

Psychology 445: Advanced Research Methods

Below is the grading scheme that I will use for your final papers (although absolute point value I will leave to my discretion.) Spelling, grammar and general flow of the paper do count. You can work in partners on the data analysis (in fact, I encourage it!), but each partner should write his or her own paper.

Introduction (25 points):

1. Has the general theoretical or conceptual area of interest been presented?
2. Is there an adequate review of the relevant literature? (6 points given for mentioning **a required three** references).
3. Are the research question(s) clear and explicitly stated?
4. Has the value and implication of the study been discussed? (4 to 5 points).

Methods (10 points)

1. Are the methods clearly presented?
 - a. Participant information (This will be a “boilerplate” description that everyone can use.)
 - b. Predictor and outcome variables. Remember that you should present the mean, standard deviation and a Cronbach’s alpha for any scale that you construct.

Results (25 points)

1. Have descriptive statistics been provided in either a table or graph? (3 points)
2. Were the statistical tests applied appropriately? (15 points)
3. Are results provided with appropriate/adequate information (obtained F value, df, level of significance)?
4. Were the results discussed in sufficient detail?

Discussion (30 points)

1. Was a clear overall statement regarding support or non support of your research question provided? (5 points)
2. Have possible problems, such as confounding variables and alternative explanations for the results, been discussed? (10 points)
3. Have the practical or theoretical applications and/or implications of the study's findings been discussed?
4. Have suggestion for future research been made?

Overall style and format (10 points)

1. Abstract - approximately 100 - 150 words.
2. Does it adequately summarize the study?
3. Has standard APA format been followed? (2 points for correct reference style)

How to write a (psychology) research report

A research paper is made up of six sections: the *abstract*, the *introduction*, the *method* section, the *results*, the *discussion*, and the *reference* section. This format is the official writing format of the American Psychological Association (APA) and is the format you will see used in articles published in psychological journals.

The following are brief definitions and explanations of each of these six sections:

Abstract: The keyword in writing an abstract is brevity. The abstract appears after the cover page, and it is there to give the reader an idea of what question or problem the experiment was designed to investigate; what the results were; and how they were interpreted. An abstract should be brief, concise and clear. Generally, they are about 150 words long (or less). The abstract is written in the past tense.

Abstracts may appear difficult to write at first -- two hints; always write the abstract last, after you have written up the results and discussion sections (this will help you edit down your results to a few sentences); and if you find yourself having difficulty, just keep practicing. An abstract "style" becomes apparent. One example of a research project abstract is the following:

(explains what study focused on)

(indicates what hypothesis was-- and that it wasn't supported)

(indicates results)

(indicates what else is in discussion section)

"This study examined the amount of information one subject could take in and later recall during a single saccadic eye movement, when presented with stimuli of varying number. The results did not substantiate the initially hypothesized proportional relationship between number of items recalled and number presented. However, the results demonstrated that only a certain number of stimulus items is reported regardless of the number presented. The majority of the stimuli recalled held a serial position consistently of the first row. Variations between the present investigation and an earlier one with similar results are discussed."

Introduction. The introduction is an untitled section of the paper -- it simply appears on the top of the next page (with the title of your paper repeated as a heading for this page). This is a very important section of a research paper. In it, you give a detailed account of the problem, or research question, you are addressing in this experiment.

An important element is references to other references (and their findings) which are relevant to the reasoning of your study. You can think of the introduction as (1) a description of the psychological

issues that you are going to investigate; (2) a discussion of the research question(s) or hypothesis that you are examining; and (3) a reference to other studies (in the same area) which have results which bear on your research project -- whether they are in the same direction as your hypothesis or in the opposite direction. The final paragraph (s) should include a more specific definition of your variables (independent and dependent) and a clear statement of the predictions based on the background information that you have presented.

A note on how to cite references: Reference citations at any point in the text include the last name of the author(s) and the year of publication. If you want to quote directly from an article, include the appropriate page numbers after the year of publication. For example:

Smith (1970) reported that...

In a recent study of earth worms (Smith, 1970),...

