Writing Psychology Papers

Psychology papers can be tricky to write, simply because they don’t follow the same format as other types of papers, either in the sciences or in the social sciences. Psychology often straddles the line between these two areas, and your papers will require you to do the same. This guide should help you balance the technical and applied aspects of your paper; help you figure out how formal or informal your paper should be; help you analyze other psychology papers; and serve as a checklist to make sure that you don’t miss out on any key elements.

When writing psychology papers, you will typically be writing critiques, reaction papers, reflection papers, and research papers. The format and content of these will vary according to the professor who assigns them and the class that they’re assigned for, and it is therefore important to pay attention to the prompt. However, there are common things to consider when writing any kind of psychology paper, including critiques and reaction papers. I have compiled a list of these common considerations on the following page.

The guide also includes different sample essays, along with their corresponding psychology research papers. These sample essays will provide examples of many of the issues discussed in the guide. It may also be useful to go through the sample essays in your free time, in order to identify their strong and weak points or to practice editing a psychology paper.

Analyzing Psychology Studies

The following are some example questions that one can use to analyze and critique a study. Although these questions were written specifically for the purpose of analyzing psychology papers, they are equally applicable to other science papers. I highly recommend completing a QALMRI (the Question Alternatives Logic Methods Results and Inferences method for evaluating experiments: guide included) for a scientific paper instead of starting an essay with disjointed ideas in mind. Many of the following questions will naturally be answered during the process of writing a QALMRI. However, they may be useful if you are in the brainstorming stage or require a final checklist.

Don’t feel as if you are required to find fault with every single aspect of a study. Make sure to point out the positives, as well as the negatives. The papers provided by your professor will typically be of a very high quality; however, this does not mean that they are perfect. Don’t be afraid to criticize what you perceive as a shortcoming. Read the paper thoroughly and write your assessment confidently.
**Thesis and Hypothesis:**

- Make sure to clearly state your hypothesis/research statement.
- Your paper should include a clear statement about the support or non-support of the hypothesis being tested. If you do not fully agree or disagree with the hypothesis, be sure to make your position clear.
- Always define unfamiliar concepts, even if readers are familiar with them. DON’T write your paper without knowing what a concept or term means, even if you can get away with it. If you don’t know what it means, it is very likely that your reader – especially if the reader is your professor – will realize your ignorance.
- Always end the discussion section of the paper with comments that focus on importance of findings

**Style**

- Try to refrain from using flowery language or linguistic devices that call attention to words, sounds, or other embellishments. This includes alliteration, any kind of poetic expressions, and clichés.
- In a similar manner, use passive voice to emphasize the experiment, not the researchers. The use of active voice and “I” should be limited to avoid distraction. This does not always apply in the case of reaction papers. Feel free to use active voice if your professor has asked for personal anecdotes or in the case of personal inferences. In all other cases, including critiques, passive voice is preferable.

Quick questions to consider when analyzing a study:

- **Does the title reflect the paper’s content?**
- **Does the abstract include the main points of the paper? Is it clear and concise?**
- **Is the reasoning behind procedures or methods obvious? If not, does the author explain their reasoning?**
- **Why was the research conducted the way it was? Consider the methods, the demographic of the participants, the type of experiment used, etc.**
- **Are the methods and the participant sections well explained? Are there unnecessary descriptions for the participants or methods?**
- **Was data excluded? Are there explanations as to why data was excluded? Does the exclusion of data affect the results or make them less statistically significant?**
- **Are the methods easy to follow? Are the steps written in chronological order? Are there areas of the method that are difficult to understand?**
- **Are there clear operational definitions of the variables? Are the variables operationalized in a way that makes sense? Are there obvious confounds that are not addressed?**
- **Was a control group used? Are there confounds present in the control group? Was the control effectively designed?**

Simplify the language when possible; don’t use a profusion of technical terms just to make your paper sound scientific.
Grammar and Word Choice:

• Use words like “subjects” and “participants,” instead of descriptive nouns like “college students” or “respondents” when possible. Only use descriptive nouns if it is necessary or if you feel that you have become too repetitive.

• Theories, effects, experimental conditions, and variables should not be capitalized when used in the text, except in the following situations:
  o If they contain the name of a person in the theory or effect
  o If they occur with multiplication signs

• Numbers are only expressed as words in the following situations:
  o When they are positioned at the beginning of a sentence. However, you should always try to restructure the sentence to avoid putting the number at the beginning.
  o When they are part of a title or text heading
  o When they are being used in common fractions
  o When the usage is universally accepted, for example when they are part of an existing group name or phrase, for e.g., The Twelve Apostles.
  o Numbers below ten are always expressed as words except in the following situations: time, date, age

Citations

• In parenthetical citations, a study with two authors requires that their names be connected with “&.” If the citation is not in parentheses, then you should connect authors’ names with “and” instead.

