

# The academic article

---



# Titles

---

All articles begin with a title. Most include an abstract. Several include 'key words'. All three of these features describe an article's content in varying degrees of detail and abstraction. The title is designed to stimulate the reader's interest. The abstract summarises the content. The half-dozen or so key words, sometimes called 'descriptors', together with the title and the abstract, facilitate computer-based search and retrieval.

Although, logically, it seems sensible to start by discussing the title, it is when finishing an article that authors need to attend to it more assiduously. No doubt throughout all the drafting and preparation there will have been a working title (and a suitable journal) in mind, and, probably, this title will have changed every so often as better ways of conveying what the paper is about have come to mind. But now, at the end, it is the time to finalise it.

A good title should attract and inform the readers and be accurate. It needs to stand out in some way from the other thousands of titles that compete for the reader's attention, but it also needs to tell the reader what the paper is about. Furthermore, as the success of many computer-based searches depends upon the title, it is important to include in it some of the key words relating to the topic of the paper.

Titles come in many forms (see Crosby, 1976). Here are thirteen types that I have used, or seen used, in journal articles (Hartley, 2007). Each has advantages and disadvantages.

### THIRTEEN TYPES OF TITLE

- 1 Titles that announce the general subject, for example:
  - The age of adolescence.
  - Designing instructional and informational text.
  - On writing scientific articles in English.
- 2 Titles that particularise a specific theme following a general heading, for example:

- Pre-writing: The relation between thinking and feeling.
- The achievement of black Caribbean girls: Good practice in Lambeth schools.
- The role of values in educational research: The case for reflexivity.

**3 Titles that indicate the controlling question, for example:**

- Is academic writing masculine?
- What is evidence-based practice – and do we want it too?
- What price presentation? The effects of typographic variables on essay grades.

**4 Titles that just state the findings, for example:**

- Supramaximal inflation improves lung compliance in patients with amyotrophic lateral sclerosis.
- Asthma in schoolchildren is greater in schools close to concentrated animal feeding operations.
- Angiotensin-2 levels are elevated in exudative pleural effusions.

**5 Titles that indicate that the answer to a question will be revealed, for example:**

- Abstracts, introductions and discussions: How far do they differ in style?
- The effects of summaries on the recall of information.
- Current findings from research on structured abstracts.

**6 Titles that announce the thesis – i.e. indicate the direction of the author's argument, for example:**

- The lost art of conversation.
- Plus ça change . . . Gender preferences for academic disciplines.
- Down with 'op. cit.'.

**7 Titles that emphasise the methodology used in the research, for example:**

- Using colons in titles: A meta-analytic review.
- Reading and writing book reviews across the disciplines: A survey of authors.
- Is judging text on screen different from judging text in print? A naturalistic email study.

**8 Titles that suggest guidelines and/or comparisons, for example:**

- Seven types of ambiguity.
- Nineteen ways to have a viva.
- Eighty ways of improving instructional text.

**9 Titles that bid for attention by using startling or effective openings, for example:**

- 'Do you ride an elephant' and 'never tell them you're German': The experiences of British Asian, black and overseas student teachers in the UK.
- Something more to tell you: Gay, lesbian and bisexual young people's experiences of secondary schooling.
- Making a difference: An exploration of leadership roles in sixth form colleges.

- 10 Titles that attract by alliteration, for example:
  - A taxonomy of titles.
  - Legal ease and 'legalese'.
  - Referees are not always right: The case of the 3-D graph.
- 11 Titles that attract by using literary or biblical allusions, for example:
  - From structured abstracts to structured articles: A modest proposal.
  - Low! They came to pass. The motivations of failing students.
  - Lifting the veil on the viva: The experiences of postgraduate students.
- 12 Titles that attract by using puns, for example:
  - Now take this PIL (Patient Information Leaflet).
  - A thorn in the Fleisch: Observations on the unreliability of computer-based readability formulae (Rudolph Fleisch devised a method of computing the readability of text).
  - Unjustified experiments in typographical design (Text set with equal word-spacing and a ragged right-hand edge is said to be set 'unjustified': text set with variable word-spacing and a straight right-hand edge is set 'justified'.)
- 13 Finally, titles that mystify, for example:
  - Outside the whale.
  - How do you know you've alternated?
  - Is October Brown Chinese?

