The Effects of Reference Format on Search Time and Preference

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Abstract

The purpose of this research was to determine if reference finding was related to the format in which the references were printed. In the first experiment, 69 undergraduates located citations and searched for them in the reference section of an APA article. The reference sections were printed in the format of third edition of the Publication Manual of the American Psychological Association (1983), the fourth edition of that same source (1994), or in blocked text. The number of references found was greatest using the third edition format and worst in blocked text. In the second experiment, 80 undergraduates were given brief reference finding tasks using all three formats and were then asked to indicate their format preference. The third edition format was preferred by 86% of the group, whereas the fourth edition format was preferred by only 11%. The data suggest that the reference format associated with the third edition of the Publication Manual should be adopted for future use.

Discussion centers on the perceptual and cognitive contributors that improve the efficiency with which references are found. SUPPORTED BY A GRANT FROM THE NATURAL SCIENCE AND ENGINEERING RESEARCH COUNCIL OF CANADA

In the third edition of the Publication Manual (APA3), the first line of each reference, beginning with the last name of the first author, was always typed three spaces to the left of succeeding lines. In APA4, the first line of each reference is typed three spaces to the right of succeeding lines.

One can easily imagine that a reader looking for a particular author's name in a reference list will first find the page location corresponding to any first author's last name and then, using both top-down search strategies and stimulus information, scan the pages to locate the reference they seek. In APA3 format, a series of vertical saccades will allow the reader to fixate isolated author names. In APA4 format, these saccades are not made to visually isolated names but to names embedded in other text material. These structural differences may well influence the ease of target acquisition. Thus, the literature favors the use of the APA3 format over APA4 or block text.

Therefore, in the first experiment conducted, we asked experimentally naive undergraduates to search for references found in articles published in APA journals. The reference sections were formatted in the manner of APA3 and APA4 and, as an additional condition, in blocked text (Block Text) where segregation of the relevant information is minimal. It was expected that reference-finding would occur most quickly in APA3, followed by APA4 and then Block Text.

Sixty-nine introductory psychology students at the University of Calgary took part in this study. There were 40 males (M age = 19.85) and 29 females (M age = 18.90). On average, they had 1.3 years of university education. As measured on a 5-point Likert scale, they had little or no experience reading APA journal articles. They were paid $5 (Canadian) for taking part in the study.

For the Reference Finding task, participants were instructed to start at the beginning of an article, locate each citation and decide if it was present in the reference section. They were told to underline the citation if it was present and to "squiggle it out" if it was absent from the reference section. Accuracy was emphasized as in the other tasks. They were given a short practice passage which contained 6 references. They were then given 5 minutes to locate as many references as possible in either Grossberg et al. (1994) or Schlenker, et al. (1994).
All materials were bound in two-sided, two-columned, side-stapled booklets. Text passages and references were printed in 9 point Times New Roman font, as in APA journals. All booklets were identical but for variations in format and article. For the Reference Finding task, Article and Format, the between-subjects variables, were randomly assigned to participants.

Group data and overall averages for both correct and incorrect identifications in Reference Finding are shown in Table 1 where it can be seen that APA3 affords a performance advantage for both variables.

Table 1

Search Performance as a Function of Reference Format

<table>
<thead>
<tr>
<th>Format</th>
<th>References Found</th>
<th>False Alarms</th>
</tr>
</thead>
<tbody>
<tr>
<td>APA 3</td>
<td>28.17</td>
<td>.50</td>
</tr>
<tr>
<td>APA 4</td>
<td>23.77</td>
<td>.64</td>
</tr>
<tr>
<td>Block</td>
<td>18.17</td>
<td>2.09</td>
</tr>
</tbody>
</table>

Experiment 2a

While Experiment 1 indicated a clear performance advantage for APA3 format, one can also ask if this format is preferred by readers. There is ample evidence that individual preferences are related to visual characteristics of text. Educators prefer psychological reports written in a way that is consistent with the tasks they perform. And Hartley, Trueman, and Burnhill (1979) showed that journal readers prefer a reference format in which information about authors and publication year is separated from other journal specifics (e.g., journal title, volume and page number). Anecdotally, preference among our colleagues was for APA3. In the absence of any other information, we might expect that this format would also be preferred by novice readers.

