

Purpose of Paper II: Study One Methods, Results, and Discussion

1). Psychological Purpose

The psychological purpose behind Paper II is to make sure you can tell your reader what you did on your study, how you did it, and what you found. By now you have read several empirical studies in psychology, and you should be familiar with the Methods, Results, and Discussion sections. Now is your chance to write Methods, Results and Discussion!

Like those prior studies you looked at in Paper I, you will provide information about your participants, materials, and procedure in your Methods section. Your participant section goes first, and it includes descriptive statistics about your sample (means and standard deviations for age as well as percentages for gender and race/ethnicity). Your materials and procedure sections include information about what you did and how you did it. You should write this section for an audience who is unfamiliar with your specific study, but assume that they do know research methods. Thus educate your reader about your materials and procedure, giving enough detail so they could replicate the study. This includes explicitly describing your independent and dependent variables and talking about how you presented those variables to your participants. My suggestion is to look over the articles you summarized in Paper I and see how they wrote their Methods. This will give you a good idea regarding the level of depth and detail you need in your own Methods section.

Your Results section follows. The purpose of this section is to make sure you can show how you analyzed the data and describe what you found.

Finally, I want you to include a short description of your findings. Tell me if you supported or did not support your hypotheses and explain why you got those results (you can actually speculate here if you like, but make it an “educated” speculation!)

2). APA Formatting Purpose

The second purpose of Paper II: Methods, Results and Discussion is to once again teach you proper American Psychological Association (APA) formatting for these sections. In the pages below, I will tell you how to format your paper using APA style. There are a lot of very specific requirements in APA papers (as specific as what to italicize), so pay attention to the instructions below as well as Chapter 14 in your textbook!

3). Writing Purpose

Finally, this paper is intended to help you figure out how to write a Methods, Results, and Discussion section. Many students find statistics daunting, but my hope here is that writing this paper will help you understand both the logic and format of statistics in results sections. We will once again give you a lot of feedback and help in this paper, which you help you when you write Papers IV and V later in the course. Make sure that you write this

for an audience familiar with APA methods and results, but also for someone who needs you to tell them what you found.

Note: The overlap limit is higher in this paper (up to 65%) since your classmates are doing the same design. Don't go higher than that, though! 65% is the maximum allowed!

Sorry for the length of the instructions! They are long, but take it one section at a time and you will get all of the content you need in your paper and get a great grade!

Methods

1. Title Page: I expect the following format:
 - a. The title page for your Paper II is identical to the one you used for Paper I: Literature Review Study One. For proper APA formatting, either copy your title page from Paper I or review the title page instructions I gave you in Paper I. You can change your title if you like, but make sure it helps to describe your study (much like a title in PsycInfo describes what the authors did in their paper)
2. Abstract?
 - a. You DO NOT need an abstract for Paper II: Methods, Results, and Discussion (Study One). You cannot write it until you run both study one and two, so omit it for now
3. Methods Section: I expect the following format:
 - a. For this paper, the methods section starts on page 2.
 - b. Write **Method** at the top of this page, make it bold, and center it (see the top of this page as an example!)
 - c. The participants section comes next. The word **Participants** is bolded and left justified. In this section ...
 - i. Tell me who your participants were (college students, family members, friends?) and how many there were.
 1. Note: If a number starts a sentence, then spell out the number. That is, "Two-hundred and five participants participated in this study."
 2. If a number is mid-sentence, you can use numerals. "There were 205 participants in this study."
 3. But keep numbers consistent. If you spell out a number at the start of the sentence, carry that through and spell out other numbers in the sentence.
 4. For statistics, always use numbers (for the mean, SD, %, etc.)
 - ii. Provide frequencies and descriptive statistics for relevant demographics.
 1. For some variables—like ethnicity and gender—you only need to provide frequency information (the number of participants who fit that category). "There were 100 men (49%) and 105 women (51%) in the study." Or "The sample was 49% male ($N = 100$) and 51% female ($N = 105$)."
 2. Other variables—like age—are continuous (rather than categorical), so use descriptive statistics here (the range, mean, and the standard deviation). "Participants ranged in age from 18 to 77 ($M = 24$, $SD = 3.50$)." or "The average age of participants was 24 ($SD = 3.50$)."
Your TA can help you find the mean and standard deviation for this assignment, though information is also available in a lab powerpoint.
 3. Make sure to italicize the N , M , and SD (the letters, not the numbers)
 - d. **Materials and Procedure**
 - i. For this section, things are flexible. Some studies include Materials and Procedure in the same section while others break them up into two sections. This is a matter of choice.

