Research Methods in Psychology

Dennis Howitt and Duncan Cramer

Fifth Edition

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Research Methods in Psychology

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Dennis Howitt Loughborough University

Duncan Cramer Loughborough University

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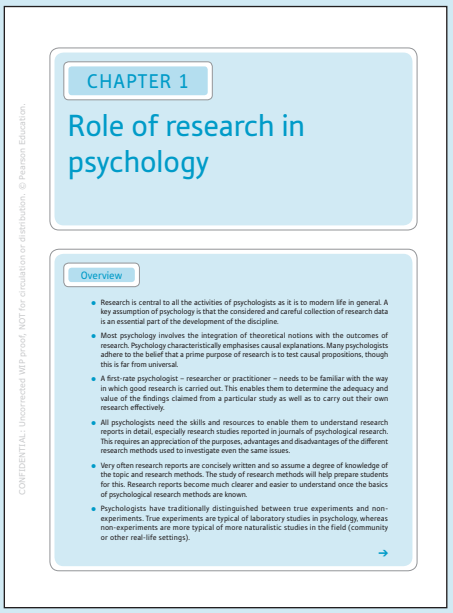
Guided tour



CHAPTER 1

Role of research in psychology

Overview

- Research is central to all the activities of psychologists as it is to modern life in general. A key assumption of psychology is that the considered and careful collection of research data is an essential part of the development of the discipline.
- Most psychology involves the integration of theoretical notions with the outcomes of research. Psychology characteristically emphasises causal explanations. Many psychologists adhere to the belief that a prime purpose of research is to test causal propositions, though this is far from universal.
- A first-rate psychologist – researcher or practitioner – needs to be familiar with the way in which good research is carried out. This enables them to determine the adequacy and value of the findings claimed from a particular study as well as to carry out their own research effectively.
- All psychologists need the skills and resources to enable them to understand research reports in detail, especially research studies reported in journals of psychological research. This requires an appreciation of the purposes, advantages and disadvantages of the different research methods used to investigate even the same issues.
- Very often research reports are concisely written and so assume a degree of knowledge of the topic and research methods. The study of research methods will help prepare students for this. Research reports become much clearer and easier to understand once the basics of psychological research methods are known.
- Psychologists have traditionally distinguished between true experiments and non-experiments. True experiments are typical of laboratory studies in psychology, whereas non-experiments are more typical of more naturalistic studies in the field (community or other real-life settings).

→

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Clear Overview

Introduces the chapter to give students a feel for the topics covered

Box 1.1 Key Ideas

Some essential concepts in research

Cause Something which results in an effect, action or condition.

Data The information from which inferences are drawn and conclusions reached. A lot of data are collected in numerical form but it is equally viable to use data in the form of text for an analysis.

Randomised experiment This refers to a type of research in which participants in research are allocated at random (by chance) to an experimental or control condition. Simple methods of random assignment include flipping a coin and drawing slips of paper from a hat. The basic idea is that each participant has an equal chance of being allocated to the experimental or control conditions. The experimental and control conditions involve differences in procedure related to the hypothesis under examination. So by randomisation, the researcher tries to avoid any systematic differences between the experimental and control conditions prior to the experimental manipulation. Random selection is covered in detail later (Chapter 13). In the modern research literature, the randomised experiment is often referred to as the randomised trial in some research contexts.

Reference In psychology, this refers to the details of the book or article that is the source of the ideas or data being discussed. The reference includes such information as the author, the title and the publisher of the book or the journal in which the article appears.

Variable A variable is any concept that varies and can be measured or assessed in some way. Intelligence, height, gender and social status are simple examples.

1.2 Reading

The best way of understanding psychological research methods is to read in detail about the studies which have been done and build on this. Few psychological textbooks give research in sufficient detail to substitute effectively for this. So developing a better understanding of how research is carried out in a particular area is greatly facilitated by reading at least some of the research work that lecturers and textbook writers refer to in its original form. Admittedly, some psychologists use too much jargon in their writing, but ignore these in favour of the many others who communicate well wherever you can. University students spend only a small part of a working week being taught – they are expected to spend much of their time on independent study, which includes reading a great deal as well as independently working on assignments.

Glance through any textbook or lecture course reading list and you will see the work of researchers cited. For example, the lecturer or author may cite the work of Byrne (1961) on attraction and similarity of attitude. Normally a list of the 'references' cited is provided. The citation provides information on the kind of work it is (for example, what the study is about) and where it has been presented or published. The details are shown in the following way:

Byrne, D. (1961). Interpersonal attraction and attitude similarity. *Journal of Abnormal and Social Psychology, 62*, 713–715.

The format is standard for a particular type of publication. Details differ according to what sort of publication it is – a book may be referenced differently from a journal article and an Internet source is referenced differently still. For a journal article, the last name of the

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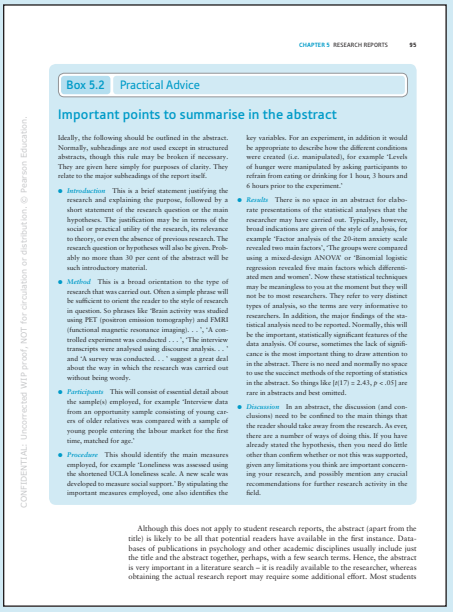
Key Ideas

Outlines the important concepts in more depth to give you a fuller understanding



Box 5.2 Practical Advice

Important points to summarise in the abstract

Ideally, the following should be outlined in the abstract. Normally, subheadings are *not* used except in structured abstracts, though this rule may be broken if necessary. They are given here simply for purposes of clarity. They relate to the major subheadings of the report itself.

