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The Descriptive Title of the Manuscript: Center Between Left and Right Margins and

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Author(s) Names(s)

Organizational Affiliation

This box would not appear on a real paper, but gives credit where it is due. Sally Beaton and Ray Kirby of Old Dominion University were the original developers of this sample paper. Revised by Pamela Novy, University of Vermont, 2/96.

### Abstract

The abstract is a brief summary, typically 75-100 words (no more than 960 characters, including spaces), of the purpose and content of the paper. The abstract is typed in block form (a single paragraph with no indentation) and is written last, after the paper is finished. The abstract is often used by the reader to determine whether or not the paper will be read in its entirety; therefore, each sentence should be accurate and maximally informative. The abstract typically contains about six sentences. The first sentence introduces and describes the general problem under investigation. The second sentence provides pertinent information about the subjects, including sample size and selection criteria. The third and fourth sentences summarize the overall methodology including independent and dependent variables. The fifth sentence summarizes the main results. The final sentence states the general conclusions and implications of the study. If you have access to a copy of the APA Manual, refer to pages 12-15 for more information.

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The introduction starts on a new page and is the only section of the manuscript *not* labeled with a heading; instead, the full title precedes the Introduction, typed exactly as it appears on the title page. The Introduction serves three basic purposes: (a) to introduce the problem, (b) to develop the background information, and (c) to provide the reader with a clear statement of the purpose and rationale of the study. The tone of the Introduction should be one of reporting, not creative narrative. Technical writing is *not* the same as creative writing, and you are generally reporting, in an objective manner, research that has been done or *is* about to be done, and why. Avoid strong opinions and value judgments.

*Organization and Writing the Introduction*

The most difficult part of organizing and writing an Introduction is the development of a logical connection between the current body of literature and your research design. The articles that you select to use in your Introduction should all be *related* to your topic, but not necessarily identical to it. The independent variable in an article may be the same conceptually, but not operationally defined the way you did, and the dependent variable may be completely different. But if you can still relate the article to what you have done, then it may be a good article to use.

Each article should add a little more information (and maybe even some confusion) to where we stand in terms of research on that topic. It is perfectly OK to report conflicting results-- actually, this is all the more reason to do your study. If you can find studies that report conflicting results, try to figure out what the differences are in

their methodologies; that may be why the results are different. And as you are writing your Introduction, keep in mind what *you* did, and how each study relates to that. An analogy to remember is that the Introduction is structured like a funnel, very wide (or broad) in the beginning and very narrow (or focused) in the end. The Introduction includes a discussion of literature relevant to the problem under investigation, but not an exhaustive review of every general or tangential study in the area. If you have access to an APA Manual, see pages 15-17 for more information. Keep in mind that one of the best ways to learn how to write an Introduction is through reading other journal articles. Pay attention to how other articles have organized their Introductions.

As a general rule (that means there *are* exceptions), do not use footnotes, direct quotations, or large block quotes, and above all, *NEVER* cite a study you haven't read! In some cases, abstracts may provide enough information to use a study as a supportive reference; however, this practice should be used with caution and should neither be frequent nor exclusive.

Information presented in the paper should be *your* interpretation and paraphrasing of the relevant literature. A couple of comments need to be made about plagiarism. First, do not use the exact wording in the articles you have chosen to use; summarize the research in your own words. If you have used any information from an article, you *MUST* cite it in your Introduction and list it in your Reference section. (NOTE: For the sake of brevity, we have not listed every study cited in our Introduction in our Reference Section; however, **YOU MUST LIST EVERY STUDY YOU CITE IN YOUR REFERENCE SECTION.**) Second, although you are free to share copies of articles with your fellow classmates, do *not* get together to *write* your paper. There are an infinite number of ways

to combine and interpret all the potentially related articles. We *DO NOT* want to see any two papers that are similar.