Titles that mystify may attract the indulgent reader but they are hardly likely to help busy ones. 'Outside the whale' refers to the fact that the author is describing a typographic design course that was run for over 20 years independently of, and not swallowed up by, the requirements of fine arts schools in the UK. 'How do you know you've alternated?' is about problems that sociologists have when alternating between presenting an accurate description of the groups they study, and presenting their interpretation to the readers. October Brown turns out to be the name of a school teacher.

Irony, puns, humour, and literary and cultural references are difficult for non-native speakers of the language to understand. They are probably best avoided in the titles of academic articles. So too are titles containing acronyms – abbreviations accepted as words, for example 'Mental health for IAG providers' (IAG stands for information, advice and guidance) – and neologisms – words invented to describe a new phenomenon.

## GRAMMATICAL CONSTRUCTIONS IN TITLES

Soler (2007) examined 570 titles used in articles in the biological and social sciences. Some 480 of these were from research papers, and 90 from reviews. Soler distinguished between:

- full-sentence constructions, for example ‘Learning induces a CDC2-related protein kinase’;
- nominal group constructions, for example ‘Acute liver failure caused by diffuse hepatic melanoma infiltration’;
- compound constructions (i.e. divided into two parts, mainly by a colon), for example ‘Romanian nominalizations: case and aspectual structure’; and
- question constructions, for example ‘Does the Flynn effect affect IQ scores of students classified as learning-disabled?’.

Table 2.1.1 shows the percentage of titles in each construction for the research and the review papers categorised in terms of:

- (a) the sciences
- (b) the social sciences.

It can be seen that full-sentence constructions only occurred in the science research papers. Nominal group constructions were the most popular form of title, and their usage was relatively constant across the disciplines. Compound constructions were less frequent, but more common in social science research papers. Finally, questions were hardly used at all.

*Table 2.1.1* The average percentage occurrence of title formats for research and review papers in articles in (a) medicine, biology and bio-chemistry, and (b) linguistics, psychology and anthropology

<i>Titles in research papers</i>		<i>Titles in review papers</i>	
Full-sentence construction		Full-sentence construction	
(a)	38	(a)	0
(b)	0	(b)	0
Nominal group construction		Nominal group construction	
(a)	42	(a)	55
(b)	38	(b)	55
Compound construction		Compound construction	
(a)	10	(a)	37
(b)	38	(b)	33
Question construction		Question construction	
(a)	0	(a)	4
(b)	2	(b)	13

Data adapted from Soler (2007), Tables 3–6. Reproduced with permission of the author and Elsevier Ltd.

## CONCLUDING COMMENTS

Writing a good title is not easy. Table 2.1.2 shows, for example, the original titles proposed by nine final-year psychology students for their projects, followed by what I believe to be more informative ones. Most of the changes expand and clarify the originals. Readers may judge for themselves whether or not they think the revised versions will better attract and inform the readers.

*Table 2.1.2* Titles used by students for their projects (in the left-hand column) and revised versions (on the right)

Approach to study (Chinese student)	Gender and nationality differences in approaches to study: Findings from English and Chinese Business Studies students
Perceptions of psychology university students	Do psychology students' perceptions of Psychology change over time?
An investigation into mature students, revision styles, and examination performance	Revision styles and examination performance in mature and traditional-entry students
Possible gender and year of study differences in the orientation of students' learning strategies	Students' learning strategies: the effects of gender and year of study
Parenting styles and academic achievement	Do differences in early parenting styles affect the academic achievement of men and women undergraduates?
University students' estimations of occupational intelligence versus gender	How intelligent do you need to be to be a surgeon? Male and female students' estimates of the intelligence required to carry out male, female and gender-neutral occupations
The effect of term-time employment on final year university students	The effects of term-time employment upon the academic performance of final-year university students
Student preferences of class size in higher education	Class size matters! The preferences of undergraduates
Students experiences of studying Psychology at degree level: Is there a difference between those that have previously studied the subject at A-level and those who have not?	How far does studying Psychology at A-level impact upon the experiences and performance of Psychology students at university?

