DOCUMENT RESUME

ED 331 081 CS 212 788

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TITLE Direct Quote and Reference List Entry Faults and Errors in a Sample of Articles from the "American Educational Research Journal," Compared With Findings from Previous Research.
PUB DATE 91
NOTE 14p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Citations (References); Comparative Analysis; *Error Patterns; *Reliability; Research Methodology; *Research Problems; Research Skills; *Scholarly Journals; Scholarship; *Writing for Publication; Writing Research
IDENTIFIERS *Scholarly Writing

ABSTRACT

A study compared the nature and frequency of faults and errors in reference list entries and direct quotes selected from 78 articles in 8 issues of the "American Educational Research Journal" (AERJ) with authors sampled from 10 previously studied journals. All departures from the original (additions, omissions, or changes) were labeled as either a word or punctuation deviation. Of 856 AERJ reference list entries that were retrieved, 46.26% contained at least one fault or error, which is similar to the fault/error rate of the previously reported data. The most frequent discrepancy was omission of the author's middle initial, with the second being a punctuation fault. Other errors and faults included: (1) misspelling of author surnames; (2) erroneous volume numbers; (3) erroneous page numbers; (4) word changes, additions, replacements, and/or omissions in the title of the article being cited; (5) quotation marks used for paraphrases; and (6) direct quotes presented as paraphrases. The data compiled here, added to the findings from previous studies, leave little doubt, although the samplings are relatively small in light of the large numbers of authors, that faults and errors in scholarly writing are widespread, and almost certainly increasing in frequency of perpetration. (One table of data is included and 26 references are attached.) (PRA)

Direct Quote and Reference List Entry Faults and Errors in a Sample of Articles from the American Educational Research Journal, Compared with Findings from Previous Research

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1991

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Background

Faults and errors in reference list entries in medical-related journals have been documented over the past decade in several reports (Eichorn & Yankauer, 1987; Goodrich & Roland, 1977; Hartmann, 1984; Key & Roland, 1977; Poyer, 1979). Faults and errors in quotations, as well as references, were reported in two studies (de Lacey, Record, & Wade, 1985; Lowry, 1985). Similar studies of social sciences journal article reference lists (Boyce & Banning, 1979; A. White, 1987a, 1987b, 1987c) and direct quotes (Hernandez & White, 1989) also have been been reported. Sabine (1985) reported on error rates and published corrections for 10 biological sciences journals. Several letters have appeared in journals, in which the writers have expressed concerns about articles they have judged to contain overgeneralizations from data (Borit, 1982; Koshland, 1987; Rifkin, Quitkin, & Klein, 1979; Schwartz, 1970; R. R. White, 1987), changes of wording (Ryan, 1975), and changes in meaning due to quoting out of context (Chamberlin, 1980; Young, 1982). The accuracy of interpretations of content in scholarly literature also has been questioned (Eichorn & Yankauer, 1987), and in the lay press reporting of medical news (Proudfoot & Proudfoot, 1981).

The general tenor of findings from these studies is that faults and errors are widespread. The definition of faults for reference list entries includes deviations from the original that do not inhibit or preclude retrieval of the original source. Errors, on the other hand, include those changes, such as misspelled first author surnames, or incorrect years, volume numbers, or beginning page numbers, that cause varying degrees of difficulty in retrieval.

Deviations in direct quotes—which readers are given to assume must be exact reproductions of the original [disregarding possibilities of quoting out of context]—also vary in seriousness. Many of the departures from the original, labeled faults, are not disruptive to the conveyance of meaning. Others, labeled errors, change the meaning, ranging from a small change to a complete reversal.

Rationale and Procedures

Given the studies already done, why do another? One argument for doing so is that authors of articles from only a small percentage of all journals have been studied. Any sample which is small in proportion to a population could be quite unrepresentative.

The study reported here extends findings from previous studies. Seventy-eight articles in eight issues of the American Educational Research Journal [22 (3-4); 23 (1-4); 24 (1-2)] were studied. Reference list entries referring to articles appearing in journals owned by the authors' home university library were compared visually with the originals. In like manner, direct quotes, or statements contained in double quotation marks that appeared to be direct quotations, whether in journals or books, were sought. All

of those that could be located were compared word by word, and for punctuation, with the original source.

