



the british  
psychological society  
promoting excellence in psychology

# Reporting experimental psychological investigations

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WELCOME



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Investigations must be written up in the style of a scientific report. All the pages must be numbered and must be written in the third person passive. This means in the past tense and don't say 'I' or 'we'.

It must be concise, objective and precise, this is good scientific practice.

Reports must include the following sections in this order:

1. **TITLE**
2. **CONTENTS PAGE**
3. **ABSTRACT**
4. **INTRODUCTION**
5. **PROCEDURE**
6. **RESULTS**
7. **DISCUSSION**
8. **REFERENCES**
9. **APPENDICES**

## TITLE

This must be concise and to the point, yet clear enough to give the reader an idea of the investigation's central concerns.

## CONTENTS PAGE

Every page must be numbered and every section must be recorded along with the page number on the contents page.

## ABSTRACT

This is a brief summary of the entire investigation (100–150 words maximum) and is actually written last, although it appears at the beginning of the report.

You need to include:

A one-sentence summary, giving the topic to be studied (aim and main background study)

Details of participants and sampling technique

Outline of procedure

Description of results (quote statistics and significance level)

What does it mean? Conclusion, implications and suggestions for future research

## INTRODUCTION

In this section you review all the background research relevant to your investigation. You must clearly quote your aim and operationalised hypothesis and null hypothesis, e.g. males will score higher on an aggression questionnaire than females, (one-tailed). Any difference between male and female scores on an aggression questionnaire will be due to chance. NB: Use a directional (one-tailed) hypothesis if there has been previous research to indicate this (e.g. Bandura).

Review of background research

Aim: The aims should not appear out of thin air; the proceeding review of psychological literature should lead logically into the aims.

Hypothesis and null hypothesis

## PROCEDURE

This section has four sub-sections, each should be sub-titled. The aim is to produce a sufficiently detailed method for someone to be able to exactly replicate your study.

## DESIGN AND OVERVIEW

State what research method you are using and why. The choice of research design (independent measures, repeated measures, matched pairs) should also be stated and justified. If your experiment is an experiment state the operationalised independent variable

(IV) and dependent variable (DV). Also, mention any other variables that you have controlled such as gender or age and any confounding variables you were unable to control, i.e. individual differences, situation etc. Explain how you will deal with ethical issues. Remember not to use any participants under the age of 16. You must ensure that you have informed consent, protect them from harm, give your participants the right to withdraw, keep their details confidential, debrief them etc.

Research method

Research design

Variables

Controls

Ethics

## PARTICIPANTS AND INVESTIGATORS

Who were your participants and how did you select them? You need to describe your sampling procedure and give relevant details such as age, gender, social class and educational background etc. about your participants, whilst ensuring they remain anonymous. You will probably use an opportunity sample selected from your own college – do not even give the name of the college, and instead say ‘a local 6th form’. If you have more than one condition in your investigation, explain how participants were allocated to conditions, this might be obvious if the IV was age or gender. For ethical reasons do not use anyone under 16, as you would require parental consent.

Investigator(s) – Just yourself or a small group (names)?

Number of participants and anonymous details

Sampling procedure

Number in each condition and how they were allocated

## APPARATUS

A list of the materials you used as part of your investigation. Refer to copies of any materials in appendices.

## PROCEDURE

This needs to explain exactly what you did from start to finish, including any pilot studies, design of stimulus material etc. Remember to refer the reader to the appendices for standardised instructions, debrief, copies of materials etc.

## RESULTS

Descriptive results aim to be as clear and precise as possible. A summary table of results should be presented, along with appropriate, fully labelled graphs. However, be careful with graphs, one is usually enough – the important thing is clarity. Make sure you provide a paragraph underneath your table and graph that fully explains what they show. Do not include raw data here – refer the reader to the appendices.

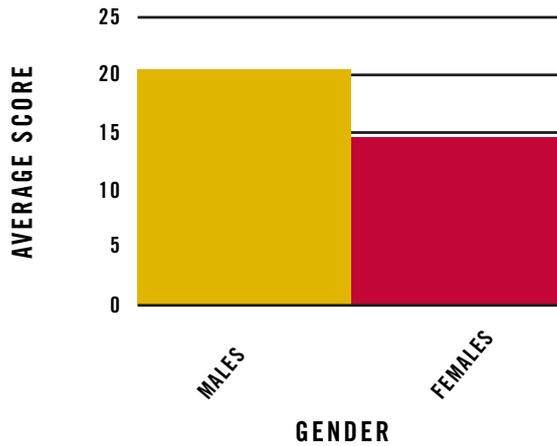
Example summary table of results – **Table to show average scores on an aggression questionnaire of males and females.**

	MALES	FEMALES
Mean	20.6	14.3
Standard Deviation	3.1	4.1

This shows on average that...

The variation in male and female aggression scores shows that...

**A GRAPH TO SHOW MALE & FEMALE SCORES ON AN AGGRESSION QUESTIONNAIRE**



The graph shows that...

**ANALYSIS OF RESULTS**

This is where you present the results of your inferential statistics. In other words, were your results statistically significant? Is it possible to reject the null hypothesis? Your statistical test must be fully justified with reference to the data and your results quoted in terms of reject/accept the null hypothesis. All calculations should be included in the appendices (This means the computer printouts of your results).

To recap (see table below):

E.g. This investigation was a test of difference and utilised an independent measures design because a difference between two groups (males and females) was being looked for. The questionnaires generated ordinal data in the form of scores, so the appropriate statistical test was the Mann Whitney U Test. After calculation  $U = 18$  (remember to say see page

$x$  in appendix for calculations), the critical value for a one tailed test at 5% = 27. The result was statistically significant and therefore it was necessary to reject the null hypothesis that any difference between male and female scores on an aggression questionnaire was due to chance.