Reproduced with permission from *Journal of Technical Writing & Communication*, 37, 1 (2007), p. 99. © Baywood Publishing Company.

## REFERENCES

- Crosby, H. H. (1976). Titles, a treatise on . . . *College Composition & Communication*, 27(4), 387–91.
- Hartley, J. (2007). There's more to titles than meets the eye: Exploring the possibilities. *Journal of Technical Writing and Communication*, 37(1), 97–103.
- Soler, V. (2007). Writing titles in science: An exploratory study. *English for Specific Purposes*, 26(1), 90–102.

## FURTHER READING

- Hartley, J. (2005). To attract or to inform: What are titles for? *Journal of Technical Writing and Communication*, 35(2), 203–13.
- Hartley, J. Planning that title: Practices and preferences for titles with colons. *Library & Information Science Research*, 29(4), 553–68.



# Authors

---

Providing the name of a single author is no problem. Providing the name of a pair of authors might require resolution in terms of who comes first. The problem gets more difficult as the number of authors increases.

The American Psychological Association (APA) *Publication Manual* (2001) gives clear advice on allocating credit for authorship. It states (pp. 395–6) that:

- The sequence of names of the authors to an article must reflect the relative scientific or professional contribution of the authors, irrespective of their academic status.
- The general rule is that the name of the principal contributor should come first, with subsequent names in order of decreasing contribution.
- Mere possession of an institutional position on its own, such as Head of the Research team, does not justify authorship.
- A student should be listed as a principal author on any multi-authored article that is substantially based on the student's dissertation or thesis.

However, the APA *Publication Manual* refers – in the main – to social science publications. In the sciences, the number of authors on individual papers can be very large and this can cause problems (Buehring *et al.*, 2007). One solution has been to list in more detail the contribution of each individual author to a multi-authored paper. Thus, a typical footnote might read:

*Contributors:* A and B conceived of and designed the study, and C wrote the required program. D, E and F analysed and interpreted the data. A and D drafted the paper and B and E critically revised it. All of the authors approved this final version.

Different medical journals, however, have different requirements for listing the contributions of authors. This means that the same person might get credited in different ways for his or her contribution to the same paper,

according to which journal it is submitted to (Ilakovac *et al.*, 2007). Some of the contributions listed by Ilakovac *et al.* include:

- conception and design of the study
- collection of the raw data
- statistical expertise/advice
- analysis and interpretation of the data
- drafting of the article
- critical revision of the article for important intellectual content
- administrative, technical and logistical support
- final approval of the article.

Normally, of course, these details may not matter. What matters is the contribution of the article, not who is saying it, but in these days of impact factors and citation analyses, details such as these are seen as important.

## REFERENCES

- American Psychological Association (2001). *Publication manual of the American Psychological Association* (5th edn). Washington: American Psychological Association.
- Buehring, G. C., Buehring, J. E. & Gerard, P. D. (2007). Lost in citation: Vanishing visibility of senior authors. *Scientometrics*, 72(3), 459–68.
- Ilakovac, V., Fister, K., Marusic, M. & Marusic, A. (2007). Reliability of disclosure forms of authors' contributions. *Canadian Medical Association Journal*, 176(1), 41–6.

# Abstracts

---

The abstract, although it heads the article, is often written last, together with the title. This is partly because writers know what they have achieved, and partly because it is not easy to write an abstract. Abstracts have to summarise what has been done, sometimes in as few as 150 words.

It is easier to write an abstract if you remember that all abstracts have a basic structure. Indeed, the phrase ‘structured abstracts’ says it all. This kind of abstract, common in medical research journals and now appearing in many social science articles, can be adapted for most normal purposes.

## STRUCTURED ABSTRACTS

Structured abstracts are typically written using five sub-headings – ‘background’, ‘aim’, ‘method’, ‘results’ and ‘conclusions’. Sometimes the wording of these sub-headings varies a little – ‘objectives’ for ‘aim’, for example, but the meaning is much the same.