1. In general, the more complex the design, the better it is to split up the methods and results. In one section, the author may describe the materials; in the next, they describe what participants did with those materials (the procedure). This is one option for you. However ...
 2. However, your “Paper II: Methods, Results and Discussion (Study One)” is simple enough that I strongly recommend combining them into one overall Materials and Procedure section.
- ii. Again, the words **Materials and Procedure** are flush left. In this section ...
1. Provide information about your materials and your procedure.
 - a. I suggest starting with your procedure. Tell your reader what your participants did in the order participants did them. Be specific here. I have the following recommendations:
 - i. First, talk about the oral informed consent procedure.
 - ii. Second, talk about the three versions of the study questionnaire. Provide enough detail so that your readers know how the three conditions differ. As a reader, I need to be able to replicate your design, so you need to give me enough detail so I can do so. (Hint: Copy and paste the various questions or refer the reader to an appendix that has those materials!)
 1. I want to stress that – pretend I have no idea what you did, but I want to repeat your design and procedures. That means you need to be VERY clear and detailed about what you did and how you did it.
 - iii. Third, talk about your dependent variables (that is, your survey questions. For these dependent variables, once again provide enough detail so I know exactly what questions you asked. For example, “Participants provided their gender, age, and race”. For other dependent variables, tell me how the responses were recorded (yes/no, true/false, a scale of 1 to 6, etc.). If you used a scale, note the endpoints. That is, does a 1 mean it is high or is it low? “Participants were asked, ‘How frustrating was this task?’, and they responded on a scale from 1 (very frustrating) to 9 (not at all frustrating).”
 - iv. Fourth, make sure to highlight which specific DVs you analyzed. If there are DVs participants completed but you did not analyze it, feel free to say those that participants completed them but since they were not analyzed, they are not discussed further.
 - v. Finally, make sure to be specific about your attention / manipulation check question!
 - vi. Finally, mention debriefing
 - c. There is no set minimum or maximum on the length of the methods section, but I would expect at least a page or two (though probably more. After all, your own research script took up several pages – you should provide a similar level of depth

and detail in your methods section!). Missing important aspects of your IVs and DVs or presenting them in a confused manner will lower your score in this section.

- f. Remember, make sure that another researcher can replicate your study based on your methods section. If they can't, then you may not have enough detail!
4. Results Section: I expect the following format:
 - a. The results are the hardest part of this paper, and your lab powerpoints will help you with this part of the paper (also refer to the crash course statistics quizzes, and the Statistics Walk-Throughs, which walk you through similar analyses!).
 - b. First, write **Results** at the top of this section, center it, and use boldface. This section comes directly at the end of the methods section, so the results section DOES NOT start on its own page.
 - c. For this assignment, include statistics about the most important variables in your study, including your IV and the DVs you feel are most important to your hypotheses.
 - d. More specifically, **you must run at least three different analyses on three different dependent variables**. One must be a chi square for the manipulation question. At least one of the remaining two analyses must be a One Way ANOVA (I actually recommend that both of your last two analyses focus on One Way ANOVAs). The third analysis can be either an ANOVA or a *t*-Test. We count the number of DVs you analyze – NOT the number of statistical tests you run! ***The following examples are from a study on Selfies we used in a previous semester of this course. This is not our study this semester.** It is just an example.*
 - i. **Chi square:** Your first analysis will be a chi square, which you use if your DV is categorical (yes / no; yes / no / maybe; male / female). So let's discuss the chi square, which does not look at means but rather counts how many responses there are compared to how many you would expect.
 1. We are interested in the chi square (χ^2) and *p* value. We also provide percentages for each of our groups (rather than means and *SD*). This is an example of how to report a chi-square. Please don't copy verbatim. You can copy the format but update with your own results and our IV/DVs for this semester:
 - a. "Using the photo condition as our independent variable (selfie, groupie, or professional) and the photo participants recalled seeing as the dependent variable, we saw a significant effect, $\chi^2(4) = 68.49, p < .001$. Most participants in the selfie condition recalled selfies (98%); most participants in the groupie condition recalled seeing groupies (96%); and most participants in professional photo condition recalled seeing professional photos (90%). This indicates that participants saw our manipulation as intended."
 - b. Make sure to italicize the χ and *p*
 2. If you are having trouble running this analysis, revisit the Crash Course Quiz for chi-square or check out the Statistics Walk-through for chi-square.
 - ii. **ANOVA:** Since you have an independent variable with three levels, the most appropriate test is a One-Way ANOVA if your DV is scaled (like a 0 to 5 scale or a 1 to 5 scale). Your lab and lecture powerpoints show you how to conduct an ANOVA, but there are some guidelines I want to give you

