journal articles and other documents. In a reference list, authors should place the DOI at the end of the reference. Thus, under the sixth edition of APA, failure to include available DOI numbers represents a citation error—specifically, an incomplete reference. (pp. xiii-xiv)

For this same reason, the citation error rate of 88.6% for *Educational Researcher* authors also likely represents a lower bound. And when we take into account the fact that the 88 manuscripts submitted to the *Research News and Comment* section of *Educational Researcher* over this 3-year period represented those manuscripts that were sent out for external review and that none of the 47.93% of manuscripts that were desk rejected were included in this sample of manuscripts, it is reasonable to conclude that this 88.6% citation error rate is even more of a lower bound.

It might be argued that the high citation error rate for *Educational Researcher* manuscripts stems, in part, from the fact that these manuscripts tend to be longer than that allowed for the majority of educational journals, and as we reported earlier, the number of manuscript pages was positively related to the number of citation errors (cf. Table 4). Yet, the number of pages of manuscripts submitted to *Educational Researcher* (M = 25.64, SD = 11.36; Range = 6 to 54) actually was statistically significantly smaller (t[236] = -1.74, p = .04; d = 0.23) than was the number of pages of manuscripts submitted to *RITS* (M = 27.96, SD = 9.04; Range = 9 to 48; cf. Frels et al., 2009). Thus, the length of the *Educational Researcher* manuscripts does not account for the high citation error rates. Similarly, it might be argued that the number of authors of *Educational Researcher* manuscripts would be higher than normal due to the fact that *Educational Researcher* has a lower acceptance rate (lower than 5% during this time period) than does virtually any other journal representing the field of education, and as we documented earlier, the number of authors was positively related to the number of citation errors (cf. Table 4). Yet again, this argument can be refuted because the number of authors per *Educational Researcher* manuscript (M = 1.64, SD = 0.92; Range = 1 to 5) actually was statistically significantly (t[236] = -3.18, p < .001; d = 0.43) smaller than was the number of authors per *RITS* manuscript (M = 2.13, SD = 1.26; Range = 1 to 9).

Conclusions

That the mean citation error rate appears to range from approximately 5.9 (Onwuegbuzie, Waytowich, & Jiao, 2006) to approximately 7.8 (the present study), alongside the present findings that both the number of authors and number of references are positively related to the number of citation errors, and previous findings that manuscripts that contain several citation errors are significantly more likely to be rejected (Onwuegbuzie et al., 2006, 2010), demonstrate the importance of developing strategies for drastically reducing these trends, and producing what Jiao, Onwuegbuzie, and Waytowich (2008) referred to as a "culture of error free citations" (p. 954). Onwuegbuzie, Frels, et al. (2010) provided a number of recommendations for creating this culture for (a) authors; (b) college-level instructors, mentors, advisors, and thesis/dissertation committee members and chairs or supervisors; (c) copyeditors typesetters, production editors, publishers; and (d) writers of future editions of the *Publication Manual*. We refer readers to these recommendations. However, we will conclude our editorial by focusing on attempting to help *authors* avoid making citation errors. Recommendations for authors provided by Onwuegbuzie, Frels, et al. (2010) include printing out the whole document and comparing every in-text citation (i.e., line-by-line) with the corresponding entry in the reference list; proof-reading the reference lists several times for incomplete or inaccurate references; conducting a secondary electronic check for citation errors using the search function of word processing software programs and the spell check function; using a reference management software package (e.g., EndNote, RefMan, and ProCite); and ensuring that all authors representing articles that involve multiple authors to check the manuscript meticulously for citation errors.

Another useful recommendation is to use Table 2 as a starting point by focusing on these most common types of errors, namely, works that are cited in text

but that do not appear in the reference list, works that appear in the text that are not consistent with the corresponding works that are presented in the reference list, works that are cited in the reference list but that do not appear in the text. In Appendix A, we provide a checklist for reducing citation errors. In Appendix B, we provide an excerpt that has been modified from Waytowich, Onwuegbuzie, and Elbedour's (2011) article in such a way that it contains numerous citation errors. These citation errors represent all five types of citation errors presented in Table 2. Appendix C provides a corrected version of the excerpt that incorporates comments for addressing the various citation errors.