- *Introduction* This is a brief statement justifying the research and explaining the purpose, followed by a short statement of the research question or the main hypotheses. The justification may be in terms of the social or practical utility of the research, its relevance to theory, or even the absence of previous research. The research question or hypotheses will also be given. Probably no more than 30 per cent of the abstract will be such introductory material.
- *Method* This is a broad orientation to the type of research that was carried out. Often a simple phrase will be sufficient to orient the reader to the style of research in question. So phrases like 'Brain activity was studied using PET (positron emission tomography) and FMRI (functional magnetic resonance imaging). . . ', 'A controlled experiment was conducted . . . ', 'The interview transcripts were analysed using discourse analysis. . . ' and 'A survey was conducted. . . ' suggest a great deal about the way in which the research was carried out without being wordy.
- *Participants* This will consist of essential detail about the sample(s) employed, for example 'Interview data from an opportunity sample consisting of young carers of older relatives was compared with a sample of young people entering the labour market for the first time, matched for age.'
- *Procedure* This should identify the main measures employed, for example 'Loneliness was assessed using the shortened UCLA loneliness scale. A new scale was developed to measure social support.' By stipulating the important measures employed, one also identifies the key variables. For an experiment, in addition it would be appropriate to describe how the different conditions were created (i.e. manipulated), for example 'Levels of hunger were manipulated by asking participants to refrain from eating or drinking for 1 hour, 3 hours and 6 hours prior to the experiment.'
- *Results* There is no space in an abstract for elaborate presentations of the statistical analyses that the researcher may have carried out. Typically, however, broad indications are given of the style of analysis, for example 'Factor analysis of the 20-item anxiety scale revealed two main factors', 'The groups were compared using a mixed-design ANOVA' or 'Binomial logistic regression revealed five main factors which differentiated men and women'. Now these statistical techniques may be meaningless to you at the moment but they will not be to most researchers. They refer to very distinct types of analysis, so the terms are very informative to researchers. In addition, the major findings of the statistical analysis need to be reported. Normally, this will be the important, statistically significant features of the data analysis. Of course, sometimes the lack of significance is the most important thing to draw attention to in the abstract. There is no need and normally no space to use the succinct methods of the reporting of statistics in the abstract. So things like $[t(17) = 2.43, p < .05]$ are rare in abstracts and best omitted.
- *Discussion* In an abstract, the discussion (and conclusions) need to be confined to the main things that the reader should take away from the research. As ever, there are a number of ways of doing this. If you have already stated the hypothesis, then you need do little other than confirm whether or not this was supported, given any limitations you think are important concerning your research, and possibly mention any crucial recommendations for further research activity in the field.

Although this does not apply to student research reports, the abstract (apart from the title) is likely to be all that potential readers have available in the first instance. Databases of publications in psychology and other academic disciplines usually include just the title and the abstract together, perhaps, with a few search terms. Hence, the abstract is very important in a literature search – it is readily available to the researcher, whereas obtaining the actual research report may require some additional effort. Most students

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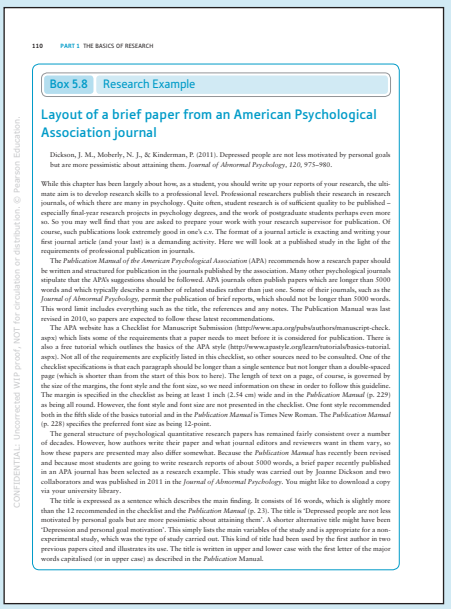
Practical Advice

Gives you handy hints and tips on how to carry out research in practice



110 PART 1 THE BASICS OF RESEARCH

Box 5.8 Research Example

Layout of a brief paper from an American Psychological Association journal

Dickson, J. M., Moberly, N. J., & Kinderman, P. (2011). Depressed people are not less motivated by personal goals but are more pessimistic about attaining them. *Journal of Abnormal Psychology, 120*, 975–980.

While this chapter has been largely about how, as a student, you should write up your reports of your research, the ultimate aim is to develop research skills to a professional level. Professional researchers publish their research in research journals, of which there are many in psychology. Quite often, student research is of sufficient quality to be published – especially final-year research projects in psychology degrees, and the work of postgraduate students perhaps even more so. So you may well find that you are asked to prepare your work with your research supervisor for publication. Of course, such publications look extremely good in one's c.v. The format of a journal article is exacting and writing your first journal article (and your last) is a demanding activity. Here we will look at a published study in the light of the requirements of professional publication in journals.

The *Publication Manual of the American Psychological Association* (APA) recommends how a research paper should be written and structured for publication in the journals published by the association. Many other psychological journals stipulate that the APA's suggestions should be followed. APA journals often publish papers which are longer than 5000 words and which typically describe a number of related studies rather than just one. Some of their journals, such as the *Journal of Abnormal Psychology*, permit the publication of brief reports, which should not be longer than 5000 words. This word limit includes everything such as the title, the references and any notes. The Publication Manual was last revised in 2010, so papers are expected to follow these latest recommendations.

The APA website has a Checklist for Manuscript Submission (http://www.apa.org/pubs/authors/manuscript-check.aspx) which lists some of the requirements that a paper needs to meet before it is considered for publication. There is also a free tutorial which outlines the basics of the APA style (http://www.apastyle.org/learn/tutorials/basics-tutorial.aspx). Not all of the requirements are explicitly listed in this checklist, so other sources need to be consulted. One of the checklist specifications is that each paragraph should be longer than a single sentence but not longer than a double-spaced page (which is shorter than from the start of this box to here). The length of text on a page, of course, is governed by the size of the margins, the font style and the font size, so we need information on these in order to follow this guideline. The margin is specified in the checklist as being at least 1 inch (2.54 cm) wide and in the *Publication Manual* (p. 229) as being all round. However, the font style and font size are not presented in the checklist. One font style recommended both in the fifth slide of the basics tutorial and in the *Publication Manual* is Times New Roman. The *Publication Manual* (p. 228) specifies the preferred font size as being 12-point.