about how to write your results. *The following examples are from a study we used in a previous semester of this course. This is not our study this semester. It is just an example.*

1. First, there are several dependent variables to choose from. Choose two that are in line with your literature review and hypotheses.
 2. Second, once you run the analysis, look first at the ANOVA table (or *F* table) and focus on the between subject factor. Note the degrees of freedom, the *F* value itself, and the *p* value. (We'll get into two-way ANOVAs later in this course, but here we only have one independent variable, so it is a one-way ANOVA. Yes, we have three levels to our IV, but it is still only one IV).
 3. If the *p* value is significant (less than .05), we have one more step to take. Since this is a three level IV, we need to compare mean A to mean B, mean A to mean C, and mean B to mean C. We do this using a post hoc test (try using Tukey!). That will tell us which of the means differ significantly. You then write up the results. For example, let's say I ran an ANOVA on a dependent variable called "X" and an IV called 'Y with three levels – A, B, & C. My write up would look like this (though note: I completely made up the data below, so don't copy the numbers!) ...
 - a. "Using Y (A v. B v. C) as our independent variable and ratings of "X" as the dependent variable, we found a significant condition effect, $F(2, 203) = 4.32, p < .05$. Tukey post hoc tests showed that mean ratings for Y were higher in the A condition ($M = 4.56, SD = 1.21$) than participants in both the B ($M = 2.24, SD = 0.89$) and C ($M = 2.23, SD = 0.77$) conditions. The B and C conditions, however, did not differ from each other. This supports our prediction that [enter a brief summary of what you had predicted]
 - i. Note there are lots of possible outcomes. The one above essentially says that condition A differed from B and C, but that B and C did not differ from each other. However, we might also find that NONE of the three conditions differ from each other, so they are all equal or we might find that ALL conditions differ from each other, so they all differ. Be sure to adapt what you write to your results.
 - b. Make sure to italicize the *F*, *p*, *M*, and *SD* (as in the example)
 - c. Pretty simple, right! Remember you have to conduct two ANOVAs or one ANOVA and one t-test, so you will need to pick two DVs total.
 4. If you are having trouble running this analysis, revisit the Crash Course Quiz for ANOVA or check out the Statistics Walk-through for ANOVA.
- iii. ***t*-Test:** If you only choose to compare two levels of your IV (e.g. A and C only), things are even more simple.
1. Here, you will run a *t*-Test (a *t*-Test looks at differences between only two groups). Again, your lab presentations tell you how to run

this, but you can do it on your own as well (you can even run this if your study originally has three levels to the IV – when you go into the *t*-Test menu in SPSS, choose “define groups” and select 1 and 3 (e.g., A = 1 and C = 3). This will let you look at two of the groups! You could also select “2 and 3” or “1 and 2” where the B condition = 2).