In closing, we reiterate the sentiments of Onwuegbuzie, Frels, et al. (2010) that the authors of APA "should make clear how serious citation errors are, as well as their ethical implications" (p. xx). In the sixth edition of the *Publication Manual* (APA, 2010), Chapter 6 is dedicated to crediting sources, whereby it is stated that "a critical part of the writing process is helping readers place your contribution in context by citing the researchers who influenced you" (p. 169). Further, the authors of the Publication Manual (APA, 2010) dedicated a separate chapter to illustrate reference examples. In Chapter 1, authors open the section "Ethical and Legal Standards in Publishing" (p. 11) by citing the APA Ethics Code (APA, 2002), in that researchers and writers should "protect intellectual property rights" (p. 11). Finally, Section 8.07 of Chapter 8 (APA, 2010) presents a checklist for manuscript submission, which includes a section on references whereby authors are to check some of the following:

> [a] are references cited both in text and in the reference list (6.11-6.21)? [b] do the text citations and reference list entries agree both in spelling and in date (6.11-6.21)? [c] are journal titles in the reference list spelled out fully (6.29)? [d] are the references (both in the parenthetical text citations and in the reference list) ordered alphabetically by the authors' surnames (6.16, 6.25)? [e] are inclusive page numbers for all articles or chapters in books provided in the reference list (7.01, 7.02)? (p. 242)

In addition, in the Code of Ethics (AERA, 2011), the authors stipulate that "educational researchers adhere to the highest possible standards," and in their publications, "[they] explicitly identify, credit, and reference the author(s) when they take data or material verbatim from another person's work" (p. 147). In fact, when considering the meticulous care with which scholars perform research (e.g., providing documentation, transparency, meticulous data analysis), it is quite surprising that in one of the most prestigious journals in educational research, namely *Educational Researcher*, citation errors were so high, especially when crediting sources appropriately are put forth in research ethical codes of prominent organizations:
see APA:
http://www.apa.org/research/responsible/publication/index.aspx; the American Counseling Association:
http://www.counseling.org/resources/codeofethics/TP/home/ct2.aspx;
see AERA:
http://www.aera.net/Portals/38/docs/About_AERA/CodeOfEthics(1).pdf
As such, it is our hope that the findings of this editorial bring to the fore the professional and ethical obligation to become more detailed-oriented in the presentation of their works with respect to parenthetical references and reference lists. We hope that at least one of the tools and strategies presented in this editorial or the previous editorial helps students, researchers, and experienced scholars to prevent citation errors through the use of consistent and accurate reporting of sources.

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Appendix A
Checklist for Reducing Citation Errors

The following checklist can be a useful tool for authors concerned about reducing citation errors in their work. To edit for citation errors, the author will need a copy of the paper, a pencil, and the Sixth Edition *Publication Manual of the American Psychological Association* (2010) which will be referred to as the *APA Manual*. The steps in the process are as follows:

1. Print out paper.
2. Verify the match of each citation used.
3. Verify each direct quotation used.
4. Remove unused references from the list.
5. Locate missing references.
6. Resolve inconsistencies.
7. Edit for use of et al.
8. Check alphabetical order of references.
9. Edit references for format, punctuation, and capitalization.