The general structure of psychological quantitative research papers has remained fairly consistent over a number of decades. However, how authors write their paper and what journal editors and reviewers want in them vary, so how these papers are presented may also differ somewhat. Because the *Publication Manual* has recently been revised and because most students are going to write research reports of about 5000 words, a brief paper recently published in an APA journal has been selected as a research example. This study was carried out by Joanne Dickson and two collaborators and was published in 2011 in the *Journal of Abnormal Psychology*. You might like to download a copy via your university library.

The title is expressed as a sentence which describes the main finding. It consists of 16 words, which is slightly more than the 12 recommended in the checklist and the *Publication Manual* (p. 23). The title is 'Depressed people are not less motivated by personal goals but are more pessimistic about attaining them'. A shorter alternative title might have been 'Depression and personal goal motivation'. This simply lists the main variables of the study and is appropriate for a non-experimental study, which was the type of study carried out. This kind of title had been used by the first author in two previous papers cited and illustrates its use. The title is written in upper and lower case with the first letter of the major words capitalised (or in upper case) as described in the *Publication* Manual.

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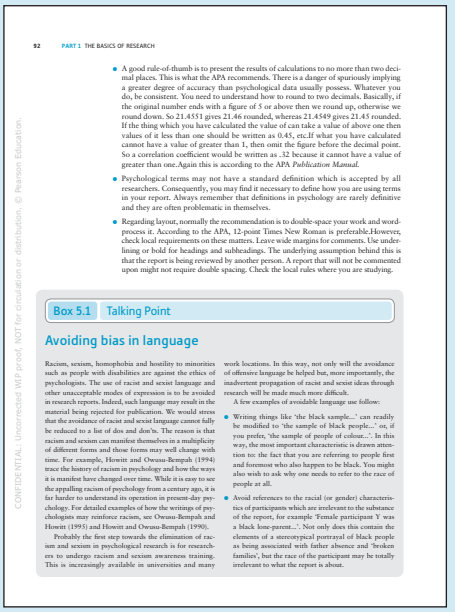
Research Example

Explores a real example of research being carried out, giving you an insight into the process



92 PART 1 THE BASICS OF RESEARCH

- A good rule-of-thumb is to present the results of calculations to no more than two decimal places. This is what the APA recommends. There is a danger of spuriously implying a greater degree of accuracy than psychological data usually possess. Whatever you do, be consistent. You need to understand how to round to two decimals. Basically, if the original number ends with a figure of 5 or above then we round up, otherwise we round down. So 21.4551 gives 21.46 rounded, whereas 21.4549 gives 21.45 rounded. If the thing which you have calculated the value of can take a value of above one then values of it less than one should be written as 0.45, etc.If what you have calculated cannot have a value of greater than 1, then omit the figure before the decimal point. So a correlation coefficient would be written as .32 because it cannot have a value of greater than one.Again this is according to the APA *Publication Manual*.
- Psychological terms may not have a standard definition which is accepted by all researchers. Consequently, you may find it necessary to define how you are using terms in your report. Always remember that definitions in psychology are rarely definitive and they are often problematic in themselves.
- Regarding layout, normally the recommendation is to double-space your work and word-process it. According to the APA, 12-point Times New Roman is preferable.However, check local requirements on these matters. Leave wide margins for comments. Use underlining or bold for headings and subheadings. The underlying assumption behind this is that the report is being reviewed by another person. A report that will not be commented upon might not require double spacing. Check the local rules where you are studying.

Box 5.1 Talking Point

Avoiding bias in language

Racism, sexism, homophobia and hostility to minorities such as people with disabilities are against the ethics of psychologists. The use of racist and sexist language and other unacceptable modes of expression is to be avoided in research reports. Indeed, such language may result in the material being rejected for publication. We would stress that the avoidance of racist and sexist language cannot fully be reduced to a list of dos and don'ts. The reason is that racism and sexism can manifest themselves in a multiplicity of different forms and those forms may well change with time. For example, Howitt and Owusu-Bempah (1994) trace the history of racism in psychology and how the ways it is manifest have changed over time. While it is easy to see the appalling racism of psychology from a century ago, it is far harder to understand its operation in present-day psychology. For detailed examples of how the writings of psychologists may reinforce racism, see Owusu-Bempah and Howitt (1995) and Howitt and Owusu-Bempah (1990).

Probably the first step towards the elimination of racism and sexism in psychological research is for researchers to undergo racism and sexism awareness training. This is increasingly available in universities and many work locations. In this way, not only will the avoidance of offensive language be helped but, more importantly, the inadvertent propagation of racist and sexist ideas through research will be made much more difficult.

A few examples of avoidable language use follow:

- Writing things like 'the black sample...' can readily be modified to 'the sample of black people...' or, if you prefer, 'the sample of people of colour...'. In this way, the most important characteristic is drawn attention to: the fact that you are referring to people first and foremost who also happen to be black. You might also wish to ask why one needs to refer to the race of people at all.
- Avoid references to the racial (or gender) characteristics of participants which are irrelevant to the substance of the report, for example 'Female participant Y was a black lone-parent...'. Not only does this contain the elements of a stereotypical portrayal of black people as being associated with father absence and 'broken families', but the race of the participant may be totally irrelevant to what the report is about.

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Talking Point

Investigates an important debate or issue in research

CHAPTER 2 AIMS AND HYPOTHESES IN RESEARCH 43

2.7 Conclusion

It is almost a truism to suggest that the aims and hypotheses of research should be clear. This does not mean that the aims and hypotheses are obvious at the earliest stages of the research project. Since research is part of the ways in which psychological knowledge and ideas develop, it is almost inevitable that aims and hypotheses go through a developmental process. Reformulation of the aims and objectives of a study will commonly occur in the research planning stage, and sometimes after. All research is guided by aims, but hypotheses are only universal in certain types of research – especially true experiments – where it is possible to specify likely outcomes with a great deal of precision. Hypotheses are best included wherever possible, since they represent the distillation of the researcher's thoughts about the subject matter. Sometimes, for non-experimental studies, the formulation of hypotheses becomes too cumbersome to be of value. Hence, many excellent studies in psychology will not include hypotheses.

The true experiment (for example, the laboratory experiment) has many advantages in terms of the testing of hypotheses: (a) its ability to randomise participants to conditions, (b) the requirement of manipulating the independent variable rather than using already existing variables such as gender, and (c) the control over variables. Although we have largely discussed the testing of a single hypothesis at a time, very little research in real life is so restricted. Remember, most research studies have several aims and several hypotheses in the same study, because we are usually interested in the way in which a number of different variables may be related to one another. It would also be more costly in terms of time and effort to investigate these hypotheses one at a time in separate studies.

