

Experimental Perpetual Handbook



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Things You Need to Know

About the Experiment Paper

- ✿ You will be using either an ANOVA or a T-test to determine your results.
 - **ANOVA:** Comparing the means for more than 2 sets of data (e.g., >2 groups)
 - **T-Test:** comparing the means for 2 sets of data (e.g., 2 groups)

- ✿ You will still include a Cronbach Alpha to show reliability of your survey/instrument.
 - Remember: .70 and above is good (generally speaking), .80 and above is better, and .90 and above is best.

Cronbach's alpha. (2019). Retrieved from <https://www.statisticssolutions.com/cronbachs-alpha/>

- ✿ Make sure you are appropriately measuring the variables indicated in your hypothesis or research question with the correct statistical technique.

- ✿ You must be able to identify your independent variable and dependent variable

- ✿ IF using a survey, make sure there is interval data

- ✿ Don't forget to include demographics in your survey

- ✿ Don't forget to include Informed Consent in your survey

- ✿ If you are having trouble finding enough participants (you don't need too much for a pilot study), talk to your classmates—they they
- ✿ may have some ideas and may even identify some potential participants.
- ✿ Use your classmates and instructor as a resource—they can make all the difference!
- ✿ If you employ an ANOVA method, you will include your ANOVA table in your paper
- ✿ If you employ a T-test method, you do not need to include your table in your paper

Summary of parametric tests applied for different type of data

Sl no	Type of Group	Parametric test
1.	Comparison of two paired groups	Paired 't' test
2.	Comparison of two unpaired groups	Unpaired 't' test
3.	Comparison of three or more matched groups	Two way ANOVA
4.	Comparison of three or more matched groups	One way ANOVA
5.	Correlation between two variables	Pearson correlation



○ <https://goodcalculators.com/one-way-anova-calculator/>



Website for T-test:

○ <https://www.graphpad.com/quickcalcs/index.cfm>



Make sure that you SUM the answers for questions for each person



Tweak your abstract and rationale in the literature review to make sure that it coincides with what you are trying to conclude with your experiment.



Use your feedback from your survey paper to help guide you in the changes that need made for this paper



Prepare your hypothesis before collecting your data

○ Do not “backfill” your hypothesis based on what you find



For experimental methods—in particular, try to control for as much as possible, such as random assignment or matched assignment.

✿ **NOTE:** For any study—especially a pilot study—it is difficult (or impossible) to control some variables (e.g., cannot control for participant's gender).

✿ If want to control some “uncontrollable variables” (e.g., gender or ethnicity), then try creating a scenario where you can change those variables.

✿ **NOTE:** In social sciences, it is hard to control for some variables.



✿ Causation is hard to posit in the social sciences.


✿ It is okay to do a post hoc analysis given your findings but do NOT place post hoc findings in the results section! They are not your main finding and should not become the center of the research nor overshadow the original intent of the research (e.g., the hypothesis or research question).

✿ Post hoc findings should be described as such in the discussion section—do not overstate their importance!


✿ Do NOT fish for data.


✿ Methods should include enough information that someone else could replicate your study based on the content

✿ Include descriptive statistics in the method section (e.g., average age of participants, number of males and females, etc.).

 In the results section, include: means of groups, standard deviations of groups, sample size of groups (AKA n), and depending on statistical test used, include an F-score OR T-score with degrees of freedom, and the p-value.

 If your findings are not significant, do not include a p-value, just put *ns*. That's all you need in this case!

 Do NOT worry if your results are not significant—it's can be hard to get a significant finding from a small, pilot study.

 Non-significant findings can teach us just as much as significant findings!



Common Formatting Mistakes to Consider:

 Make sure you are using APA format on the entire paper

 Ensure that the following are all on their own/a new page:

- Title Page
- Abstract
- Introduction
- Literature Review
- Method
- Results
- Discussion
- Conclusion
- References
- Appendix (this is where items, like surveys, will go)



Your Abstract should be on its own page AND the paragraph is not indented



The ANOVA table goes in the **Results** section

- First put your text and then include your table underneath the written description



A copy of your Survey goes in the **Appendix**



Use a page break to help ensure that things stay on the correct page

- Make sure your cursor is in front of the word you want a page to start at (so for References, put your cursor in front of the “R”)
- Go to the **Insert** tab
- Click **Page Break**

Lastly and most importantly—START WORKING ON YOUR RESEARCH PAPERS SOONER THAN YOU THINK YOU SHOULD—ERRORS AND CONFUSION ARE COMMON AND CAN SLOW YOUR PROGRESS! AND OF COURSE, TALK TO DR. DIXSON, if you have any questions or concerns! SHE IS HERE TO HELP!



All life is an
experiment. The