Step 1 is to print out a paper copy of the draft, including the reference list. Even though authors conduct most of the editing of drafts via a computer screen, having a printed copy of the paper often helps to locate errors that are not seen easily in the earlier stages of editing using a computer. Separate the paper from the references and proceed to Step 2. In the second step, the author will scan the manuscript, line-by-line, and locate every citation used in the text. Then, the author will mark the citation with a pencil in the text and in the reference list. During this cross-checking process, careful attention should be given to the spelling of the authors' names and the dates each time they are used. For any citations that do not match, the author should make a note and continue with the process. At the end of this step, the paper will be marked up, and each entry in the reference list should be marked at least once. Step 2 is likely the most tedious step in the process; however, conducting this step for every citation is critical to locating errors. The third step involves a verification of direct quotations. Step 3 can be performed at the same time as Step 2. For every direct quotation used, "always provide the author, year, and specific page citation or paragraph number or nonpaginated material" (APA, 2010, p. 170).

In addition, if the direct quotation is "40 or more words. display it in a freestanding block of text and omit the quotation marks" (APA, 2010, p. 171). Additional information is provided in the *APA Manual* regarding omissions or insertions of material in direct quotes. At the conclusion of the first three steps, the author can proceed to revising the references. For Step 4, the list of references will be reviewed. Any reference that was not marked in Step 2 should be removed from the paper because the reference list should contain only those works cited in the paper. Similarly, in Step 5, the author will locate references that were cited in the paper but were not included in the reference list. Finally, in Step 6, the author will correct spelling errors of authors' names and resolve inconsistencies in the dates cited.

One of the citation rules in APA addresses the appropriate use of *et al.* (see Table 6.1, APA, 2010, p. 177). We suggest addressing this convention near the conclusion of the editing process because revisions of the paper can change the order of citations used in the paper. For citations whereby three, four, or five individuals authored the work, the first citation in the text would include all authors; subsequent citations would have the convention et al. If the author in Step 2 marked every reference each time it was used in the paper, he or she will be able to identify the references where et al. would be appropriate (i.e., in the references, search for group authors with multiple checkmarks). Next, using a "find" command on the computer, each citation can be located in the paper and can be corrected. For works that have six or more authors, the convention et al. is used each time (see *APA Manual*, 2010, p. 177). Finally, it is recommended that authors carefully check the punctuation of the et al. convention as errors appear to be prevalent with its usage. In a recent study, 44.5% of authors (n = 110) who submitted a manuscript to *Research in the Schools* misused the et al. convention at least once in their manuscripts (Onwuegbuzie, Combs, Slate, & Frels, 2010).

In Step 8, the author will attend to the alphabetical order of the reference list. Rules for alphabetizing can be found in the *APA Manual* in Section 6.25. Finally, in Step 9, each reference will be carefully read and checked for errors in punctuation and capitalization. In addition, the author can verify that journals and book titles are italicized. New to the *APA Manual* specific to the sixth edition is the provision of doi numbers; websites such as www.crossref.org can be used to verify doi numbers. During Step 9, the use of the *APA Manual* is essential, as experienced authors and editors refer to the *APA Manual* frequently and when in doubt. When authors edit citations and reference lists using this checklist, citation errors can be minimized and hopefully eliminated.

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Appendix B
A Modified Excerpt from Waytowich, Onwuegbuzie, and Elbedour (2011)
with Numerous Citation Errors Inserted

Violence and Attribution Error in Adolescent Male and Female Delinquents

In the field of social psychology, considerable interest has centered on the mediating role of the causal attributions and assumptions made by the victims and perpetrators of violence (Fondacaro & Heller, 1990; Shaver & Drown, 1986; Trachtenberg & Viken, 1994). However, few of these studies have focused on delinquent female adolescents; in fact, relatively little is known about female delinquents. Indeed, in general, we know very little about the psychology and cognitive/attributional processes of young women in regard to violence (Chesney-Lind & Sheldon, 1992), perhaps because the prevalence of this group in the criminal population has only recently been considered as serious problem.