In the penultimate section of this book on qualitative research methods, we will see that important research in psychology can proceed using a quite different approach to investigation in which the idea of specified aims and hypotheses is something of an anathema. Nevertheless, much research in mainstream psychology either overtly or tacitly subscribes to hypothesis testing as an ideal. Later (Chapter 18) we present an overview of the theoretical basis to these different approaches to research.

Key points

- Research studies have different general aims. Most seem to be concerned with testing causal propositions or hypotheses. Others may describe a phenomenon or intervention in detail, estimate how common a behaviour is in some population, evaluate the effects of interventions, or statistically summarise the results of similar studies. The aim or aims of a study should be clearly and accurately stated.
- Studies which test causal propositions should describe clearly and accurately what these propositions are.
- The research study should make a contribution to the topic. While research usually builds on previous research in an area, the contribution of the study should be original to some extent in the sense that the particular question addressed has not been entirely investigated in this way before.
- A hypothesis describes what the relationship is expected to be between two or more variables. The hypothesis should be stated in a causal form when the study is a true experiment. It should be stated in a non-causal form when the study is a non-experiment.

→

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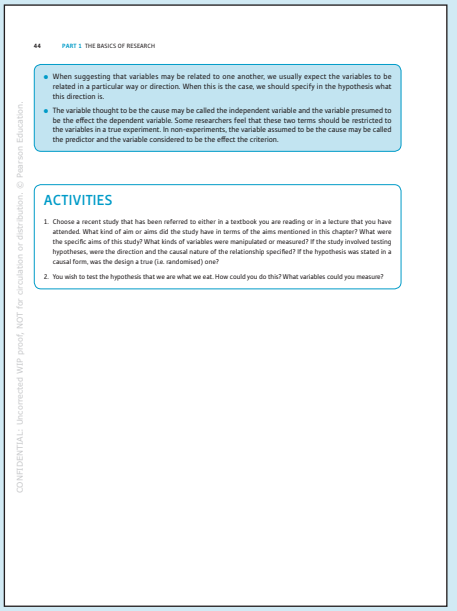
Conclusion/Key points

Each chapter has a conclusion and set of key points to help summarise chapter coverage when you're revising a topic



44 PART 1 THE BASICS OF RESEARCH

- When suggesting that variables may be related to one another, we usually expect the variables to be related in a particular way or direction. When this is the case, we should specify in the hypothesis what this direction is.
- The variable thought to be the cause may be called the independent variable and the variable presumed to be the effect the dependent variable. Some researchers feel that these two terms should be restricted to the variables in a true experiment. In non-experiments, the variable assumed to be the cause may be called the predictor and the variable considered to be the effect the criterion.

ACTIVITIES

1. Choose a recent study that has been referred to either in a textbook you are reading or in a lecture that you have attended. What kind of aim or aims did the study have in terms of the aims mentioned in this chapter? What were the specific aims of this study? What kinds of variables were manipulated or measured? If the study involved testing hypotheses, were the direction and the causal nature of the relationship specified? If the hypothesis was stated in a causal form, was the design a true (i.e. randomised) one?
2. You wish to test the hypothesis that we are what we eat. How could you do this? What variables could you measure?

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Activities

Each chapter concludes with activities to help you test your knowledge and explore the issues further

Introduction

Modern psychological research is a complex activity. The fifth edition of *Research methods in psychology* is one of a set of three books covering the major approaches to psychological research and analysis as currently practised. A single volume combining statistics and research methods to meet the needs of students and researchers is impractical, given the scope of modern psychology. Nowadays, the discipline is extremely varied in the styles of research it employs, and the methodological and statistical sophistication that it currently enjoys would have been undreamt of even just a few years ago. Good research requires thought, understanding and experience – it is not a simple rule-following exercise and to pretend that it is does students a disservice. To our minds, the incredible progress of modern psychology means that teaching resources must struggle to keep up to date and to cope with the variety of different educational experiences provided by different universities. At heart, each volume in our trilogy is modularly constructed. That is, we do not expect that all their contents will be covered by lecturers and other instructors. Instead, there is a menu of largely self-contained chapters from which appropriate selections can be made.

This is illustrated by the coverage of *Research methods in psychology*. This is unusual in that both quantitative and qualitative research are covered in depth. These are commonly but, in our opinion, wrongly seen as alternative and incompatible approaches to psychological research. For some researchers, there may be an intellectual incompatibility between the two. From our perspective, it is vitally important that students understand the intellectual roots of the two traditions, how research is carried out in these traditions, and what each tradition is capable of achieving. We believe that the student who is so informed will be better placed to make intelligent and appropriate choices about the style of research appropriate for the research questions they wish to address. On its own, the qualitative material in this fifth edition effectively supports much of the qualitative research likely to be carried out today. There is as much detailed practical advice and theory as is available in most books on qualitative research methods. (If more is required, the book by Dennis Howitt (2016), *Introduction to Qualitative Research Methods in Psychology*, Harlow: Pearson Education, will probably meet your requirements.) But this is in addition to the quantitative coverage, which easily outstrips any competition in terms of variety, depth and authority. We have tried to provide students with resources to help them in ways largely ignored by most other texts. For example, Chapter 7 on literature searches is extremely comprehensive and practical. Similarly, Chapter 8 on ethics meets the most recent standards and deals with them in depth. Chapter 5 on writing research reports places report writing at the centre of the research process rather than as an add-on at the end. We would argue that a student requires an understanding of the nature of research in psychology to be able to write a satisfactory research report. However, we have included one chapter on a quantitative research report and a new chapter on a qualitative research report which illustrate many of the problems that are found in research reports in response to requests for such material. You will also find some discussion of statistics in this book. For the most part, this is when dealing with topics which

are missing from the popular SPSS-based statistics textbooks, simply because SPSS does not cover everything useful in psychological research. Also new is a chapter on more controversial aspects of statistics to give some flavour of the kinds of issues that are still being currently debated. Finally we have also included additional references to indicate when important concepts initially appeared to enter the literature to provide you with more of a chronological and evidential context for these ideas.