### *Citing References in the Introduction*

Any ideas and information not completely and exclusively your own must therefore be cited in the Introduction and listed in the Reference section (we cannot stress the importance of this enough). References are cited in the body of the paper in a number of ways, depending upon how many authors the reference has and whether it is cited in an active or passive context. Citations in text use the authors' last names and the year of publication. An example of single-author reference in active context might be "Howard (1990) proposed that occasional decadence is necessary for maintenance of low anxiety." The same reference in a passive context might be "an earlier theory (Howard, 1990) proposed. ..." If the citation comes at the end of a sentence, the period is placed outside of the parentheses after the citation; for example, "...found no differences in male versus female eating preferences (Howard, 1990)."

For references with two authors, active context citations use the word "and." An example of this might be "Beaton and Kirby (1991) indicated that all students dropped the course. ..." In a passive context the two-author reference uses the ampersand (&), for example, "...and violent student outbursts and rioting were reported (Beaton & Kirby, 1991)."

If a reference has three to five authors, the method is a bit different. The first time the reference is used, all authors' names are reported; all subsequent citations of that reference use only the first author's name, followed by "et al." meaning "and others." First citations in active and passive contexts respectively might be "Llewellyn, Clarke, and

Hembrooke (1988) investigated inappropriate behavior at social gatherings..." or "...found perceived mental effort unrelated to quality of performance (Cooke, Waite, & Sieu, in press)." A subsequent citation in active context might be "Llewellyn et al. (1988) found appropriateness of clothing style inversely related to monetary output for the event." Likewise, a subsequent passive-context citation might be "...which offers support for the hypothesis that mental effort is not related to task outcome (Cooke et al., in press)." Note the use of the "and" and the ampersand, and the punctuation in each case. Finally, *all* citations of references with six or more authors, including the first citation, use "et al." (Whew! )

If two or more references by the *same* author(s) are cited, list the multiple years of publication in chronological order within the parentheses, separating each by a comma. For example, "...recent studies by Smith and Wesson (1982, 1984, 1985a, 1985b)..." Note that two or more studies by the same author(s) published in a single year carry a lowercase letter suffix. If two or more references by *different* authors are cited at once, they are listed in alphabetical order by the author's name within parentheses, separated by semicolons; for example, "...as demonstrated by recent investigations'. (Beaton, 1985; Kirby, 1982; Mikulka, Vanetti, & Thomas, 1988; Owens & Llewellyn, 1987)." Note that in this case the year of publication does not matter, only the first author's name.

If a secondary source is used, list the secondary source in the Reference section. In the text, name the original work and give a citation for the secondary source. An example of this might be "Nelson and Novy (as cited in Burchard, Gordon, &

Bouton, 1993) found that.. ." Refer to the Reference section to see how this work is listed. If you have access to an APA manual, see pages 215-281 for more information.

### *Summary and Final Paragraph*

The final paragraph of the Introduction should specifically state the hypothesis or hypotheses of the study, in terms of the independent and dependent variables. All previous paragraphs should lead up to *why* you're doing what you are. In this last paragraph, you then include a brief operational definition of each variable and what you expect to find, based on the literature you've reported. Your hypothesis may or may not be directional, or state that the effect will occur more so or less so with a certain group. If you use a directional hypothesis, however, it must be due to research you have cited, not just because you think or hope the data may turn out that way. Examples of these statements might be "...it was hypothesized that those subjects receiving six beers prior to testing should perform poorer than those receiving the nonalcoholic beer (Beaton, 1986, 1987, 1988a, 1988b);" or you may state that "...the present study was conducted to determine whether alcohol would affect performance" (i.e., improve *or* impede). See the Appendix of this sample paper for typing instructions and writing guidelines.

## Method

### *Participants*

The Method section is usually divided into three basic subsections: (a) Participants (b) Materials and/or Apparatus, and (c) Procedure. Occasionally, other subsections are included as well, e.g., Design. The Participants, or Subjects, subsection provides pertinent demographic information about those who participated in the study, including number of participants, demographic about the participants, (who they were,

where they were from, number of males and females, and average age or age range of participants), selection criteria (volunteers? randomly selected from the phone book?), and incentives (paid? received credit for class?). If data from any participant(s) were excluded, state how many participants this involved and why their data were not used. If you have access to an APA manual refer to pages 111-115 for more information concerning the format of headings.

