

Sample Paper for Research Methods

Daren H. Kaiser

Indiana University Purdue University Fort Wayne

Abstract

First notice that you do not indent the first line of your abstract. The word “Abstract” is centered, capitalized and bolded on the first line. Your abstract should be about 150-250 words and should be a very condensed version of your entire paper. Start by indicating what the general problem is. Then briefly explain how you examined the problem (what did you manipulate and what did you measure). Briefly indicate what you found (which groups performed better than others). Finally tell what your conclusions are (what is the take home message of the study).

Sample Paper for Experimental Psychology

On page three you begin your introduction section. First notice that this section is not labeled, rather it begins with the title of your paper centered on the first few lines. You begin your introduction by introducing the general area of research. Next discuss previous research that is relevant to your research question in order to develop the problem. You should be attempting to create a logical progression to your introduction. Tell the reader what the general problem is and then lead them through findings that are directly relevant to the research problem you are writing about. Try to build a bridge between the previous research findings and the experiment that you are about to present. In other words, it should seem to make sense that you are studying this particular problem based on what you have told the reader so far. State the purpose for doing the present experiment. Don't just say "to test the hypothesis" or "as a class project". Typically you can say something like "Previous research has shown that humans process stimuli in *such and such a way*, the present research is an attempt to expand that research and look at *such and such* and how it will influence *such and such*."

At the end of the introduction you should state your hypothesis. Use specific terms, and make a prediction. Be sure to include your independent and dependent variables in your hypothesis. For example "In the present study an examination of the effect of acute cocaine administration on locomotion in an open area was undertaken. It was hypothesized that locomotive behavior in rats would increase if they received an injection of cocaine compared to rats that did not receive an injection of cocaine.

There are specific ways for you to cite the literature that you present in an introduction. If you were writing about a paper that found that reaction time is slower after alcohol consumption, you could cite the reference in one of two ways. The first way involves the

authors of the paper as part of the sentence. For example: Smith, Roberts, and Henderson (1998) found that reaction time is slower after alcohol consumption. Notice that you only use the authors' last names. Also notice that you use the word "and" to separate the last author from the rest, then the year is placed in parentheses after the last author. The second way to cite a paper involves a citation that is not actually part of the sentence. For example: It has been shown that reaction time is slower after alcohol consumption (Smith, Roberts, & Henderson, 1998). Notice again, that you only use the authors' last names, however, since the authors' are not actually a fundamental part of the sentence the whole citation is placed in parentheses. Also notice that an ampersand "&" is used instead of the word "and".

If your citation has one or two authors, then each time you cited them you would always list all of the authors. If your reference has 3-5 authors, then the first time you cite that reference you would do it in the fashion described above. However, throughout the rest of the paper you would cite that reference using the "et al." format. For example: As mentioned earlier Smith et al. (1998) found that reaction time decreased after alcohol consumption. Or, for example: As mentioned earlier it has been shown that reaction times decrease after alcohol consumption (Smith et al., 1998). If you have an article that has six or more authors you should use the "et al." format the very first time you cite it, and continue to use that format throughout the remainder of the paper.

What if you want to make several citations of the same paper within a paragraph, or within the same train of thought? If you are linking several different ideas together from one article you may need to make several citations of the same authors. In this case, you include the year in your citation the first time you reference them, but after that you just cite the first author followed by et al. The paragraph below is provided as an example.

In a recent review article, Smith, Roberts, and Henderson (1998) examined various physiological changes that can result in humans following alcohol consumption. In one case, Smith et al. found that reaction times were increased following alcohol consumption. They indicated, however that further research might be necessary to examine whether males and females may be more or less affected by alcohol consumption on this measure (Smith et al.).

I have tried to sum up how an introduction is written and the content it should have. Realize that your introduction should be a logical lead-in to the study you are about to present. At the end of the introduction you should present your hypothesis (what you expected to happen and why).

Method

The first thing to notice about the method section is that it continues on the line immediately following your introduction. It does not begin on a separate page. The word “Method” is capitalized, centered, and bolded on the line following the Introduction and then you begin writing the methods section. The methods section is divided into three subsections. This introductory paragraph would not exist in a real paper. Rather, the Participant section begins immediately following the Method heading.

Participants

The first section is the participant section. You type the word “Participants” flush on the left margin. Notice that the first letter is capitalized and that it is bolded. In the participants section you describe all of the relevant characteristics of your sample (e.g., number, age, gender, etc.), where the participants were from (don't give the specific location rather write in general terms; e.g., public University in the Midwestern United States), how the participants were selected or recruited, and what if any incentives were given for participation in the study.

Materials

In the materials section you explain what was used to perform the study. In this class the materials are usually written instructions and paper and pencil tests. These things fall under the subsection of materials. If you were using some type of machinery such as a computer, or operant chamber, then you would label this section Apparatus.

Procedure

In the procedure section you must summarize each step in the execution of the study. The reader should be able to read your procedure and then be able to replicate your experiment in the exact way that you originally ran it. You must be very careful in explaining how to run the experiment, so that it is very clear to the reader how to perform the experiment. Do not assume that just because I was there when the study was designed that I will understand your procedure if you leave some things out. I will read your paper as if I know nothing about the study. I will be looking to see if I understand your procedure enough for me to try to run the experiment without prior knowledge of it.

Results

Your results section follows your methods section. In the results section indicate the comparisons that were made in the experiment. Then summarize the data (give the mean and measure of variability for each group) and tell what statistics you used to compare your groups (i.e., the two groups were compared using an analysis of variance).

You should first give the main results and then give the statistical findings that support each result mentioned. For example: The group of rats that were given cocaine had a significantly higher activity score than the group that was given saline, $F(1, 7) = 5.67, p < .05$

(the new APA manual also asks that we report effect size and confidence interval statistics as well).

