

## How to write a scientific report in psychology

My advice is that you draw on as your first and main guide the report guidance supplied by your university and if you find what is suggested here varies from what your guide says – go with your guide. My aim here is to give you a sense of the kinds of pointers that lecturers expect in the different sections of a report write-up.

You should be familiar with the general lay-out of quantitative reports. I want to run through here the kinds of pointers I look for as an experienced marker at all levels in undergraduate psychology. Often I find students under-achieve simply because they are not clear on what it is that is sought in each section of the report and here are my tips on what that criteria is.

Remember, that the devil is in the detail. It is critical that you check and double-check that you have addressed all the criteria for each section. As you are close to or very familiar with the piece of work you can easily become blinded to its errors or to missed details, so do ask a friend [and one who is good at English and has a pretty good eye for grammar errors] to look over the work and when you are proof-reading it is really good to allow a couple of days or more between reads. We are all often surprised by the oversights that so obviously stand out when there is a little time between reads. Make sure you follow the APA or BPS guidance on how to reference both in the Reference section and follow the conventions on how to report authors and the year of their publication and how to report quotations in the body of the report. The easiest way to get this right is to see how this is done in published articles.

A good report-writing style is one which is concise - where one is very direct in one's writing style. Write using a formal style. Do not abbreviate anywhere. Aim for succinctness but write in full paragraphs. Don't use bullet points anywhere. Write in the third person, past tense throughout. Include numbers only in the Results section and the appendices that you refer to in the Results section – don't include actual numbers anywhere else. Aim to write to the full word allowance given – if it is a 1500 report and you think you have it all covered in 1000 words, you haven't! We set the word limits we do because we think you will need all of them. Likewise, we want to see evidence that you are able to write clearly and succinctly and that is why writing over the word limit will also be penalised, although you are usually allowed 5% wriggle room!

Individuals who are very conscientious by nature, who are apt to be introverted and who have an eye for detail are more willing to engage in the level of thoroughness needed, but we can all get there in the end. It is not rocket science but the two key mottos are – 'know the formula' [what I outline here], and 'attention to detail'.

### Title

Typically we say this should be around 15-18 words. My preference is for something that is catchy. I'd avoid 'An experiment into...' or 'An investigation of...' Framing the title as a question is often good e.g. 'Does depth of processing aid word recall?' Here's one from a recent paper. It isn't a question but it captures the essence of what is being explored:

'Stress isn't bad for well-being, it's our reaction that is – understanding student reactions to stress'

## **Acknowledgments**

Here one acknowledges those who have helped you get to the point of submitting e.g. your supervisor, any lecturers or fellow students that really helped; your participants; family and friends for helping you in the wider context. This would be done for theses at UG and PG level but not for reports earlier in your degree.

## **Abstract**

While this section is submitted after the title page, you write it after you have written the whole report in draft. Then it is much easier to pluck out the points that are needed. The aim of this section is to offer the reader a 150 word summary on the study, its findings and your interpretation of them. It is best if this and all sections are written in the third person [avoid all pronouns – no 'I', 'me', 'we'] and write in the past tense throughout. Name the underlying theory and/or key piece of research that links to what you are exploring; name the method you used, the design and the sample size and type and state the aim or hypothesis of the study and offer the reader a couple of sentences on your procedure i.e. what participants had to do and how the results were obtained. State the results – but do not include any numerical results here – numbers should only be seen in the Results section and related appendices, not anywhere else. Link the results to the hypothesis and offer one sentence at the end that attempts to interpret the results. The abstract is a summary of the study and it should be written as one solid paragraph. It isn't like the first paragraph of an essay where you might tell the reader what you are going to do. Here's an example of a good Abstract. It doesn't cover all the points above but it does cover most. Look at the checklist above and identify what is missing:

*While Stressors can contribute to both distress and eustress, individuals can capitalise upon coping resources in order to manage stress and reduce distress. This study aimed to examine the relationship between stress, coping resources and related well-being outcomes among 90 first-year Psychology students. The participants completed a questionnaire which examined students' perceptions of stressors, as both sources of eustress and as sources of distress. The questionnaire also measured coping resources and their impact on a range of wellbeing outcomes. Results of multiple regressions highlighted the effectiveness of dispositional coping resources such as optimism in reducing the adverse impacts of distress on wellbeing. For example, results indicated that having a less open and less neurotic personality, and having higher levels of self-efficacy can buffer the negative effects of stress on psychological health. The more teaching was rated as a hassle, the lower were reported happiness levels and the greater were reported levels of psychological distress. However, the more workload was rated as an uplift, the lower were reported anxiety levels.*

(Look at the end of this chapter for the answers on what is missing)

## Introduction

Think of this section as beginning in general terms and then becoming increasingly more focused. It is a good idea to define the key concepts. Not in list format and not as a glossary at the end but just as you are covering those concepts when you are writing this section. For reports of a 1500/2000 word length, I wouldn't use sub-headings but for thesis level reports [of 7-9000 words, depending on the university] it is a good idea to use sub-headings. It helps to make the structure clear to the reader. Good Introductions have a clear structure. You want to make sure that you include relevant theory and research linked to the variables you are exploring and aim to try and incorporate some critical comment. It is usually the case that one theory evolves from another by building on the recognised limitations of the earlier model and you can mention some of these when making your links between the models to earn 'critical comment' marks. Close out with the aim and your hypotheses. As a rule of thumb it is better to list the hypotheses that you are testing and do make sure that these are testable statements – make sure that you clarify with your supervisor that you have this right.