• If an article has three to five authors, write out all of the authors’ names the first time they appear. Then, use the first author’s last name followed by “et al.”

• When using a source that was cited in another source (for example when using material from a study that was cited in a textbook), name the original source first, then add “as cited in” followed by the original source. You should list only the secondary source in your References.

Quick questions to consider when analyzing a study (cont.):

• Are the statistical analyses used appropriate for the experiment? (Don’t feel obligated to comment on this if you don’t know or have not taken research methods or statistics and feel unsure about the topic.)

• Are the graphs and charts consistent with the findings? Are all figures clearly explained? Do they support the results of the paper and are they relevant to the paper? Do graphs and charts add information to the paper or are they redundant?

• Are abbreviations explained before usage? Are abbreviations used too frequently?

• What is new about the study? How does it use previous findings and existing literature to set the foundation for its hypothesis? How is it relevant or not relevant to current field?

• Does the study explain all of the results or are there results that were not fully discussed?

• Have the limitations of the research been well explored?

• Has the paper provided suggestions for future research? (This is a good place to both critique the paper and also to provide your own suggestions. If you have ideas about how to further the research in a way that has not been discussed or apply the research to a completely different area of study, definitely feel free to include that.)

• Is there any missing information? Are there inconsistencies in any area of the paper?
The QALMRI Method

The QALMRI method provides a means for critically evaluating experiments, as well as for organizing your own experiment proposals. It helps you to find connections between theory and data by making explicit the question being asked, the approach used to answer it, and the implications of the answer.

**Q stands for Question**
All research begins with a question, and the point of the research is to answer it. For example, we can ask whether a placebo is better than no action in alleviating depression. For most journal articles, the General Introduction should tell the reader what question the article is addressing, and why it is important enough that anyone should care about the answer. Questions fall into two categories: broad and specific. Broad questions are typically too general to answer in a single experiment, although one should view the experiment as one step on a journey to answer the broad question. An example of a broad question might be "Does language influence perception?" This sort of question provides the general topic of the paper, and can only be answered through compiling many experimental results. In contrast, the specific question can typically be addressed in a single experiment or set of experiments. A specific question might be "If one another language does not have any term for that color, will speakers of the two languages perceive the color differently?" Again, be sure to identify the broad and specific question relevant to your data collection.

**A stands for Alternatives**
Good experiments consider at least 2 possible alternative answers to a specific question, and explain why both answers are plausible. For example, the possibility that speakers of different languages will perceive colors differently is plausible based on evidence that top-down processes can affect perception. The alternative hypothesis, that language does not influence perception of color, is also plausible because color perception in particular might be impervious to top-down influences. That is, it might be based solely on properties of the visual system which are unaffected by language. Most good papers identify, at least implicitly, the primary alternatives being considered. (When proposing a new study, you should always identify the alternatives and consider why each is plausible. If only one outcome is plausible, the study might not be worth conducting.) When describing an existing article (or when proposing an experiment), you should identify the alternatives the authors considered. There are always at least 2 alternatives: that factor X will show an effect, or that it won't (that a null result will be obtained). If possible, identify other alternative patterns as well.

**L stands for Logic**
The logic of the study identifies how the experiment's design will allow the experimenter to distinguish among the alternatives. The logic is typically explained towards the end of the study's introduction, and has the following structure: If alternative 1 (and not alternative 2) is correct, then when a particular variable is manipulated, the participants' behavior should change in a certain way. For example, the logic of the color experiment would be: If a person's native language influences their perception of color, then speakers who have a term for a given color should respond differently to that color than speakers whose language contains no term for that color. Alternatively, if language does not influence color perception, then speakers who have a color term should respond no differently than speakers who lack the term. Note that the logic of the experiment is integrally connected to the alternatives you stated in the last section. Indeed, this section should be comprised of a series of "If…then…” statements in which you restate the alternatives you offered ("If X…"), and then state what pattern of data would support that alternative ("…then Y"). You should therefore have equal numbers of alternatives and “If…then” statements.
The QALMRI Method (cont.)

**M stands for Method**
This section identifies the procedures that will be used to implement the logical design. It should state the independent variable (the factor being experimentally manipulated) and the dependent variable (the behavior being measured) of the experiment. It should also describe the subjects, including whether subjects were divided into groups receiving different experimental manipulations. What materials were used to conduct the experiment, and what were the experimental stimuli like?

**R stands for Results**
What was the outcome of the experiment? Describe the results of the primary measures of interest. For example, did different subject groups yield different group means? What were these means? Or did the entire subject population produce a distinctive pattern of responses? Describe that pattern. Did the results seem reliable, or do you feel that they might have been an artifact of the way the experiment was conducted? For this section, it is often a good idea to pay attention to graphs or tables illustrating the observed pattern of data.

**I stands for Inferences**
What can the results of the experiment tell us about the alternatives? If the study was well designed, the results should allow you to eliminate at least one of the possible alternatives. For example, if a language lacks a color word but the speakers of that language respond to the color no differently than speakers of a language lacking a term for the color, then the experiment supports the view that language does not influence color perception.