### *Materials and Apparatus*

This information is sometimes presented in several subsections, labeled simply *Materials* or *Equipment* or *Apparatus*, or *Measures* depending on what equipment or tests were used for the study. Here you should simply describe the equipment, stimulus materials, and measures used. Equipment brand names and model numbers should be included when applicable. The information in this subsection should be adequate enough to enable the reader to acquire or reproduce all the materials used. If an unpublished questionnaire was used, you may want to include it in its entirety in an Appendix. Specific procedures involving the use of the equipment and materials should be omitted here and saved for the following Procedure section.

### *Procedure and/or Design*

In this subsection, the first paragraph should describe in sufficient detail the experimental design, including levels of the independent and dependent variables, as well as any counterbalancing and randomization techniques used. You may want to make this a separate Design subsection if your design is a complex one. Next, you should describe the procedure in sufficient detail that the reader could imagine being a subject. Remember to write the procedure in temporal order (i.e., order the procedural events as

they occurred in time). A simple and useful heuristic ("rule of thumb") is to have your mother, spouse, or roommate read this section; if he or she can describe to you everything you did (in order) when conducting the study, then your procedure section is fine!

The description of the procedure should include instructions to participants, formation of groups, and specific manipulations and debriefing of participants. If you have access to an APA manual, refer to pages 17-20 for more information of the Method section.

### Results

The Results section provides a summary of the data collected and the specific statistical analyses computed, emphasizing what happened without attempting to explain why. Make a clear statement at the beginning of the section about what scores were used in the analyses. Report relevant results, including those contrary to the hypotheses. Organize the section in the manner in which the data were analyzed. Present the primary analyses first, which presumably were based on a priori hypotheses. Next, present any post hoc analyses which were necessitated by the preliminary analyses. If you have access to an APA manual, refer to pages 20-26 for more information on the Results section.

A specific format must be adhered to when presenting statistical results in text; indicate the direction of the measured effect, the parameter used, degrees of freedom, the associated probability level and the a priori alpha level. If the alpha level was the same for all analyses, you could write, "An alpha level of .05 was used for all analyses" somewhere near the beginning of the results section. If the alpha level was different for different analyses within your paper, you need to report the alpha level for each analysis.

Two examples might be "as hypothesized, a higher frequency of laughter was recorded from subjects reading 'Bloom County' than from the subjects reading 'Family Circus',  $t(27) = 3.79, p < .05$ ," and "Using an alpha level of .05, there was found to be significantly more flatulation in the baked-beans condition than in the sauteed asparagus condition,  $F(1, 13) = 7.85, p < .05$ . Take note of the italics and punctuation, and that magnitudes are reported to two decimal places, including trailing zeros.

If more than two groups are compared, report the "main effect" magnitude and probability without a statement of directionality; if significant, then report results of appropriate post hoc analyses. In addition, for almost all the research you will ever do, *a priori* alpha levels for the tests of significance will be set at .05; therefore, you should always report the results of your tests as simply less than .05 or nonsignificant.

And don't forget to include group *means* and *standard deviations* for each statistic computed so that the reader knows the level of performance for each group. If there are only a few means, as in a main effect, you may include them in the body of the text. For example, ". . .there was a significant main effect for the level of alcohol,  $F(2, 48) = 7.47, p < .05$ . The Tukey post hoc test showed that the group who consumed 6 oz of vodka had significantly more errors than the group with the placebo ( $M = 11.2, SD = 1.2$  for the alcohol group and  $M = 7.3, SD = 1.7$  for the placebo group). There were no significant differences between the group with 3 oz of vodka (8.9 average errors) and either the 6 oz or placebo group." If your analysis is more complicated --such as a 2- or 3-way interaction, you may want to show mean levels in a table or figure.