Structured abstracts were introduced into medical research journals in the 1980s. Since then they have been widely used in medicine and other areas of research (Nakayama *et al.*, 2005). In 2004, I published a narrative review of their effectiveness based upon thirty-one research papers available at that time (Hartley, 2004). I concluded that, compared with traditional abstracts, structured abstracts:

- contained more information
- were easier to read
- were easier to search
- facilitated peer review for conferences
- were generally welcomed by readers and by authors.

Figure 2.3.1a below shows a typical structured abstract. Figure 2.3.1b shows the same abstract written with the sub-headings removed. It can be seen that both abstracts are clear, and so it is useful to write an abstract in

**Background.** In 1997 four journals published by the British Psychological Society began publishing structured abstracts.

**Aims.** The aim of the studies reported here was to assess the effects of these structured abstracts by comparing them with original versions written in a traditional, unstructured format.

**Method.** The authors of the articles accepted for publication in the four journals were asked to supply copies of their traditional abstracts (written when the paper was submitted for publication) together with copies of their structured abstracts requested by the editor when their paper was accepted. Forty-eight such requests were made, and thirty pairs of abstracts were obtained. The abstracts were then compared on a number of measures.

**Results.** Analysis showed that the structured abstracts were significantly more readable, significantly longer and significantly more informative than the traditional ones. Judges assessed the contents of the structured abstracts more quickly and with significantly less difficulty than they did the traditional ones. Almost every respondent expressed positive attitudes to structured abstracts.

**Conclusions.** The structured abstracts fared significantly better than the traditional ones on every measure used in this enquiry. We recommend, therefore, that editors of other journals in the social sciences consider adopting structured abstracts.

*Figure 2.3.1a* An original abstract in structured form.

Adapted from Hartley and Benjamin (1998), and reproduced with permission of the British Journal of Educational Psychology. © the British Psychological Society.

a structured form first, and then to adjust it for the journal you are writing for if this journal does not use them.

Figures 2.3.1a and b illustrate some of the virtues of structured abstracts. Using the sub-headings and the appropriately spaced typographical layout makes the content clearer (Hartley and Betts, 2007). Furthermore, structured abstracts are easier for readers to scan, as every abstract follows the same format. The sub-headings thus allow the readers to go to the same place each time in an abstract to find out what it says. Furthermore, as the information required has to be provided by the author under each sub-heading, nothing gets missed out. With traditional abstracts, it is all too common to find that some elements are missing – the background, the method or the results, for example. Often one is left saying, ‘So, what happened?’ or ‘So what?’.

In 1997 four journals published by the British Psychological Society began publishing structured abstracts. The aim of the studies reported here was to assess the effects of these structured abstracts by comparing them with original versions written in a traditional, unstructured format. The authors of the articles accepted for publication in the four journals were asked to supply copies of their traditional abstracts (written when the paper was submitted for publication) together with copies of their structured abstracts requested by the editor when their paper was accepted. Forty-eight such requests were made and thirty pairs of abstracts were obtained. The abstracts were then compared on a number of measures. Analysis showed that the structured abstracts were significantly more readable, significantly longer and significantly more informative than the traditional ones. Judges assessed the contents of the structured abstracts more quickly and with significantly less difficulty than they did the traditional ones. Almost every respondent expressed positive attitudes to structured abstracts. In short, the structured abstracts fared significantly better than the traditional ones on every measure used in this enquiry. We recommend, therefore, that editors of other journals in the social sciences consider adopting structured abstracts.

*Figure 2.3.1b* The same abstract in unstructured form.

Many people think that structured abstracts are only suitable for empirical papers – those with ‘methods’ and ‘results’. As one of my correspondents put it:

It seems to me that the format you have chosen imposes a unitary conception of research, at a time when educational research in particular, and social science more widely, has at last broken away from narrow strictures of method and procedure.

However, I believe that the underlying characteristics of a structured abstract can apply to many other forms of enquiry. Figure 2.3.2a, for example, shows an original abstract written to accompany a review paper. Figure 2.3.2b shows a revision of it that, in my view, makes the background, aims and conclusions of the study more explicit.