As far as is possible, we have tried to provide students with practical skills as well as the necessary conceptual overview of research methods in modern psychology. Nevertheless, there is a limit to this. The bottom line is that anyone wishing to understand research needs to read research, not merely plan, execute, analyse and write up research. Hence, almost from the start we emphasise that reading is not merely unavoidable but crucial. Without such additional reading, the point of this book is missed. It is not intended as a jumble of technical stuff too boring to be part of any module other than one on research methods. The material in the book is intended to expand students' understanding of psychology by explaining just how researchers go about creating psychology. At times this can be quite exciting as well as frustrating and demanding.

This is the fifth book the authors have written together. It is also the one that came close to spoiling a long friendship. What became very clear while writing this book is how emotive the topic of research methods can be. We found out, perhaps for the first time, how different two people's thinking can be, even when dealing with seemingly dry topics. As a consequence, rather than smooth over the cracks, making joins when this was not possible, you will find that we have incorporated the differences of opinion. This is no different from the disparity of positions to be found within the discipline itself – probably less so.

The main features of this book are:

- in-depth coverage of both quantitative and qualitative methods
- a range of pedagogic features including summaries, exercises, boxes and step-by-step instructions where appropriate
- analytic strategies provided for the research designs discussed
- detailed information about the structure, purpose and contents of research reports
- the use of databases and other resources
- suggestions about how to develop research ideas for projects and similar studies
- ethics as an integral feature of the work of all psychologists.

Research methods in psychology is part of the trilogy of books which includes *Statistics in psychology using SPSS* and *SPSS essentials*. In *Research methods in psychology,* we have tried to make the presentation both clear in terms of the text but with additional visual learning aids throughout the book. We have added SPSS and other computer program instructions to the statistics book, though we have kept these instructions as short and to the point as possible. Students are well used to computers and so we have provided the major steps together with some screenshots just as a means of checking progress in the analysis. Anyone needing a quick and foolproof introduction to the use of SPSS will find this in *SPSS essentials*. We are determined to provide resources for students which are both user-friendly and professionally orientated. Increasingly, research is part of many of the different sorts of careers that psychology students enter – we simply hope that our books speed the user towards a considered, mature approach to research.

Education is a cooperative effort. So should you find errors then please let us know. These can be difficult to spot but easy to correct – some corrections can be made when a book is reprinted. Ideas and comments of any sort would be most welcome.

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It is a curious thing but the credits at the end of a movie or TV programme are extensive but those for a book are usually minimal or zero. The authors are named, of course, but usually nobody besides them. The truth is, of course, that we as authors could not have produced the book that you have in your hands without the help of some very clever and talented people. We wrote the manuscript, of course, but a manuscript is not a book. Others made our manuscript into the attractive, easy-to-navigate and organized book that you are holding. It is our pleasure to thank them for everything that they did. The following is not a complete list of those involved by any means and our apologies for any significant omissions.

The world of publishing can involve quite frequent personnel changes but we have been very lucky to have worked with Janey Webb (Publisher) at Pearson for the several editions of this book that she commissioned. She has a complex role in relation to authors and she has always been a tower of strength. For example, she solicits academic reviews of the previous edition of the book in order to impose a sense of direction on us when writing the new edition. While Janey was on maternity leave, her place was ably taken by Lina Aboujieb whose input we greatly appreciate.

Archana Makhija is the production editor at Pearson who has overall responsibility for all aspects of turning the manuscript into the book. The production work was in the hands of SPi Global in Chennai, Tamil Nadu, India. Actually one of us (DH) wrote much of the book and its revisions just over the border in Kumily, Kerala, so this seems appropriate. SPi Global provided the text design and the index for the book. We would like to thank Greetal Carolyn Jayanandan who was the project manager at SPi especially for the friendly, courteous, patient and efficient way that she liaised with us throughout.

Particularly important to authors are the copy editor and proof reader. The copy editor applies the text design to the manuscript as well as being the first-run proof reader. The text design, as you can see, is complex with many elements but, above all, it gives the book a visual coherence which makes it far easier to read and study from. Susan Dunsmore was the copy editor for this edition and the quality of her work we can see in proofs as we work on them. The proof reader is Raguraman Guru whose job is to correct all of the typographic, grammatical, and spelling errors to which the authors are prone as well as making sure that what is written makes sense. A tough job but someone has to do it. Maggie Harding provided the great cover design.

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Figures

Figure 7.16 from The 'drinking-buddy' scale as a measure of para-social behavior, *Psychological Reports*, 110 ed., pp. 1029–37 (Powell, L. Richmond, V.P. and Cantrell-Williams, G. 2012), Ammons Scientific; Figure 8.2 from Code of Ethics and Conduct Guidance published by the Ethics Committee of the British Psychological Society, http://www.bps.org.uk/system/files/documents/code_of_ethics_and_conduct.pdf, British Psychological Society.