## Method

In this section there are a number of standard sub-headings: **Design** – this is where you identify the design type [e.g. Between samples or Within samples Design] and you justify to the reader why you opted for this type. Similarly, you identify the Method you used [e.g. Experiment, Survey, Observation] and again offer a rationale for using this. The next section is your **Participants** – identify how many were tested; the gender mix in your sample; the age range; explain how the participants were selected and the sampling method used and you might identify to your reader your target population. **Materials** – here you list the materials/apparatus that you used e.g. in survey based research you identify the different measures you used, you explain how respondents answer each item and you refer to the psychometric properties – their reliability and validity. Where you have generated your own items you need to run a Cronbach's Alpha on those items and you need to tell the reader that face validity was checked and confirmed by the author and his/her supervisor reading and amending the statements and making a judgement on their validity. If the measures are established measures you do not need to run your own reliability and validity checks but you do need to identify their reliability and validity from existing research. The test manuals for these measures will include this but the alternative (easy) way to offer this is to search in google scholar for a study that has tested this e.g. search for 'name the measure' and add 'reliability and validity'. Several papers are carried out that just run these types of checks. When you find one, open the abstract and make a note of the reliability and validity indices/numbers reported and cite that paper in your Method section and in the references. **Procedure** – this is where you spell out to the reader exactly how you went about carrying out the study – explain how participants were selected and tested and make sure that there is sufficient detail that the reader would be left confident in their belief that they could go out and replicate the study based on the detailed explanation offered here. If you ran a pilot on your study, describe that here and mention any changes that were made to the study based on your pilot work. Have a paragraph that is part of the Procedure or follows and which makes explicit the ethical considerations that you covered. In the method section you are going to refer to the Appendix section at several points e.g. for copies of the questionnaire you used or experimental features if they can be supplied within the report e.g. a powerpoint on a test you

ran; the consent forms and briefs [ aka participant information sheet] and debriefs; you might include a sample of participant responses etc.

## **Results**

Open this section with a paragraph that tells the reader what is in this section. It is useful to include a paragraph that you entitle 'Data analysis' and you tell the reader here what statistical tests you ran and why. You may find it useful to get some guidance on this from your supervisor. After you have outlined what is included in this section you then offer the relevant tables. In reports, succinctness is important, so make sure that you include only the keys results in the body of the report i.e. in the report section. You can refer to longer tables or graphs as an appendix from the Results section. Generally, it is a good format to include key tables on descriptive results followed by key tables on your inferential results. Avoid unnecessary graphs that do not link to your hypotheses and which could more easily be conveyed in a sentence. Every table mentioned should be referred to at least once – there is no point in including a table if it is there but is never mentioned. Do not repeat in words before or after a table everything that is already visible in the table. This is a common mistake. Instead, aim to offer a summary sentence or two on what the table shows. The ordering of your tables in the Results section should appear logical to the reader and, remember, that we do not interpret the results in this section we merely present them to the reader with the briefest of commentaries or summaries on the data. Make sure you are familiar on the correct way to present T results, F ratios, confidence levels etc. These can easily be found through an online search.

## **Discussion**

Open this section reiterating in words the results and linking them back to the hypotheses and underlying research that you cited in the Introduction. Then interpret the results. What is important here is that you demonstrate to the reader that you have a good psychological understanding on how the results can be interpreted. This involves not just an interpretation that draws on the research and theory that you identified as underpinning your hypothesis but which allows for a wider understanding. I cannot emphasise enough how important it is to develop this wider psychological understanding – it is what marks out really good reports from those not so good. It is important, however, that any research or alternative theory offered has received some mention, however brief, in the Introduction. So, you may need to go back and do some editing between the Introduction and Discussion sections when the report is in draft format. Next, run through the range of limitations you can identify. This may link to sample size and sample type; to design and procedural limitations and to any other 'glitches' you recognised when running the study. It is acceptable and right that you acknowledge limitations that it's reasonable to say were unforeseen, but avoid 'owning up' to limitations which the marker could reasonably judge should have been corrected before you ran the study or during the piloting of the study. Next – put right, explicitly, each of the limitations you have identified and then close out offering the reader a developmental idea or a new research proposal, but one which can clearly be seen to have evolved out of the interpretation you have offered of the results in this section. Your developmental idea isn't another improvement – often students think it is – it is a new proposal but one linked to the interpretation that you have offered.

**References** – make sure that every author mentioned is fully referenced and put the references in alphabetical order and make sure they are presented according to the APA format. Searching for the relevant authors and their studies using google scholar allows you to cite them and to copy and paste in APA format. Don't lose easy marks by not getting this right.

**Appendices** – again, make sure this is logically laid out and if you have several appendices you might want to begin this section with an Appendices contents page, listing the different appendices, with a title for each.

'What's missing from the Abstract' exercise:

The Abstract offered is from a published paper and in an UG thesis we would also expect reference to or the naming of the underlying theory or related research; the design and sample type; and make sure your abstract closes out interpreting key results.

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