Bayley and Eldredge (2003) provide references to a variety of papers in the health sciences that have structured abstracts. These include qualitative studies, narrative reviews, systematic reviews, meta-analyses and randomised controlled trials. Table 2.3.1 similarly lists some more recent papers in the

There is something of a controversy taking place over how best to theorise human learning. In this article we join the debate over the relationships between sociocultural and constructive perspectives on learning. These two perspectives differ in not just their conceptions of knowledge (epistemological assumptions) but also in their assumptions about the known world and the knowing human (ontological assumptions). We articulate in this article six themes of a nondualist ontology seen at work in the sociocultural perspective, and suggest a reconciliation of the two. We propose that learning involves becoming a member of a community, constructing knowledge of various levels of expertise as a participant, but also taking a stand on the culture of one's community in an effort to take up and overcome the estrangement and division that are consequences of participation. Learning entails transformation of both the person and the social world. We explore the implications of this view for thinking about schooling and for the conduct of educational research.

*Figure 2.3.2a* An original abstract for a review paper.

Reproduced with permission from Packer and Goicoechea (2000) and Taylor & Francis, [www.informaworld.com](http://www.informaworld.com).

health and social sciences that have used structured abstracts with a variety of research methods.

After the title, the abstract is the most frequently read part of any paper. Writing it in a structured format (with or without the headings) ensures that it is informative and complete.

*Table 2.3.1* Examples of studies with structured abstracts published in the health and social sciences

<i>Method</i>	<i>Example</i>
Literature review	Mayhew and Simpson (2002)
Observational study	Lauth <i>et al.</i> (2006)
Survey	Wilding and Andrews (2006)
Longitudinal study	Flouri (2006)
Statistical paper	Prosser and Trigwell (2006)
Simulation	Wright (2006)
Experimental study	Clariana and Koul (2006)
Epidemiological study	Evans (2000)
Meta-analysis	Bunn <i>et al.</i> (2006)
Systematic review	Duperrex <i>et al.</i> (2006)
Qualitative study	Maliski <i>et al.</i> (2002)

**Background.** An interesting debate is currently taking place among proponents of different ways of thinking about human learning. In this article we focus on that portion of the debate that addresses sociological and constructive perspectives on learning. These two perspectives differ in not just their conceptions of knowledge (epistemological assumptions) but also in their assumptions about the known world and the knowing human (ontological assumptions).

**Aims and approach.** We wish to try and reconcile these two different approaches first by examining the ontological assumptions of them both. We then consider six key themes of a nondualist ontology seen at work in the sociocultural perspective. Finally we propose that the constructive perspective attends to epistemological structures and processes which the sociological perspective must place in a broader historical and cultural context.

**Conclusions.** We conclude that learning involves becoming a member of a community, constructing knowledge of various levels of expertise as a participant, and taking a stand on the culture of one's community in an effort to take up and overcome the estrangement and division that are consequences of participation. Learning entails transformation of both the personal and the social world. We explore the implications of this view for thinking about schooling and the conduct of educational research.

Figure 2.3.2b The same abstract in structured form.

## REFERENCES

- Bayley, L. & Eldredge, J. E. (2003). The structured abstract: An essential tool for researchers. *Hypothesis*, 17(1), 1 and 11–15. Or: [http://research.mlanet.org/structured\\_abstract.html](http://research.mlanet.org/structured_abstract.html). (Retrieved 1 August 2006.)
- Bunn, F., Collier, T., Frost, C., Ker, K., Roberts, I. & Wentz, R. (2003). Traffic calming for the prevention of road traffic injuries: Systematic review and meta-analysis. *Injury Prevention*, 9(3), 200–4.
- Clariana, R. B. & Koul, R. (2006). The effects of different forms of feedback on fuzzy and verbatim memory of science principles. *British Journal of Educational Psychology*, 76(2), 259–70.
- Duperrex, O., Bunn, F. & Roberts, I. (2002). Safety education of pedestrians for injury prevention: A systematic review of randomised controlled trials. *British Medical Journal*, 324(7348), 1129–34.
- Evans, L. (2000). Risks older drivers face themselves and threats they pose to other road users. *International Journal of Epidemiology*, 29(2), 315–22.