Jones and colleagues report feeling devastated at the lack of results (Jones, Smith and Yearley, 1970, pp.20) ...

Method: This section can be thought of as the "cookbook" section of the paper--the idea of the methods section is that any other reader, by reading this section, could duplicate (or in research terms, replicate) your study. Therefore, it should be complete, detailed and clear enough to allow another investigator to understand how you ran your experiment. To some extent, you can't have too much detail! The method section is written in past tense.

The methods section is divided into "subheadings", e.g., Participants, Predictors, Outcome Variables. The methods section is generally easy to write--you simply describe what you did, how you did it, and when you did it. For example (1) describe your participants (how many? of what sex? mean (average) age? where did they come from? Response rate should be reported here. Reproduce the exact questions that you asked and don't forget to tell the reader the scale you used for participants' answers. For any scale that you construct, include the mean, standard deviation and Cronbach's alpha. If you "threw out" that participant's data (e.g., you didn't include it in your study, then you mention this fact ("one participant was discarded from the sample because...") in the Participant section.

Results: This is (obviously!) where you present the results of your experiment to the reader. The results section is composed of a written summary, or description of the data (results), with tables and/or graphs to substantiate your claims. You should present both descriptive statistics on the outcome of your study (means and standard deviations for different treatment groups) and indicate any statistical tests that you used to evaluate the data (e.g., $F(1,20)=6.39$, $p<.05$). The results are presented without interpretation (that occurs later in the discussion section). The table/graphs are the way you present your actual data (e.g., means for treatment groups) to the reader. The graph axes should be labeled, the table columns labeled, etc. to help the reader understand what you are presenting to him/her. Each table/graph should also have a title. Again, clarity is important here. Also important is the idea of summarizing your data.

Remember, you don't just present your data in numerical form! You also describe it in words. You might say something like "The mean response for participants who received (...) was significantly different from the mean response for participants who received (...). Then, tell the reader where to find the numbers that correspond to this statement(s), by stating after the sentence (see Table 1, see Graph 1). Then your reader can look at the table or graph of data and see if she/he agrees with your statement(s). Always remember that you don't want the reader to have to hunt for information--make it very clear to him/her, throughout your report, to what you are referring.

The results section is also written in the past tense. Note that Tables and graphs are placed at the end of the paper, in order to make the text look less "choppy". Use the note "Insert Table 1 about here" to indicate where the tables/graphs belong. Obviously, tables are numbered consecutively, as are graphs. If your paper has both table(s) and graph(s), they both begin with "1", e.g., Table 1, Table 2, Graph 1, etc.

Discussion. This is the culmination of your research paper, where everything comes together, here you tie together all the other sections of your paper and make a statement about the original research question which started you out on this adventure. The discussion section states the major results (what you have discovered), and tells the reader what you think they mean.

In other words, you draw conclusions from (and make interpretations of) your data. There is no need in this section to restate the data -- that is all in the results section. Instead summarize it; for example, when discussing scores taken 24 hours later, don't tell the reader what the scores are, instead tell the reader what the scores mean ("the scores from 24 hours later clearly suggest that our pizza manipulation was relatively long-lasting"). (That is an interpretation of results!)

Your discussion section should refer back to those studies you mentioned in your introduction. Discuss how your results are similar to the findings (results) of these studies, or, if they are different, (don't panic!), how they differ (and your ideas as to why they differ). Attempt to resolve and deal with these differences by suggesting reasons for why they might have occurred.

Another good tactic is to suggest ideas for future research experiments in this area, ones that follow the study you have done, improve upon it, etc. For example, you could suggest how to further explore a finding you discovered, suggest how to discover why you got different results from other researchers, etc.

If your discussion section is fairly long, it's nice to put a short summary paragraph (of the conclusion, interpretations, etc.) at the very end to help the reader remember your general conclusions. This is also a good preparation for writing the abstract. Remember, the discussion section will make or break your paper -- put a lot of thought into it and try to draw sophisticated (and accurate!) conclusions from your data.

References: This is the last section and it should conform to APA style as illustrated in the second handout.