- Summary table
- Graphs
- Descriptions of table and graphs
- Justification of statistical test
- Results quoted in terms of null hypothesis

**DISCUSSION**

**EXPLANATION OF FINDINGS**

In the results section you stated your findings in statistical terms. Now state them in psychological terms, relating the finding to your initial aims/hypothesis. Also state whether or not your findings support the research you cited in the introduction. You may have additional findings to report aside from those related to the hypotheses, such as observations made when collecting data.

In this section you need to explain in non-statistical language exactly what you found and what it means. Comment on the strength of the relationship or effect you discovered, for example were your results only just significant

Level of Measurement	TEST OF DIFFERENCE		TEST OF ASSOCIATION
	Independent Measures Design	Repeated Measures Design or Matched Pairs	Correlation
Nominal (Frequency)	Chi-Square	Sign Test	Chi-Square
Ordinal, Interval or Ratio (Ranked)	Mann-Whitney U Test	Wilcoxon Matched Pairs Signed Ranks Test	Spearman's Rank Order Correlation Coefficient

or not, or was it a very strong effect? If the results went in totally the opposite direction to what you were expecting, comment on this too. Finally, briefly explain why you think you found what you did. **Never, ever, use the words prove or disprove, instead say you found evidence to suggest, support etc.**

What did you find?

Why?

What does it mean?

### LIMITATIONS AND MODIFICATIONS

Take a critical look at your own research. What went really well, what were the strengths? What was wrong with it? If you were to do it again what would you do differently? Be honest here – it is more important to show an awareness of weaknesses than produce a perfect piece of research. Remember to pay particular attention to confounding variables that could have affected your results and sampling size/ technique. Avoid simply suggesting a larger sample size without justifying why this would be an appropriate modification. When suggesting modifications it is not necessary to be constrained by practical concerns such as time and money because this is what you would do in a perfect world!

Strengths

Weaknesses

Modifications (things to change if repeated)

### IMPLICATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

The last section of the discussion deals with the implications, applications of your research and ideas for future research. How relevant are your results to the real world? What practical applications do they have? For example, if you did a memory experiment your findings

could be relevant to education, examination revision and generally to improving memory. Eyewitness testimony research has important implications for criminal justice.

You should try to suggest some ideas for further research, but note these should be different to the modification you suggested in the previous section. The great thing here is you don't have to worry about mundane practicalities, as you are not going to actually carry out the research, so it is quite acceptable to suggest a 20-year longitudinal study or a cross-cultural comparison etc., as long as they are relevant to your research.

Real world applications and implications

Further research

### REFERENCES

Research cited in your introduction should be referenced, as should any internet resources such as psychometric tests, questionnaires etc., these should include date accessed as well as website address.

For books: Author, Date, Title, City, Publisher, e.g. Duck, S. (1992). *Human Relationships*. London: Sage.

For journal articles: Author, Date, Title of article, Title of journal, Vol No: Pg. No: e.g. Bandura, A., Ross, D. & Ross, S. (1961). Transmission of aggression through imitation of aggressive models. *Journal of Abnormal & Social Psychology*, 63, 375–382.

All references should be alphabetical order.

### APPENDICES

Any additional information such as raw data, statistical calculations, stimulus material, standardised instructions and debrief etc. should be in an appendix, which should be numbered, have a full title and be referred to somewhere in the main body of the report.

# Experimental Research project checklist

	DETAIL	CHECK ✓
<b>Introduction</b>	<p>Do you have enough theory and evidence? Approximately 600–800 words minimum.</p> <p>Have you got the aims, null and alternate hypothesis plus IV and DV clearly stated at the end of the introduction?</p>	
<b>Method</b>	<p>Has this been divided into the four sections? Design, participants, materials and procedure.</p> <p>Are the IV and DV fully operationalised.</p> <p>Are the relevant ethical issues prominently discussed in the design section with details on what you will do in respect of them?</p> <p>Are all proposed resources, i.e. debrief, consent, standardised instructions in the appendix?</p>	
<b>Results</b>	<p>Are all descriptive statistics presented and graphs and tables clearly labelled.</p> <p>If you have used statistics are your workings clearly set out in the appendices.</p> <p>Have you made a statement of your results? I.e. accepting/ ejecting the null etc.</p>	
<b>Discussion</b>	<p>Have you got four clear paragraphs:</p> <ol style="list-style-type: none"> <li>1. Descriptive account of your results, including any additional findings.</li> <li>2. Have you linked your finding to the relevant research in your introduction?</li> <li>3. Have you considered the limitations of your work? Have you stated any problems or issues with your procedure, participants etc.? Is your evaluation fully justified and explained PEEL?</li> <li>4. Have you considered the implications and applications of your work and ideas for future work?</li> </ol>	

<b>References</b>	<p>Are your references set out in the stated way?</p> <p>Are they set out books, journals then websites with access dates clearly stated?</p> <p>Are the references alphabetical?</p>	
<b>Appendices</b>	<p>Are all relevant materials included?</p>	
<b>Abstract</b>	<p>Now all the above has been completed write your abstract and include:</p> <ol style="list-style-type: none"> <li>1. Brief account of the topic area.</li> <li>2. Statement of aims, null and alternative hypothesis.</li> <li>3. Statement of results including whether your null/ alternative hypotheses have been accepted or rejected</li> <li>4. State conclusions.</li> </ol> <p>This <b>must</b> go after your title page and <b>before</b> the introduction.</p>	



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