At this point, take a step back and think about any potential problems with the experiment that could have led to the pattern of results you obtained. Were there confounds that could have caused the results? For example, if you did find a difference between the subject groups, are there other ways in which the groups differ that are not language-related? Might this have caused the result? Were there problems during the data collection? In addition, this is the section in which to consider the hypothetical next step in answering the broad question. If you were to conduct a follow-up experiment, what would it be (hint: think of questions that remain unanswered by the present results, and sketch a study that could bear on one or more of those questions)? What questions are raised by the results?

* Taken from: http://www.psy.jhu.edu/~spring200_206/qalmri.html
Glossary of Frequently Used Terms

**Causation**  When a change in the first variable causes a change in the second variable

**Central tendency**  A single number or value that describes the typical or central score among a set of scores

**Coding system**  A set of rules used to categorize observations

**Confederate**  A person posing as a participant in an experiment who is actually part of the experiment

**Confidence interval**  An interval of values within which there is a given level of confidence (e.g., 95%) where the population value lies

**Confound**  A variable that is not controlled in a research experiment. In an experiment, the experimental groups differ on both the independent variable and the confounding variable.

**Correlation**  When two variables are related to each other, but there is no direct cause and effect link

**Counterbalancing**  A method of controlling for order of effects in a repeated measures design by either including all orders of treatment presentation or randomly determining the order for each subject

**Dependent variable**  The variable that is the subject’s response to, and dependent on, the level of the manipulated independent variable

**Descriptive statistics**  Statistical measures that describe the results of a study; descriptive statistics include measures of central tendency (e.g., mean), variability (e.g., standard deviation), and correlation (e.g., Pearson r).

**Double-blind**  A procedure wherein both the experimenter and the participant are unaware of whether the participant is the experimental or the control condition

**Effect size**  The extent to which two variables are associated. In experimental research, the magnitude of the impact of the independent variable on the dependent variable

**Experimental control**  Eliminating the influence of an extraneous variable on the outcome of an experiment by keeping the variable constant in the experimental and control groups

**Experimenter bias**  Any intentional or unintentional influence that the experimenter exerts on subjects to confirm the hypothesis under investigation

**Frequency distribution**  An arrangement of a set of scores from lowest to highest that indicates the number of times each score was obtained

**Hypothesis**  An assertion about what is true in a particular situation; often, a statement asserting that two or more variables are related to one another

**Independent variable**  The variable that is manipulated to observe its effect on the dependent variable

**Inferential statistics**  Statistics designed to determine whether results based on sample data are generalized to a population

**Interaction**  Situation in which the effect of one independent variable on the dependent variable changes, depending on the level of another independent variable

**Main effect**  The direct effect of an independent variable on a dependent one

**Negative linear relationship**  A relationship which increases in the values of the first variable are accompanied by decrease in the values of the second variable

**No relationship**  Outcome of research in which two variables are not related; changes in the first variable are not associated with changes in the second variable

**Null hypothesis**  The hypothesis, used for statistical purposes, that the variables under investigation are not related in the population, that any observed effect based on sample results is due to random error

**Operational definition**  Definition of a concept that specifies the method used to measure or manipulate the concept

**Peer review**  The process of judging the scientific merit of the research through reviews by other scientists with the expertise to evaluate the research

**Pilot study**  A small-scale study conducted prior to conducting an actual experiment; designed to test and refine procedures

**Placebo group**  In drug research, a group given an inert substance to assess the psychological effect of receiving treatment

**Population**  The defined group of individuals from which a sample is drawn

**Randomization**  Controlling for the effects of extraneous variables by ensuring that the variables operate in a matter determined entirely by chance
The QALMRI Method

**Regression equation**  A mathematical equation that allows prediction of one behavior when the score on another variable is known

**Reliability**  The degree to which a measure is consistent

**Response rate**  The percentage of people selected for a sample who actually completed a survey

**Sampling**  The process of choosing members of a population to be included in a sample

**Standard deviation**  The average deviation of scores from the mean (the square root of variance)

**Statistical significance**  Rejection of the null hypothesis when an outcome has low probability of occurrence (usually 0.05 or less) if, in fact, the null hypothesis is correct

**Validity**  The degree to which a measure is accurate

**Variability**  The amount of dispersion of scores about some central value

**Variable**  Any event, situation, behavior, or individual characteristic that varies – that is, has at least two values

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- Taken from:

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<tr>
<th>Abbreviation</th>
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<td>cf.</td>
<td>“compare” or “consult” (used to provide contrasting or opposing information)</td>
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<td>e.g.,</td>
<td>“for example,” (abbreviation for exempli gratia)</td>
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<td>etc.</td>
<td>“and so on” or “and so forth” (abbreviation for et cetera)</td>
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