When presenting a single statistical test which was nonsignificant, present as above except replace the *p*-value with "n.s."; for example, "there was no difference

between the male and female groups on task performance,  $t(19) = 1.01$ , n.s." If multiple tests are performed and are all nonsignificant, they may be reported as a group, giving only the largest magnitude. For example, "there were no significant differences between the lobotomized boxers and the George Foreman opponents on any of the 10 mental tasks, all  $F(1, 22)$  values  $\leq 2.51$ ." If you have access to an APA manual, refer to pages 136-146 for more information on statistical presentation.

Results sections are often less cluttered and more easily interpreted when tables and figures are used. Bar graphs, line graphs, drawings, or diagrams are referred to as figures, while tables are simply tables. Groups of descriptive data such as means and standard deviations are commonly organized in a table. Likewise, figures give the reader a quick visual representation of the results of a particular analysis or even of the entire study. Note that there is no header on the actual figure, and that the figure caption is on a separate page. Refer to the figure caption included in this paper for an example.

Tables and figures are each placed on separate pages and are located at the very end of the paper. Make sure that all the tables and figures you use are referred to in the Results section. Two examples might be, "Figure 1 illustrates the interaction between alcohol consumption and sleep deprivation on sexual performance" and "means and standard deviations for the monkey performance scores versus the psychology major performance scores are presented in Table 1." If you have access to an APA manual, refer to pages 147-201 for more information on tables and figures.

## Discussion

The first paragraph of the discussion should parallel the last paragraph of the Introduction. You should restate the purpose and hypotheses of the study and then clearly

state whether the results of the study support your hypotheses, in terms of the independent and dependent variables presented in the last paragraph of the Introduction.

Next, you interpret your results; if they supported your hypotheses, you can simply emphasize the logic of your Introduction. If the results did not support your hypotheses, you should comment on any possible reasons that are apparent to you, including perceived methodological problems without unnecessarily criticizing your research or sounding apologetic. Finally, discuss your research in the context of the existing literature. Relate your study to the references cited in the Introduction, and state the relevance and implications of the work. You may cite additional references (that were not presented or discussed in the Introduction) that may help explain your results. This is especially useful when the results did not turn out as hypothesized. The Discussion section should include a summary of your results as well as possible directions for future research. If you have access to an APA manual, refer to pages 26-27 for more information on Discussion section.

## References

- Beaton, S. J., & Kirby, R. H. (1991). Factor analysis of antisocial behavior among college students: Effects of imposed academic failure. *Yugoslavian Journal of Psychoperversion, 13*, 417-424.
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- Howard, N. (1990). Sex differences and eating preferences: A model for the development of adult habits. *International Journal of Food Science, 2*, 1137-1141.
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- Smith, L., & Wesson, H. (1982). *What if we threw away all the guns?* Washington, DC: NRA Publishing.
- Smith, L., & Wesson, H. (1984). The relationship between owning a gun and firing a gun. *Polish Journal of Gun Studies, 499*, 20-45.

Typing and Writing-Style Instructions

1. Pay particular attention to the typing format of the title page, text headings and subheadings, and especially the references. For more information on typing, refer to APA Manual pages 284-305.
2. If possible, make liberal use of the APA Manual as a guide and reference when preparing your papers. This handout, as well as the sample paper in your text are best for double- checking format and style and quick referencing.
3. Be sure that your writing is appropriate, well-organized, and grammatically correct. Be careful to avoid using sexist language (and remember there is no such words as "he/she" or "s/he"). Refer to pages 61-65 in the APA Manual for more information on reducing bias in language.
4. Take note of the format of the appendix, specifically the title underlining.
5. If the last line on a page is the heading for one of the sections, such as "Method" or "Results," you need to move that heading over to the following page. However, don't make this type of formatting change until you are completely finished with your paper, because whenever you change something, the rest of the paper gets moved around, and it may be that the "hanging" heading would have gotten moved just by your editing.
6. Use your spell checker.

Table 1

*Summary of Analysis of Variance for Time Estimation*

Source	<i>df</i>	<i>F</i>
Social (S)	1	5.17*
Task (T)	2	5.23**
S x T	2	0.30
Within	72	(16.42)

Note. Values enclosed in parentheses represent mean square errors.

\*  $p < .05$  \*\*  $p < .01$