Screenshots

Screenshot 7.5 from http://ipscience.thomsonreuters.com/product/web-of-science; Screenshot 7.6 from http://thomsonreuters.com/web-of-science; Screenshot 7.7 from http://apps.webofknowledge.com/summary.do?SID=N155x1C6TcVo7ga5nRy&product=WOS&qid=1&search_mode=GeneralSearch; Screenshot 7.8 from http://apps.webofknowledge.com/full_record.do?product=WOS&search_mode=GeneralSearch&qid=1&SID=N155x1C6TcVo7ga5nRy&page=1&doc=6; Screenshot 7.9 from http://apps.webofknowledge.com/CitedRefList.do?product=WOS&search_mode=CitedRefList&SID=N155x1C6TcVo7ga5nRy&colName=WOS&parentProduct=WOS&parentQid=1&parentDoc=6&recid=WOS:000306877200011&UT=WOS:000306877200011&excludeEventConfig=ExcludeIfFromFullRecPage; Screenshot 7.10 from http://sfxeu10.hosted.exlibrisgroup.com/loughborough?&url_ver=Z39.88-2004&url_ctx_fmt=info:ofi/fmt:kev:mtx:ctx&rft_val_fmt=info:ofi/fmt:kev:mtx:journal&rft.atitle=Origins%20of%20%22Us%22%20versus%20%22Them%22%3A%20Pre%20linguistic%20infants%20prefer%20similar%20others&rft.aufirst=Neha&rft.aulast=Mahajan&rft.date=2012&rft.epage=233&rft.genre=article&rft.issn=0010-0277&rft.issue=2&rft.jtitle=COGNITION&rft.pages=227-233&rft.spage=227&rft.stitle=COGNITION&rft.volume=124&rfr_id=info:sid/www.isinet.com:WoK:WOS&rft.au=Wynn%2C%20Karen&rft_id=info:pmid/22668879&rft_id=info:doi/10%2E1016%2Fj%2Ecognition%2E2012%2E05%2E003; Screenshot 7.11 from http://www.sciencedirect.com/science/article/pii/S0010027712000947; Screenshot 7.12 from PsycINFO web page: The PDF file of an article Science Direct / Elsevier, http://ac.els-cdn.com/S0010027712000947/1-s2.0-S0010027712000947-main.pdf?_tid=79cec102-1621-11e3-ac4a-00000aab0f6c&acdnat=1378382058_bf32d4c96e4cf7cc022f00d390b5c353, American Psychological Association; Screenshot 7.13 from PsycINFOSearch home page (EBSCO), http://web.ebscohost.com/ehost/search/advanced?sid=ab13fa25-82f8-4bd8-b4cd-a116c469c635%40sessionmgr111&vid=1&hid=121, American Psychological Association, The PsycINFO® Database screen shot is reproduced with permission of the American Psychological Association, publisher of the PsycINFO database, all rights reserved. No and further reproduction or distribution is permitted without written permission from the American Psychological Association; Screenshot 7.14 from PsycINFOsearch, http://web.ebscohost.com/ehost/search/advanced?sid=ab13fa25-82f8-4bd8-b4cd-a116c469c635%40sessionmgr111&vid=1&hid=121, American Psychological Association, The PsycINFO® Database screen shot is reproduced with permission of the American Psychological Association, publisher of the PsycINFO database, all rights reserved. No and further reproduction or distribution is permitted without written permission from the American Psychological Association; Screenshot 7.15 from PsycINFOresults, http://web.ebscohost.com/ehost/resultsadvanced?sid=ab13fa25-82f8-4bd8-b4cd-a116c469c635%40sessionmgr111&vid=2&hid=121&bquery=(AB+(interpersonal+similarity))+AND+(AB+(attitude+similarity))&bdata=JmRiPXBzeWgmdHlwZT0xJnNpdGU9ZWhvc3Q

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Text

Extract on page 139–41 from *Systematic Reviews in the Social Sciences: A Practical Guide,* 1 ed., Wiley-Blackwell (Petticrew, M., & Roberts, H. 2006) pp. 284–7; Extract on page 391 from Benneworth, K. (2004) 'A discursive analysis of police interviews with suspected paedophiles'. Doctoral dissertation (Loughborough University, England).

PART 1

Basics of research

CHAPTER 1

Role of research in psychology

Overview

- Research is central to all the activities of psychologists as it is to modern life in general. A key assumption of psychology is that the considered and careful collection of research data is an essential part of the development of the discipline.
- Most psychology involves the integration of theoretical notions with the outcomes of research. Psychology characteristically emphasises causal explanations. Many psychologists adhere to the belief that a prime purpose of research is to test causal propositions, though this is far from universal.
- A first-rate psychologist – researcher or practitioner – needs to be familiar with the way in which good research is carried out. This enables them to determine the adequacy and value of the findings claimed from a particular study as well as to carry out their own research effectively.
- All psychologists need the skills and resources to enable them to understand research reports in detail, especially research studies reported in journals of psychological research. This requires an appreciation of the purposes, advantages and disadvantages of the different research methods used to investigate even the same issues.
- Very often research reports are concisely written and so assume a degree of knowledge of the topic and research methods. The study of research methods will help prepare students for this. Research reports become much clearer and easier to understand once the basics of psychological research methods are known.
- Psychologists have traditionally distinguished between true experiments and non-experiments. True experiments are typical of laboratory studies in psychology, whereas non-experiments are more typical of more naturalistic studies in the field (community or other real-life settings).

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- Many psychologists believe that true experiments (laboratory studies) in general provide a more convincing test of causal propositions. Others would dispute this, primarily on the grounds that such true experiments often achieve precision at the expense of realism.
- Conducting one's own research is a fast route to understanding research methods. Increasingly, research is seen as an integral part of the training and work of all psychologists irrespective of whether they are practitioners or academics.

1.1 Introduction

Research is exciting – the lifeblood of psychology. To be sure, the subject matter of psychology is fascinating, but this is not enough. Modern psychology cannot be fully appreciated in the absence of some understanding of the research methods that make psychology what it is. Although initially psychology provides many intriguing ideas about the nature of people and society, as one matures intellectually, the challenges and complexities of the research process that helped generate these ideas are increasingly part of one's understanding of psychology. Psychological issues are engaging: for example, why do some relationships last? Is there a purpose behind dreaming? What causes depression and what can we do to alleviate it? Can we improve our memory to make us study more efficiently and, if so, how? Why are we aggressive and can we do anything to make us less so? What are the rules which govern everyday conversation? Diversity characterises psychology's subject matter and ensures that our individual interests are well catered for. It also means that research methods must be equally diverse in order to address such a wide range of issues. Psychology comes in many forms and so does good psychological research.

Students often see research methods as a dull, dry and difficult topic which is tolerated rather than enjoyed. They much prefer their other lecture courses on exciting topics such as child development, mental illness, forensic investigation, brain structure and thought. What they overlook is that these exciting ideas are created by active and committed researchers. For these psychologists, psychology and research methods are intertwined – psychology and the means of developing psychological ideas through research cannot be differentiated. For instance, it is stimulating to learn that we are attracted to people who have the same or similar attitudes to us. It is also of some interest to be given examples of the kinds of research which support this idea. But is this all that there is to it? Are there not many more questions that spring to mind? For example, why should we be attracted to people who have similar attitudes to our own? Do opposites never attract? When does similarity lead to attraction and when does dissimilarity lead to attraction? The answer may have already been found to such questions. If not, the need for research is obvious. Research makes us think hard – which is the purpose of any academic discipline. The more thinking that we do about research, the better we become at it.

Box 1.1 contains definitions of various concepts such as 'variable' and 'correlation' to which you may need to refer if you are unfamiliar with these terms.

Box 1.1 Key Ideas

Some essential concepts in research

Cause Something which results in an effect, action or condition.

Data The information from which inferences are drawn and conclusions reached. A lot of data are collected in numerical form but it is equally viable to use data in the form of text for an analysis.