Attribution Theory

Attribution theory is concerned with the cognitive processes that individuals use to justify the events that occur in their social and physical environments (Kelley, 1973). As described by Heider (1958), Jones and Harris (1967), Kelley (1973), and Weiner (1985), individuals operate in the social environment through action, and the process of assigning causes to their actions and experiences is called causal attribution. People set goals, make decisions, and plan activities based on their sociopsychological analysis and appraisal of their past actions, in a dynamic interplay both internally and in relationship with other individuals (Janoff-Bulman, 1979; Janoff-Bulman & Freize, 1983; Silver, Wortman, & Klos, 1982). These causal attributions determine how a person will interpret a given event, by identifying the location of its cause (i.e., internal or external to the individual), the stability of the cause over time (i.e., transient or lasting; Kelley, 1973), and the responsibility for the event (i.e., whether or not the cause is seen as under the individual's control; Abramson, Seligman, & Teasdale, 1978; Wortman & Dintzer, 1978). The resulting appraisal is incorporated into the individual's motivational dynamics. An appraisal of something as a *good for action* becomes a *move to action*, or motivation (Arnold, 1962). In this way, an individual's subjective assessments may strengthen or weaken the person's motivation to achieve a particular objective.

It is by making attributions that people justify their own behaviors and make sense of them. When recognized, these attributions also can predict future behaviors (Heider, 1958; Jones & Harris, 1967; Kelley, 1973; Weiner, 1985). According to Bulman and Wortman (1977), Fincham, Beach, and Baucom (1987), Grills and Ollendick (2002), Janoff-Bulman (1979), and other researchers, people are more likely to experience distress that contributes to depression when they attribute their behavioral outcome to personality traits or dispositional characteristics (characterological attributions). Greater mental health benefits are found in people who attribute their problems to some aspect of their own behaviors or to situational factors. An individual's framework of attribution can be a window through which we can view the person's emotional vulnerability self-image, and his/her approach to solving social and interpersonal problems (Jones & Nisbett, 1972; Lazarus & Launier, 1978),

The self-questioning involved in the attribution process is also accompanied by inhibitory responses that function quite apart from these appraisals and assumptions. It is the brain's inhibitory response capability that allows people to tolerate, cope with, and master their impulses. As a result, these causal attributions are not necessarily rational or objective; they are influenced by the individual's cognitive and sociocultural biases, which include the following: (a) *cognitive heuristics*, which represent problem-solving strategies that reduce the complexity of making probabilistic judgments (Kahneman, Slovic, & Tversky, 1982; Nisbett & Ross, 1980), and which, as noted by Tversky and Kahneman (1974, p. 1124), "are quite useful, but sometimes they lead to severe and systematic errors"; (b) *the just world theory*, which represents the underlying belief that life is fundamentally "fair" and might influence individuals to view victims as being responsible for their own circumstances (Lerner, 1970, p. 190); (c) the fundamental attribution error, wherein personal or dispositional factors are overemphasized and situational and environmental factors are underemphasized (Tetlock, 1985); (d) *defensive attribution bias*, wherein a person's tendency to blame another person increases as the observer's perceived similarity to the other person's circumstances decreases (cf. Burger, 1981); and (3) stereotyping, which occurs as a direct result of the out-group homogeneity, wherein people tend to assign the cause of undesirable behavior by an out-group member to a personal deficiency that they attribute to all members of that group (cf. Fiske, 2000).

Taken together, these cognitive and motivational biases provide the support framework for the individual's patterns of moral and social behavior. Although research on attribution theory in the context of violence and victimization has gained prominence recently, little attention has been paid to the role that attribution plays in placing adolescents at risk for perpetrating acts of violence—especially the role played by violence attribution error.

Because of gendered socialization processes, the differing social status of men and women, and the fact that victim blaming is more common in certain cultures, female juvenile delinquents may show different violence attribution errors than do male juvenile delinquents. Research on this topic is becoming increasingly urgent because the rates of female crime have risen dramatically in recent years. Chesney-Lind (2001) cites federal statistics that the rate of female violent crime has increased more than 100% since 1981; between 1989 and 1998 the arrest rate for female adolescents increased 50.3% (compared to 16.5% for males), and during the same period there was a 64.3% increase in arrests of females for serious violent offenses. According to a report by the U.S. Department of Justice, in 1999, there were 2.1 million female violent offenders, representing 14% of all violent offenders (U.S. Department of Justice, 1999).

