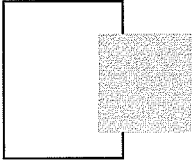


How to Design and Report Experiments

Andy Field
Graham Hole



Los Angeles | London | New Delhi
Singapore | Washington DC



Contents

Preface	ix
Acknowledgements	xi

Part 1: Designing an Experiment **1**

1 Before You Begin	3
1.1 Variables and Measurement	5
1.2 Experimental versus Correlational Research	10
1.3 The Dynamic Nature of Scientific Method	27
1.4 Summary	29
1.5 Practical Tasks	29
1.6 Further Reading	32
2 Planning an Experiment	33
2.1 What Should I Research: Finding Out What's Been Done?	33
2.2 How Do I Research My Question?	37
2.3 Summary: Is That It?	51
2.4 Practical Tasks	52
2.5 Further Reading	53
3 Experimental Designs	54
3.1 The Three Aims of Research: Reliability, Validity and Importance	54
3.2 Different Methods for Doing Research	63
3.3 So, Which Experimental Design Should You Use?	96
3.4 Ethical Considerations in Running a Study	98
3.5 Summary	101
3.6 Practical Tasks	102
3.7 Further Reading	104

Part 2: Analysing and Interpreting Data	107
4 Descriptive Statistics	109
4.1 Populations and Samples	109
4.2 Summarizing Data	111
4.3 Confidence Intervals	135
4.4 Reporting Descriptive Statistics	136
4.5 Summary	139
4.6 Practical Tasks	140
4.7 Further Reading	140
5 Inferential Statistics	141
5.1 Testing Hypotheses	141
5.2 Summary	157
5.3 Practical Tasks	157
5.4 Further Reading	158
6 Parametric Statistics	159
6.1 How Do I Tell If My Data are Parametric?	159
6.2 The <i>t</i> -Test	162
6.3 The Independent <i>t</i> -Test	163
6.4 The Dependent <i>t</i> -Test	168
6.5 Analysis of Variance	172
6.6 One-Way Independent ANOVA	174
6.7 One-Way Repeated Measures ANOVA	183
6.8 Two Way Independent ANOVA	191
6.9 Two-Way Mixed ANOVA	201
6.10 Two-Way Repeated Measures ANOVA	212
6.11 Analysis of Covariance (ANCOVA)	223
6.12 Summary	231
6.13 Practical Tasks	231
6.14 Further Reading	232
7 Non-parametric Statistics	234
7.1 Non-Parametric Tests: Rationale	234
7.2 The Mann-Whitney Test	235
7.3 The Wilcoxon Signed-Rank Test	239
7.4 The Kruskal-Wallis Test	244
7.5 Friedman's ANOVA	250
7.6 Summary	256
7.7 Practical Tasks	256
7.8 Further Reading	256
8 Choosing a Statistical Test	258
8.1 The Need to Think About Statistics at the Outset of Designing a Study	258
8.2 Five Questions to Ask Yourself	265

8.3	Specific Sources of Confusion in Deciding Which Test to Use	269
8.4	Examples of Using These Questions to Arrive at the Correct Test	271
8.5	Summary	277
8.6	Practical Tasks	277

Part 3: Writing Up Your Research **285**

9	A Quick Guide to Writing a Psychology Lab-Report	287
9.1	An Overview of the Various Sections of a Report	287
9.2	Title	289
9.3	Abstract	289
9.4	Introduction	289
9.5	Method	291
9.6	Results	293
9.7	Discussion	295
9.8	References	298
10	General Points When Writing a Report	301
10.1	The Standardized Format of the Report	301
10.2	Some Important Considerations When Writing a Report	303
10.3	Writing Style	304
10.4	Give Yourself Enough Time	307
10.5	Summary	308
10.6	Practical Tasks	309
10.7	Further Reading	309
11	Answering the Question ‘Why?’ The Introduction Section	311
11.1	Providing a Rationale	311
11.2	How to Describe Previous Research and its Findings	313
11.3	Outlining Your Own Experiment	315
11.4	Providing Predictions About the Experiment’s Outcome	316
11.5	Summary	317
11.6	Practical Tasks	317
12	Answering the Question ‘How?’ The Method Section	320
12.1	Design	320
12.2	Participants	321
12.3	Apparatus	322
12.4	Procedure	323
12.5	Summary	324
12.6	Practical Tasks	324
13	Answering the Question ‘What Did I Find?’ The Results Section	327
13.1	Tidying Up Your Data	327
13.2	Descriptive Statistics	328

13.3	Inferential Statistics	330
13.4	Make the Reader's Task Easy	332
13.5	Be Selective in Reporting Your Results!	333
13.6	Summary	333
14	Answering the Question 'So What'? The Discussion Section	336
14.1	Summarize Your Findings	336
14.2	Relate Your Findings to Previous Research	336
14.3	Discuss the Limitations of Your Study	340
14.4	Make Suggestions for Further Research	341
14.5	Draw Some Conclusions	342
14.6	Summary	342
15	Title, Abstract, References and Formatting	343
15.1	The Title	343
15.2	The Abstract	344
15.3	References	345
15.4	Appendices	356
15.5	Practical Tasks	357
16	Example of an Experimental Write-Up	360
16.1	Abstract	360
16.2	Introduction	361
16.3	Method	364
16.4	Design	364
16.5	Procedure	365
16.6	Results	366
16.7	Discussion	368
16.8	References for the Example	371
	References	373
	Index	379