Procedures were identical to those used in the recently reported studies by A. White (1987a, 1987b, 1987c) and, for quotes, by Hernandez and White (1989). In brief, a direct photocopy of the quote or reference list entry was compared with the original. If no fault or error was located, the quote or reference list entry was tallied as accurate. Those with any deviation were tallied as incorrect. In addition, specific tallies were made of the various faults or errors. These data for reference list entries are displayed in Table 1, along with data from the previous studies by A. White cited above.

Insert Table 1 About Here

Findings for Reference List Entries

Of 856 AERJ reference list entries that were retrieved, 396 (46.26%) contained at least one fault or error. This overall "fault/error rate" is quite similar to those for the authors sampled from the 10 journals reported in A. White's previous studies. The median fault/error rate for these previous data is 42.15.

Counting *all* faults and errors, 609 were located in the entries that were not wholly identical to the original. Obviously, some entries had multiple faults and/or errors. Even so, the omission of a several-word subtitle, for example was counted as just one error,

as the omission of a comma was counted as one punctuation fault. Had all word omissions and additions in article titles been added, the error figure would have been much higher in these data fields. The single most frequently committed discrepancy (n=191; 31.4% of 609) was omission of the middle initial of article authors. The second most frequent discrepancy was a punctuation fault (n=72; 11.8%). Neither of these fault/error commissions is especially misleading or harmful, in most instances, although an author who uses the middle given name often will be mis-identified when the middle initial is entirely omitted. Even then, retrieval is unaffected unless the first initial is in error. However, misspelling of the surname of the first author can be a bigger difficulty.

Of the total 856 reference list entries checked, 13 (1.5%) of the first author surnames were misspelled. This figure is not quite twice that of the year being wrong in the listed reference (8 of 856; 0.93%). However, volume number was in error in 22 instances (2.57%). This finding parallels percentages in the previous studies by A. White, cited above. Just why volume number would be in error more frequently than year is not readily explainable. The same uncertainty exists for page number errors. In this study, beginning page number was found to be in error 10 times (1.17%) while end page number was wrong a little more than three times as often (n=34; 3.97%). Both page numbers were wrong in 11 instances, as well.

Among the more interesting of departures from the original entries were word changes, additions, replacements and/or

omissions in the title of the article being cited. Although these discrepancies have nothing to do directly with retrievability, they *may* have quite an influence on a researcher's decision about the relevance of the article in planning research. A suitable work may be by-passed if an incorrect title serves as a distortion of the article contents. Some incorrect entries had combinations of these errors, making the distortions even more extreme than a "simple" omission, or replacement, or addition.

Some examples of title changes may illustrate the various distortions that occur. Omission of the three-word sub-title "Some behavioral data" changed an entry enough so that an unwary reader might infer that the article is a commentary or theoretical piece, instead of a report of empirical research. Even the one-word omission of "emotional" from the two-word term "social-emotional" could influence some readers not to seek the original source. Another omission, "pupil behavior in," resulted in a substantial change in the correct title: "Stability of pupil behavior in short-term classroom observations." In another title distortion, the words 'appropriate' and 'inappropriate' somehow got substituted for 'stereotyped' and 'nonstereotyped,' linked in both instances with the word sex. In another instance the one-term major title omission of "Self-concept" left the title as "Validation of construct interpretations," and the reader with a surprise in the offing if the original article were to be retrieved.

In some instances the citation of a reference within the text of an article may be sufficient to indicate for the reader the likely

value of the source for that reader's purpose. But the brevity of writing encouraged or required by many journals leads to citations that depend on reading reference list entries for making the judgment about whether or not to retrieve the original source. An error in the title in the reference list entry then can be pivotal in the reader's decision. For example, the one-word omission (underlined here) "Listening to stories may change children's social attitudes" leaves the reader with the impression that the article is much broader than had the word been included. The writer that replaced silence with *soul* in the brief title "Science, silence, and sanctions" changed the apparent content of the article profoundly. In another instance, when Catholic schools somehow got changed to *private* schools, the implied content of the article is distorted considerably.