There are limited data on attribution errors among female delinquents; however, several studies exist in the area of attribution errors among delinquents. For example, Daley and Onwuegbuzie (1995) documented that 80% of male juvenile delinquents make inaccurate causal attributions when explaining the violent actions of others. In a later study, Daley and Onwuegbuzie (2004) coined the term "violence attribution error" (p. 551). A specific form of attribution error, this refers to "errors that occur when an offender does not blame the perpetrator of a violent act (e.g., rape) but instead blames either the victim or the circumstance" (p. 551).

In the only study, to date, investigation the violence attribution errors of females, Daley and Onwuegbuzie (1999) compared male (n = 73) and female (n = 80) high schools students with respect to violence attribution errors. These researchers found that females tended to make significantly fewer violence attribution errors (i.e., "errors that occur when an offender does not blame the perpetrator of a violent act (e.g., rape) but instead blames either the victim or the circumstance"; Daley & Onwuegbuzie, 2004, p. 551) than did their male counterparts. The effect size (d = 0.63) associated with this difference was moderate-to-large. More recently, using a mixed method analysis (Johnson & Onwuegbuzie, 2004), Daley and Onwuegbuzie (2004) reported that the male juvenile offenders, who were incarcerated at a correctional facility in a large southeastern U.S. state, committed violence attribution errors approximately 53% of the time. Although Daley and Onwuebuzie (2002/2003, 2004) provided evidence that violence attribution errors play an important role in predicting at-risk behaviors, their studies only involved male delinquents. Yet, it is likely that violence attribution errors also place females at-risk for delinquency. However, this possible link has yet to be investigated. This was a subject of the current investigation.

In addition to gender, examining race as a static criminogenic factor (i.e., a factor identified by research as a predictor of crime or criminality) also is poignant due to the over-representation of minority youth currently involved in the juvenile justice system (Florida Department of Juvenile Justice, 2006). Minority youth disproportionately experience a greater degree of violent victimization and perpetration, with homicides accounting for the leading cause of death among African-American males and females between the ages of 15 and 24 years (Commission for the Prevention of Youth Violence, 2000). In 1997, minorities represented 24% of the juvenile population, yet were 67% of the juveniles incarcerated in detention facilities (Commission for Prevention of Youth Violence, 2000). Furthermore, in 2003, African-American youth were more at risk than were White youth, and three times as likely as were youth of other races to be victims of serious violent crime (Federal Interagency Forum on Child and Family Statistics [FIFCFS], 2005). Findings from other studies indicate that gender and race differ across groups in their rates of violence, and that gender and race groups are differentially exposed to protective and risk factors that contribute or ameliorate the risk of violence exposure (Herrenkohl, Hill, Chung, & Catalano, 2004).

With these variables in mind, a second central purpose was to identify predictors (i.e., peer victimization, self-esteem, and demographic variables) of violence attribution errors. Although numerous studies have been conducted on key indicators of risk that identify a youth to be on a potential path to delinquency such as poverty, poor self-concept, association with delinquent peers, drug use, physical and sexual abuse, poor parenting, truancy, and poor educational performance (Archwamety & Katsyannis, 2000; Ball & Connolly, 2000; Carr & Vandiver, 2001; Chesney-Lind & Sheldon, 1998; Goff & Goddard, 1999; Matza, 1964; Stoiber, 1998; Tanner, Davies, & O'Grady, 1999; Waytowich & Onweugbuzie, 2007; Welsh, Stokes, & Greene, 2000), scant research has been paid attention to predictors of violence attribution errors. Because violence attribution errors have been found to predict acts of violence (Daley & Onwuegbuzie, 2002/2003), it is expected that identifying antecedents of violence attribution errors likely would increase our understanding of why adolescents engage in delinquent behaviors in general and acts of violence in particular. The present study was unique for at least two reasons. First, the current investigation was the first to investigate violence attribution errors committed by female juvenile delinquents. In addition, it

represented the only study in which male and female juvenile delinquents have been compared with respect to these attribution errors.