2. Rather than an *F* value, we will look at the *t* value in the *t*-Test data output. Here, we have one number for the degree of freedom, we have the *t* value, and we have the *p* value.
3. The nice thing about a *t*-Test is that since you only have two groups, you do not need a post hoc test like Tukey (you only need that if you have to compare three or more means. Here, we only have two means, so we can just look at them and see which one is higher and which is lower when our *t*-Test is significant). Then just write it up. You can copy the format below but update with your own results and our IV/DVs for this semester.
 - a. “Using Y (A v. C) as our independent variable and ratings of “X” as our dependent variable, we found a significant condition effect, $t(203) = 8.12, p < .05$. Participants scored higher in the A condition ($M = 5.56, SD = 1.21$) than participants in the B condition ($M = 2.23, SD = 0.77$).”
 - i. Note my means for this *t*-Test, and compare them to the means for the ANOVA. The selfie and professional means and SDs are identical between the ANOVA and *t*-Test, because both the *t*-Test and ANOVA use the same means! Thus DO NOT run a *t*-Test and ANOVA on the same DV, as it inflates the Type I error rate.
 - b. Make sure to italicize the *t*, *p*, *M*, and *SD* (as in the example)
4. If you are having trouble running this analysis, revisit the Crash Course Quiz for t-test or check out the Statistics Walk-through for t-test.
- iv. Statistics order recommendation: For this paper, start your results section with the chi square (your manipulation check). Then talk about your main analyses (ANOVA/t-test)). Make sure the analyses line up with your hypotheses.
- e. There is no page minimum or maximum for the results section, though I would expect it to be at least a paragraph or two for each dependent variable
5. Appendices
 - a. I want to make sure you are including the correct numbers in your results section, so I want you to include all relevant SPSS tables for each of your analyses in a series of appendices.
 - i. Appendix A: Include your tables for age, gender, and ethnicity.
 - ii. Appendix B: Include your tables for your chi square and the crosstabs
 - iii. Appendix C: Include your tables for your first dependent variable (This must be an ANOVA table, the descriptive statistics table for that ANOVA, and the post hoc test whether it is significant or not)

- iv. Appendix D: Include your tables for your second dependent variable (Although I prefer a second ANOVA, you could include *t*-Test tables here. This would involve both the descriptives for the *t*-Test and the *t*-Test output itself)
 - b. Hint: The best way to get these tables is to copy them directly from SPSS. In the SPSS output, right click on the table, copy it as an image, and then paste it as an image into your appendix in Word. Another alternative is to use a “snipping” tool (search “snipping tool” in your computer’s search function to find it, or use Shift+Command+4 in a Mac). You can highlight an area on any computer page and save it as a picture. Copy the picture and paste it into your appendix. Easy!
 - c. Make sure to give a proper name to the appendix (e.g. Appendix A – Study One Demographics) and insert a page break in between them.
6. Discussion Study One
- a. In this section, tell me about your findings and if they did or did not support your results. It might help to refer back to your hypotheses “We expected to find this but instead found that” or “We expected to find this and our results supported this hypothesis.” Explain using plain English why you think your study turned out the way it did.
 - b. IMPORTANT – Do NOT give me statistics again here. I can find those in your results section. Here, all I want is a plain English summary of your findings.
 - c. Also, don’t give me results for a DV if you did not run an analysis on that DV. Only tell me about the results you actually looked at in the results section.
 - d. There is no length requirement for this section, but I recommend at least four or five sentences
7. Overall writing quality
- a. Make sure you check your paper for proper spelling and grammar. The FIU writing center is available if you want someone to look over your paper (an extra eye is always good!) and give you advice. I highly recommend them, as writing quality will become even more important on future papers. I also recommend visiting the FIU Research Methods Help Center if you need additional guidance with writing or statistical analyses. Also, remember to upload this paper through the Pearson writer before uploading to Canvas!
 - b. Make sure to use the past tense throughout your paper. You already did the paper, so don’t tell me what participants are going to do. Tell me what they did!

Other Guidelines for Paper II – Methods and Results (Study One)

- 1). Page size is 8 1/2 X 11” with all 4 margins should be one inch. You **must** use a 12-point font in Times New Roman.
- 2). PLEASE use a spell checker and/or Pearson Writer to avoid unnecessary errors. Proofread everything you write. I actually recommend reading some sentences aloud to see if they flow well, or getting family or friends to read your work.
- Use the Paper II Checklist before you turn in your paper to make sure it is the best paper you can write!
- Finally, go look at the supporting documents for this paper. Like Paper I, there is a grade rubric and an example paper for Paper II. All will give you more information about what

we are specifically looking for as well as a visual example of how to put it all together in your paper. Good luck!