Randomised experiment This refers to a type of research in which participants in research are allocated at random (by chance) to an experimental or control condition. Simple methods of random assignment include flipping a coin and drawing slips of paper from a hat. The basic idea is that each participant has an equal chance of being allocated to the experimental or control conditions. The experimental and control conditions involve differences in procedure related to the hypothesis under examination. So by randomisation, the researcher tries to avoid any systematic differences between the experimental and control conditions prior to the experimental manipulation. Random selection is covered in detail later (Chapter 13). In the modern research literature, the randomised experiment is often referred to as the randomised trial in some research contexts.

Reference In psychology, this refers to the details of the book or article that is the source of the ideas or data being discussed. The reference includes such information as the author, the title and the publisher of the book or the journal in which the article appears.

Variable A variable is any concept that varies and can be measured or assessed in some way. Intelligence, height, gender and social status are simple examples.

1.2 Reading

The best way of understanding psychological research methods is to read in detail about the studies which have been done and build on this. Few psychological textbooks give research in sufficient detail to substitute effectively for this. So developing a better understanding of how research is carried out in a particular area is greatly facilitated by reading at least some of the research work that lecturers and textbook writers refer to in its original form. Admittedly, some psychologists use too much jargon in their writing, but ignore these in favour of the many others who communicate well wherever you can. University students spend only a small part of a working week being taught – they are expected to spend much of their time on independent study, which includes reading a great deal as well as independently working on assignments.

Glance through any textbook or lecture course reading list and you will see the work of researchers cited. For example, the lecturer or author may cite the work of Byrne (1961) on attraction and similarity of attitude. Normally a list of the 'references' cited is provided. The citation provides information on the kind of work it is (e.g. what the study is about) and where it has been presented or published. The details are shown in the following way:

> Byrne, D. (1961). Interpersonal attraction and attitude similarity. *Journal of Abnormal and Social Psychology, 62,* 713–715.

The format is standard for a particular type of publication. Details differ according to what sort of publication it is – a book may be referenced differently from a journal article and an Internet source is referenced differently still. For a journal article, the last name of the

author is given first, followed by the year in which the reference was published. After this comes the title of the work. Like most research in psychology, Byrne's study was published in a journal. The title of the journal is given next, together with the number of the volume in which the article appeared and the numbers of the first and last pages of the article. These references are generally listed alphabetically according to the last name of the first author in a reference list at the end of the journal article or book. Where there is more than one reference by the same author or authors, they will be listed according to the year the work was presented. This is known as the Harvard system or author–date system. It is described in much more detail later in this part of the book in the chapters about writing a research report (Chapters 5 and 6). We will cite references in this way in this book. However, we will cite very few references compared with psychology texts on other subjects, as many of the ideas we are presenting have been previously summarised by other authors (although usually not in the same way) and have been generally accepted for many years.

Many of the references cited in lectures or textbooks are to reports of research that has been carried out to examine a particular question or small set of questions. Research studies have to be selective and restricted in their scope – it is impossible to design a study to study everything. As already indicated, the prime location for the publication of research is journals. Journals consist of volumes which are usually published every year. Each volume typically comprises a number of issues or parts that come out, say, every three months, but this is variable. The papers or articles that make up an issue are probably no more than 4000 or 5000 words in length, though it is not uncommon to find some of them 10,000 words long. Their shortness necessitates their being written concisely. As a consequence, they are not always easy to read and often require careful study in order to master them. In order to understand them, you may also have to read some of the other studies for details that you do not know and which will give you a better and more complete understanding of it.

An important aim of this book is to provide you with the basic knowledge which is required to read these papers – and even to write them. Often there appear to be obstacles in the way of doing the necessary reading. For example, there are many different psychology journals – too many for individual libraries to stock – so they subscribe to a limited number of them. A book which is not available locally at your university may be obtained from another library. Almost invariably, nowadays, university libraries subscribe to digital versions of journals, so many papers are readily available in electronic files (usually in Portable Digital Format, pdf) which can easily be accessed via your university library over the Internet and then even circulated to others as an e-mail attachment. The chapter on searching the literature (Chapter 7) suggests how you can access publications which are not held in your own library. The point of this means that often you can download to your computer articles which otherwise would not be available at your university. This is remarkably convenient and there are no overdue fines.

One of the positive things about psychology is that you may have questions about a topic that have not been addressed in lectures or textbooks. For example, you may wonder whether attraction to someone depends on the nature of the particular attitudes that are shared. Are some attitudes more important than others and, if so, what are these? If you begin to ask questions like these while you are reading something, then this is excellent. It is the sort of intellectual curiosity required to become a good researcher. Furthermore, as you develop through your studies, you probably will want to know what the latest thinking and research are on the topic. If you are interested in a topic, then wanting to know what other people are thinking about it is only natural. Your lecturers will certainly be pleased if you do. There is a great deal to be learnt about how one goes about finding out what is happening in any academic discipline. Being able to discover what is currently happening and what has happened in a field of research is a vitally important skill. The chapter on searching the literature (Chapter 7) discusses how we go about searching for the current publications on a topic.

1.3 Evaluating the evidence

So psychology is not simply about learning what conclusions have been reached on a particular topic. It is perhaps more important to find out and carefully evaluate the evidence which has led to these conclusions. Why? Well, what if you have always subscribed to the old adage 'opposites attract'? Would you suddenly change your mind simply because you read in a textbook that people with similar attitudes are attracted to each other? Most likely you would want to know a lot more about the evidence. For example, what if you checked and found that the research in support of this idea was obtained simply by asking a sample of 100 people whether they believed that opposites attract? In this case, all the researchers had really established was that people generally thought it was true that people are attracted to other people with similar attitudes. After all, merely because people once believed the world was flat did not make the world flat. It may be interesting to know what people believe, but wouldn't one want different evidence in order to be convinced that attraction actually is a consequence of similarity of attitudes? You might also wonder whether it is really true that people once believed the world to be flat. Frequently, in the newspapers and on television, one comes across startling findings from psychological research. Is it wise simply to accept what the newspaper or television report claims, or would it be better to check the original research in order to evaluate what the research actually meant?