The relevance of researching female delinquency is especially pertinent to the state of Florida. Inasmuch as the representation of females in Florida's Juvenile Justice system is growing, the 2001-2002 statistics were somewhat more encouraging, with females accounting for less than 30% of all juvenile delinquency referrals. However, between 1998-1999 and 2002-2003 female residential placements increased 25.2%, resulting in a greater number of girls placed in commitment programs for violent offenders (Florida Department of Juvenile Justice, 2008).

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Appendix C
A Modified Excerpt from Waytowich, Onwuegbuzie, and Elbedour (2011) with Numerous Citation Errors Corrected with Comments

Violence and Attribution Error in Adolescent Male and Female Delinquents

Vicki L. Waytowich

Daniel Memorial, Inc

Anthony J. Onwuegbuzie

Sam Houston State University

Salman Elbedour

Howard University

The following literature review section was adapted with permission from the published source:

Waytowich, V. L., Onwuegbuzie, A. J., & Elbedour, S. (2011). Violence and attribution error in adolescent male and female delinquents. *International Journal of Education*, *3*(1), E6, 1-19. Retrieved from http://www.macrothink.org/journal/index.php/ije/article/viewFile/594/452

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Abstract

The purpose of this study was to assess the prevalence of violence attribution errors among female adolescent delinquents in the United States. Also of interest was to compare female delinquents' violence attribution error rate to that of their male counterparts who were participating in the same delinquency intervention programs. A third purpose was to identify predictors (i.e., attitudes toward violence, peer victimization, self-esteem, demographic variables) of violence attribution errors. Participants were 181 juvenile delinquents (28.2% female) who participated in two delinquency intervention programs located in Florida during the 2005-2006 year. Findings revealed no statistically significant difference in violence attribution error rate between male (52.7%) and female (46.5%) juvenile delinquents. A multiple regression analysis identified six variables that predicted the violence attribution error rate. The Implications of the findings are discussed.

Violence and Attribution Error in Adolescent Male and Female Delinquents

In the field of social psychology, considerable interest has centered on the mediating role of the causal attributions and assumptions made by the victims and perpetrators of violence (Fondacaro & Heller, 1990; Shaver & Drown, 1986; Trachtenberg & Viken, 1994). However, few of these studies have focused on delinquent female adolescents; in fact, relatively little is known about female delinquents. Indeed, in general, we know very little about the psychology and cognitive/attributional processes of young women in regard to violence (Chesney-Lind & Sheldon, 1992), perhaps because the prevalence of this group in the criminal population has only recently been considered as serious problem.

Attribution Theory

Attribution theory is concerned with the cognitive processes that individuals use to justify the events that occur in their social and physical environments (Kelley, 1973). As described by Heider (1958), Jones and Harris (1967), Kelley (1973), and Weiner (1985), individuals operate in the social environment through action, and the process of assigning causes to their actions and experiences is called causal attribution. People set goals, make decisions, and plan activities based on their sociopsychological analysis and appraisal of their past actions, in a dynamic interplay both internally and in relationship with other individuals (Janoff-Bulman, 1979; Janoff-Bulman & Freize, 1983; Silver, Wortman, & Klos, 1982). These causal attributions determine how a person will interpret a given event, by identifying the location of its cause (i.e., internal or external to the individual), the stability of the cause over time (i.e., transient or lasting; Kelley, 1973), and the responsibility for the event (i.e., whether or not the cause is seen as under the individual's control; Abramson, Seligman, & Teasdale, 1978; Wortman & Dintzer, 1978). The resulting appraisal is incorporated into the individual's motivational

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dynamics. An appraisal of something as a *good for action* becomes a *move to action*, or motivation (Arnold, 1962). In this way, an individual's subjective assessments may strengthen or weaken the person's motivation to achieve a particular objective.