You must present statistics in the proper format, such as the way I did in the previous sentence, however I will help you with this when the time comes. Typically the results section also makes reference to tables and figures. If you have a table or figure it does not actually go in the results section. Rather your tables and figures will be at the end of your report, but they will be made reference to in your results section. For example you might say: The mean activity score for rats injected with cocaine was higher than for rats injected with saline (see Table 1). The same idea is true for figures. For example: There was a Drug x Sex interaction [$F(1, 7) = 6.25, p < .05$], the female rats showed a greater increase in activity following cocaine exposure than did the male rats (see Figure 1).

Discussion

You should begin your discussion section by restating your hypothesis. Then discuss whether or not your hypothesis was supported. Discuss whether findings in the present experiment are consistent or inconsistent with the findings of previous experiments. Here you need to cite other researchers' work again in the same way that you did in the introduction.

Briefly discuss any flaws in the experiment. End your discussion with a paragraph that tells the major conclusions from your study, and what the implications of this study might be for people in the real world. Ask yourself these questions to help yourself write your discussion. What have I contributed here? How has my study helped to resolve the original problem? What conclusions and theoretical implications can I draw from this study? This description of the discussion section is relatively brief. To accomplish all that I have indicated will require writing a few pages. A two-paragraph discussion is not going to cut it.

References

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Table 1

Mean activity score as a function of injection type

<u>Injection</u>	<u>Mean Activity Score</u>
Saline	22 (5.4)
40mg/kg Cocaine	50 (7.2)

Note. Standard deviations are presented in parentheses.

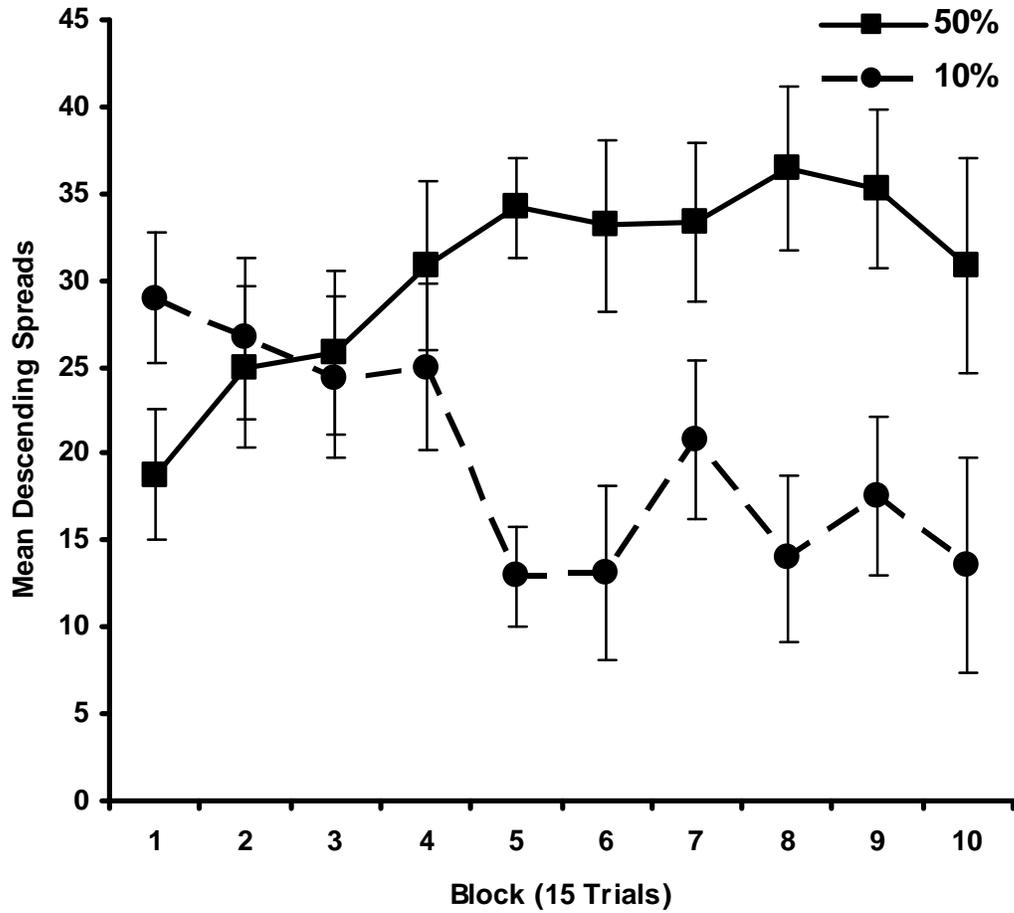


Figure 1. Mean descending spreads as a function of group and block (15 trials). Note- 50% represents the group trained with 50% peak trials, 10% represents the group trained with 10% peak trials. The vertical lines represent standard error of the mean.

The five levels of headings.

Centered, boldface, upper and lower case (1)

This page is intended to give you a feel for the different levels of headings. It would be rare that you would need all five levels, nevertheless here they are. Please note the number in parentheses would not be included.

Flush left, boldface, upper and lower case (2)

This is the second level of heading notice how it stands alone and is not part of the initial paragraph as was the case with level 1.

Indented, boldface, lowercase paragraph heading ending with a period. (3) Now. The header actually begins a new paragraph. It does not have its own line. You would now have a section that would describe what ever issue that was indicated by the heading.

Indented, boldface, italicized, lowercase paragraph heading ending with a period. (4) Same deal with the next two levels. Just slightly different formats.

Indented, italicized, lowercase paragraph heading ending with a period. (5) Unlikely that you will get to level 5, but here it is in just in case.