We probably would be more convinced of the importance of attitude similarity in attraction if a researcher measured how attracted couples were to each other and then showed that those with the most similar attitudes tended to be the most attracted to one another. Even then we might still harbour some doubts. For example, just what do we mean by attraction? If we mean wanting to have a drink with the other person at a pub, then we might prefer the person with whom we might have a lively discussion, that is, someone who does not share our views. On the other hand, if willingness to share a flat with a person were the measure of attraction, then perhaps a housemate with a similar outlook to our own would be preferred. So we are beginning to see that the way in which we choose to measure a concept (or variable) such as attraction may be vital in terms of the answers we get to our research questions. Notice that the stance of a researcher is somewhat sceptical – that is, they need to be convinced that something is the case.

It is possibly even more difficult to get a satisfactory measure of attitudes than it is to measure attraction. This is partly because there are many different topics that we can express attitudes about. So, for example, would we expect attraction to be affected in the same way if two people share the view that there is life on Mars than if two people share the same religious views? Would it matter as much if two people had different tastes in music than if they had different views about openness in relationships? That is, maybe some attitudes are more important than others in determining attraction – perhaps similarity on some attitudes is irrelevant to the attraction two people have for each other. One could study this by asking people about their attitudes to a variety of different topics and then how important each of these attitudes is to them. (Sometimes this is called salience.) Alternatively, if we thought that some attitudes were likely to be more important than others, we could focus on those particular attitudes in some depth. So it should be clear from all of this that the process of evaluating the research in a particular field is not a narrow, nit-picking exercise. Instead, it is a process by which new ideas are generated as well as stimulating research to test these new propositions.

These various propositions that we have discussed about the relationship between attraction and similarity are all examples of *hypotheses*. A hypothesis is merely a supposition or proposition which serves as the basis of further investigation, either through the collection of research data or through reasoning. The word hypothesis comes from the Greek

word for foundation – perhaps confirming that hypotheses are the foundation on which psychology develops. Precision is an important characteristic of good hypotheses. So, our hypothesis that similarity of attitudes is related to attraction might benefit from refinement. It looks as if we might have to say something more about the attitudes that people have (and what we mean by attraction for that matter) if we are going to pursue our questions any further. If we think that the attitudes have to be important, then the hypothesis should be reformulated to read that *people are more attracted to those with similar attitudes on personally important topics*. If we thought attraction was based on having a similar attitude towards spending money, we should restate the hypothesis to say that *people are more attracted to those with similar attitudes towards spending money*.

The evaluation of research evidence involves examining the general assertion that the researcher is making about an issue and the information or data that are relevant to this assertion. We need to check whether the evidence or data supports the assertion or whether the assertion goes beyond what could be confidently concluded. Sometimes, in extreme cases, researchers draw conclusions which seem not to be justified by their data. Any statement that goes beyond the data is speculation or conjecture and needs to be recognised as such. There is nothing wrong with speculation as such since hypotheses, for example, are themselves often speculative in nature. Speculation is necessary in order to go beyond what we already know. However, it needs to be distinguished from what can legitimately be inferred from the data.

1.4 Inferring causality

The concept of *causality* has been important throughout most of the history of psychology. Other disciplines might consider it almost an obsession of psychology. The meaning of the term is embodied in the phrase 'cause and effect'. The idea is that things that happen in the world may have an effect on other things. So when we speak of a causal relationship between attitude similarity and attraction, we mean that attitude similarity is the cause of attraction to another person. Not all data allow one to infer causality with confidence. Sometimes researchers suggest that their research demonstrates a causal relationship when others would claim that it demonstrates no such thing – that there may be a relationship but that one thing did not cause the other. In strictly logical terms, some claims of a causal relationship can be regarded as an error since they are based on research methods which by their nature are incapable of establishing causality with certainty. Frequently, research findings may be consistent with a causal relationship but they are, equally, consistent with other explanations.

A great deal of psychology focuses on causes of things even though the word 'cause' is not used directly. Questions such as why we are attracted to one person rather than another, why people become depressed and why some people commit violent crimes are typical examples of this. The sorts of explanation that are given might be, for example, that some people commit violent crimes because they were physically abused as children. In other words, physical abuse as a child is a *cause* of adult violent crime. There may be a relationship between physical abuse and violent crime, but does this establish that physical abuse is a cause? To return to our main example, suppose a study found that people who were attracted to each other had similar attitudes. Pairs of friends were compared with pairs of strangers in terms of how similar their attitudes were (see Figure 1.1). It emerged that the friends had more similar attitudes than pairs of strangers. Could we conclude from this finding that this study showed that similar attitudes cause people to be attracted towards one another? If we can conclude this, on what grounds can we do so? If not, then why not?

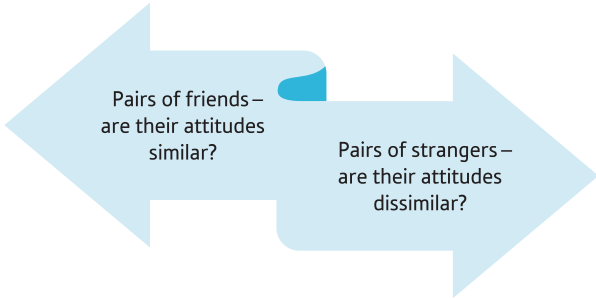

FIGURE 1.1 Looking for causal relationships

There are at least three main reasons why we cannot conclude definitively from this study that similar attitudes lead to people liking each other:

- Attraction, measured in terms of friendship, and similarity of attitudes are assessed once and at precisely the same time (see Figure 1.2). As a consequence, we do not know which of these two came first. Did similarity of attitudes precede friendship as it would have to if similar attitudes led to people liking each other? Without knowing the temporal sequence, definitive statements about cause and effect are not possible (see Figure 1.3).

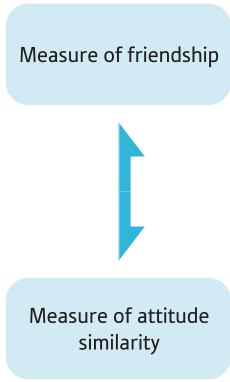

FIGURE 1.2 Cross-sectional study: measures taken at the same point in time

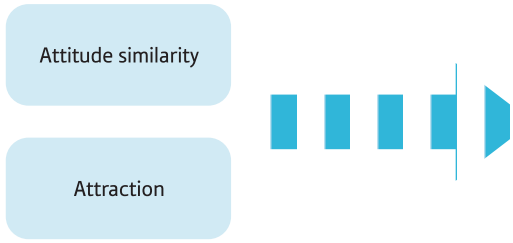

FIGURE 1.3 No time lag between the measurement of attitude similarity and attraction: no evidence of causality