It is by making attributions that people justify their own behaviors and make sense of them. When recognized, these attributions also can predict future behaviors (Heider, 1958; Jones & Harris, 1967; Kelley, 1973; Weiner, 1985). According to Bulman and Wortman (1977), Fincham, Beach, and Baucom (1987), Grills and Ollendick (2002), Janoff-Bulman (1979), and other researchers, people are more likely to experience distress that contributes to depression when they attribute their behavioral outcome to personality traits or dispositional characteristics (characterological attributions). Greater mental health benefits are found in people who attribute their problems to some aspect of their own behaviors or to situational factors. An individual's framework of attribution can be a window through which we can view the person's emotional vulnerability self-image, and his/her approach to solving social and interpersonal problems (Jones & Nisbett, 1972; Lazarus & Launier, 1978),

The self-questioning involved in the attribution process is also accompanied by inhibitory responses that function quite apart from these appraisals and assumptions. It is the brain's inhibitory response capability that allows people to tolerate, cope with, and master their impulses. As a result, these causal attributions are not necessarily rational or objective; they are influenced by the individual's cognitive and sociocultural biases, which include the following: (a) *cognitive heuristics*, which represent problem-solving strategies that reduce the complexity of making probabilistic judgments (Kahneman, Slovic, & Tversky, 1982; Nisbett & Ross, 1980), and which, as noted by Tversky and Kahneman (1974, p. 1124), "are quite useful, but sometimes they lead to severe and systematic errors"; (b) *the just world theory*, which represents the underlying belief that

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life is fundamentally "fair" and might influence individuals to view victims as being responsible for their own circumstances (Lerner, 1970, p. 190); (c) the fundamental attribution error. whereinpersonal or dispositional factors are overemphasized and situational and environmental factors are underemphasized (Tetlock, 1985); (d) *defensive attribution bias*, wherein a person's tendency to blame another person increases as the observer's perceived similarity to the other person's circumstances decreases (cf. Burger, 1981); and (3) stereotyping, which occurs as a direct result of the out-group homogeneity, wherein people tend to assign the cause of undesirable behavior by an out-group member to a personal deficiency that they attribute to all members of that group (cf. Fiske, 2000).

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Taken together, these cognitive and motivational biases provide the support framework for the individual's patterns of moral and social behavior. Although research on attribution theory in the context of violence and victimization has gained prominence recently, little attention has been paid to the role that attribution plays in placing adolescents at risk for perpetrating acts of violence—especially the role played by violence attribution error.

Because of gendered socialization processes, the differing social status of men and women, and the fact that victim blaming is more common in certain cultures, female juvenile delinquents may show different violence attribution errors than do male juvenile delinquents. Research on this topic is becoming increasingly urgent because the rates of female crime have risen dramatically in recent years. Chesney-Lind (2001) cites federal statistics that the rate of female violent crime has increased more than 100% since 1981; between 1989 and 1998 the arrest rate for female adolescents increased 50.3% (compared to 16.5% for males), and during the same period there was a 64.3% increase in arrests of females for serious violent offenses. According to a report by the

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Comment [TO4]: CITATION ERROR 4: This citation is not consistent with the reference list.

There are limited data on attribution errors among female delinquents; however, several studies exist in the area of attribution errors among delinquents. For example, Daley and Onwuegbuzie (1995) documented that 80% of male juvenile delinquents make inaccurate causal attributions when explaining the violent actions of others. In a later study, Daley and Onwuegbuzie (2004) coined the term "violence attribution error" (p. 551). A specific form of attribution error, this refers to "errors that occur when an offender does not blame the perpetrator of a violent act (e.g., rape) but instead blames either the victim or the circumstance" (p. 551).