Method

Eighty unpaid introductory psychology students volunteered for this study. On average they were in their third year of university studies, were 21.6 yrs old and, as assessed by a 5-point Likert-type scale, indicated an intermediate level of familiarity with APA journal articles.

To be certain that participants were engaged in using the references, they were given a Reference Finding task containing three text passages and abbreviated reference sections from the same articles used in Experiment 1. The reference sections were formatted in APA3, APA4 and Block Text.

Once the Reference Finding task was completed, participants were shown a single page containing three sets of references, one in each format, arranged side-by-side. The same five references were shown in each set. Everyone was asked to rank the formats as they might like to encounter them in reading articles in the future.

Results

The distribution of the preference ranks is found in Table 1 and reflects an obvious ordering of preferences. An overwhelming majority of the participants expressed a preference for APA3. APA4 was clearly the second choice and Block Text, as might be expected, was preferred by only 2 of those sampled.

Table 2

Frequency with which Ranks were Assigned to Each Reference Format (Experiment 2a)

<table>
<thead>
<tr>
<th>Format</th>
<th>1st Rank</th>
<th>2nd Rank</th>
<th>3rd Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>APA 3</td>
<td>69</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>APA 4</td>
<td>9</td>
<td>61</td>
<td>10</td>
</tr>
<tr>
<td>Block</td>
<td>2</td>
<td>10</td>
<td>68</td>
</tr>
</tbody>
</table>
Experiment 2b

Experiment 2a indicated that undergraduate students preferred APA3 over APA4 and Block Text. It is possible that more experienced readers of APA manuscripts and articles, for a variety of reasons, may prefer a different reference format than undergraduate students. To test this possibility, a similar preference questionnaire to that given to the undergraduates was developed and administered to a sample of our colleagues. Because many of our colleagues have mentioned an unfavorable impression of the APA4 format, we did not expect preferences from a larger sample of experienced users to differ appreciably from undergraduate preferences. Nonetheless a systematic determination of these testimonials is required.

Method and Results

Twenty-five people responded to the preference questionnaire that was distributed in our psychology department. Of the 17 females and 8 males who responded, 7 were honors students, 12 were graduate students, and 6 were faculty members. On average, participants reported that 17% of their writing involved APA3, while 72% involved APA4. On average, participants reported that 39% of their reading involved APA3 and 40% involved APA4. As assessed by a 5-point Likert-type scale, they indicated the highest possible level of familiarity with APA journal articles.

To be certain that participants were engaged in using references at the time they indicated their format preferences, they were given the Reference Finding task used in Exp. 2a. Their format preferences were assessed as in the previous experiment.

Despite being used to writing and reading APA4, the distribution of the ranks for this sample was the same as experiment 2a. APA3 was ranked first by 92% percent of respondents, APA4 was ranked second by 92%, and Block Text was ranked third by everyone.

General Discussion

The present research used a realistic reference-finding task that emulated how readers of APA manuscripts seek additional information about cited authors. Like Bednall (1992), in Experiment 1 we found that readers who used the APA3 reference format located approximately 16% more references than those who used the APA4 format. In Experiment 2a, the APA3 format was preferred by an overwhelming 86% of participants, whereas APA4 was preferred by only 11%. This finding was replicated in the more experienced sample of Experiment 2b.

If readers perform better with it and prefer it, the APA might reconsider its change of reference format. One might wish to make the counterargument that the changes brought about in APA4 apply only to manuscripts and not to the publications themselves, and so are of relatively minor importance. There are at least two reasons why this reasoning is less than compelling. First, student papers and unpublished manuscripts are now read in APA4. For example, there were 5,721 manuscripts submitted to APA journals in 1996 alone (APA, 1997). Thus, many people, including teaching professors, undergraduate and post-graduate students, and copy editors must work with manuscripts on a regular basis. For them, the standardized use of efficient reference format has considerable benefit. Second, it seems unnecessary and potentially problematic to use one reference format for manuscripts and a second for the published works. Perhaps, professors and instructors may want to require their students to write papers using the older reference format.