Findings from the Quotations

An unexpected difficulty infused verification in 39 articles in AERJ that appeared to have one or more direct quotations. Quotation marks suggestive of a direct quote were used in 17 instances that probably were paraphrases. In another 24 instances, efforts either to locate a statement that appeared to be a direct quote, or to find any indication of paraphrasing, failed. Additionally, 34 statements that were located and found to be actual direct quotations had no page number cited. Three were located that had a wrong page number cited. Overall, 95 statements were located that were found to be direct quotations. Of this total, 61 (64.2%) were exact duplications of the original. This

percentage is somewhat higher than Hernandez and White (1989) found in that study. However, the ambiguity here is that 34 quotations had no page number, certainly an error by the author(s), and 24 apparent quotes were not found, 17 of which probably were paraphrases in quotation mark—a questionable practice in style and form, at best.

Of the located faults and errors, as already noted, absence of a page number was most frequent, but was confounded with the (apparent) paraphrasing within quotation marks. Next most frequent (N=14) were omissions of one or more words, followed by replacement of one or more words (N=12). Seven instances were found of a word or words being added to the original quotation. Only 14 instances of punctuation discrepancies were found. This pattern of wording deviations in aggregate being about as frequent as all other faults and errors combined is similar to the findings in the previous study, when the data are adjusted for the apparent paraphrasing without page number citation. All together, these findings about quotations suggest that their reliability is far from perfect. The serious reader must retrieve the original source and read it carefully, if usage of the quotation is of importance to the work at hand.

Discussion

While they are pointedly illustrative and similar to those found in previous studies, citing these departures from the originals does little to suggest either how such errors occur, or how to prevent them or correct them prior to publication. Sabine (1985) argued

that most errors probably originate with the author(s), who make the mistakes and then do not find and correct them. Even if the problem is very widespread, "universal," according to Roland (1976, p. 717), the primary fault almost certainly lies with the originators—the author(s). Although discussing more severe problems than those presented here, the argument by Engler, Covell, Friedman, Kitcher and Peters (1987) that peer review can be only a partial guard would seem to apply, just as they argue that editors are relatively powerless to identify and correct errors or faults of any but the more detectable sorts. Haworth (1985) suggested that editors check the *less* recent references, "which may be third or fourth hand" (p. 1282). Obviously, Haworth was also asserting that at least some authors do not retrieve each and every original source and read it before citing it in their piece. While discussing development of the footnote as a social device for dealing with ownership of intellectual property, Kaplan (1965) also speculated about writers' lack of care in reading of original sources.

The data compiled here, added to the findings from previous studies, leave little doubt, even though the samplings are relatively very small in light of the very large numbers of authors, that faults and errors in scholarly writing are widespread, and almost certainly not decreasing in frequencies of perpetration. We speculate that, if anything, they very likely are increasing.

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Table 1

Numbers and percents of faults and errors in reference list entries from 35 volumes of 10 journals previously studied and 78 author sets from 2 volumes of the American Educational Research Journal.

Reference element	10 journal set		AERJ	
	N	%	N	%
Author(s)				
Surname wrong or misspelled	267	4.4	22	3.6
First initial wrong or omitted	149	2.5	19	3.1
Second initial wrong, omitted or added	1684	27.6	222	36.5
Other: punct.; author omit, add, wrong order	363	6.0	19	3.1
Article Title				
Words add, omit, replace, change	1180	19.4	109	17.9
Punctuation	663	10.9	72	11.8
Other: sub-title omit, add, wrong title; major title omit; other faults	239	3.9	21	3.4
Bibliographic Entry Elements				
Journal name wrong or faulty	93	1.5	9	1.5
Year wrong or omitted	94	1.5	8	1.3
Volume (date) wrong or omitted	265	4.4	22	3.6
Issue number omitted or wrong	280	4.6	26	4.3
Pages: one or both wrong or omitted, inclusive pages error, other fault	801	13.2	59	9.7
Other faults or errors	12	0.2	1	0.2
Total	6090	100.1	609	100.0