In the only study, to date, investigation the violence attribution errors of females, Daley and Onwuegbuzie (1999) compared male (n = 73) and female (n = 80) high schools students with respect to violence attribution errors. These researchers found that females tended to make significantly fewer violence attribution errors (i.e., "errors that occur when an offender does not blame the perpetrator of a violent act (e.g., rape) but instead blames either the victim or the circumstance"; Daley & Onwuegbuzie, 2004, p. 551) than did their male counterparts. The effect size (d = 0.63) associated with this difference was moderate-to-large. More recently, using a mixed method analysis (Johnson & Onwuegbuzie, 2004), Daley and Onwuegbuzie (2004) reported that the male juvenile offenders, who were incarcerated at a correctional facility in a large southeastern U.S. state, committed violence attribution errors approximately 53% of the time. Although Daley and Onwuebuzie (2002/2003, 2004) provided evidence that violence attribution errors play an important role in predicting at-risk behaviors, their studies only involved male delinquents. Yet, it is likely that violence attribution errors also place females at-risk for delinquency. However, this possible link has yet to be

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investigated. This was a subject of the current investigation.

In addition to gender, examining race as a static criminogenic factor (i.e., a factor identified by research as a predictor of crime or criminality) also is poignant due to the over-representation of minority youth currently involved in the juvenile justice system (Florida Department of Juvenile Justice, 2006). Minority youth disproportionately experience a greater degree of violent victimization and perpetration, with homicides accounting for the leading cause of death among African-American males and females between the ages of 15 and 24 years (Commission for the Prevention of Youth Violence, 2000). In 1997, minorities represented 24% of the juvenile population, yet were 67% of the juveniles incarcerated in detention facilities (Commission for Prevention of Youth Violence, 2000). Furthermore, in 2003, African-American youth were more at risk than were White youth, and three times as likely as were youth of other races to be victims of serious violent crime (Federal Interagency Forum on Child and Family Statistics [FIFCFS], 2005). Findings from other studies indicate that gender and race differ across groups in their rates of violence, and that gender and race groups are differentially exposed to protective and risk factors that contribute or ameliorate the risk of violence exposure (Herrenkohl, Hill, Chung, & Catalano, 2004).

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With these variables in mind, a second central purpose was to identify predictors (i.e., peer victimization, self-esteem, and demographic variables) of violence attribution errors. Although numerous studies have been conducted on key indicators of risk that identify a youth to be on a potential path to delinquency such as poverty, poor self-concept, association with delinquent peers, drug use, physical and sexual abuse, poor parenting, truancy, and poor educational performance (Archwamety & Katsyannis, 2000; Ball & Connolly, 2000; Carr & Vandiver, 2001; Chesney-Lind & Sheldon, 1998; Goff & Goddard, 1999; Matza, 1964; Stoiber, 1998; Tanner, Davies, & O'Grady, 1999;

Comment [T07]: CITATION ERROR 7: This reference does not appear in the reference list.

Waytowich & Onweugbuzie, 2007; Welsh, Stokes, & Greene, 2000), scant research has been paid attention to predictors of violence attribution errors. Because violence attribution errors have been found to predict acts of violence (Daley & Onwuegbuzie, 2002/2003), it is expected that identifying antecedents of violence attribution errors likely would increase our understanding of why adolescents engage in delinquent behaviors in general and acts of violence in particular. The present study was unique for at least two reasons. First, the current investigation was the first to investigate violence attribution errors committed by female juvenile delinquents. In addition, it represented the only study in which male and female juvenile delinquents have been compared with respect to these attribution errors.

Comment [T08]: CITATION ERROR 8: This citation is not consistent with the reference list.

The relevance of researching female delinquency is especially pertinent to the state of Florida. Inasmuch as the representation of females in Florida's Juvenile Justice system is growing, the 2001-2002 statistics were somewhat more encouraging, with females accounting for less than 30% of all juvenile delinquency referrals. However, between 1998-1999 and 2002-2003 female residential placements increased 25.2%, resulting in a greater number of girls placed in commitment programs for violent offenders (Florida Department of Juvenile Justice, 2008).

Comment [T09]: CITATION ERROR 9: This reference does not appear in the reference list.

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