- Flouri, E. (2006). Parental interest in children's education, children's self-esteem and locus of control, and later educational attainment: Twenty-six year follow-up of the 1970 British Birth Cohort. *British Journal of Educational Psychology*, 76(1), 41–56.
- Hartley, J. (2004). Current findings from research on structured abstracts. *Journal of the Medical Library Association*, 92(3), 368–71.
- Hartley, J. & Benjamin, M. (1998). An evaluation of structured abstracts in journals published by the British Psychological Society. *British Journal of Educational Psychology*, 68(3), 443–56.
- Hartley, J. & Betts, L. (2007). The effects of spacing and titles on judgments of the effectiveness of structured abstracts. *Journal of the American Society for Information Science & Technology*, 58(14), 2335–40.
- Lauth, G. W., Heubeck, B. G. & Mackowiak, K. (2006). Observation of children with attention-deficit hyperactivity (ADHD) problems in three natural classroom contexts. *British Journal of Educational Psychology*, 76(2), 385–404.
- Maliski, S. L., Heilemann, M. V. & McCorkle, R. (2002). From 'death sentence' to 'good cancer': Couples' transformation of a prostate cancer diagnosis. *Nursing Research*, 5(6), 391–7.
- Mayhew, D. R. & Simpson, H. M. (2002). The safety value of driver education and training. *Injury Prevention*, 8 (Suppl. II): ii3–ii8.
- Nakayama, T., Hirai, N., Yamazaki, S. & Naito, M. (2005). Adoption of structured abstracts by general medical journals and format for a structured abstract. *Journal of the Medical Library Association*, 93(2), 237–42.
- Packer, M. J. & Goicoechea, J. (2000). Sociocultural and constructivist theories of learning: Ontological, not just epistemology. *Educational Psychologist*, 35(4), 227–41.
- Prosser, M. & Trigwell, K. (2006). Confirmatory factor analysis of the Approaches to Teaching Inventory. *British Journal of Educational Psychology*, 76(2), 405–19.
- Wilding, J. & Andrews, B. (2006). Life goals, approaches to study and performance in an undergraduate cohort. *British Journal of Educational Psychology*, 76(1), 171–82.
- Wright, D. B. (2006). Comparing groups in a before-after design: When *t* test and ANCOVA produce different results. *British Journal of Educational Psychology*, 76(3), 663–75.

## FURTHER READING

- Hartley, J., Rock, J. & Fox, C. (2005). Teaching psychology students to write structured abstracts: An evaluation study. *Psychology Teaching Review*, 1(1), 2–11.
- Kamler, B. & Thomson, P. (2004). Driven to abstraction: Doctoral supervision and writing pedagogies. *Teaching in Higher Education*, 9(2), 195–209.
- Kelly, A. E. & Yin, R. K. (2007). Strengthening structured abstracts for education research: The need for claim-based structured abstracts. *Educational Researcher*, 36(3), 133–8.



# Key words

---

Key words typically:

- 1 allow readers to judge whether or not an article contains material relevant to their interests;
- 2 provide readers with suitable terms to use in web-based searches to locate other materials on the same or similar topics;
- 3 help indexers/editors group together related materials in, say, the end-of-year issues of a particular journal or a set of conference proceedings;
- 4 allow editors/researchers to document changes in a subject discipline (over time); and
- 5 link the specific issues of concern to issues at a higher level of abstraction.

## WHO USES KEY WORDS?

There appear to be no formal requirements for key words, no rules for formulating them, little guidance on how to write them, and no instructions for reviewers on how to assess them. This is surprising in view of the fact that, presumably, a wise choice of key words increases the probability that a paper will be retrieved and read, thereby potentially improving citation counts and journal impact factors. Table 2.4.1 shows, however, that there are typical disciplinary differences in the percentage of journals using key words.

*Table 2.4.1* The approximate percentages of research journals in different areas and disciplines supplying key words

Arts	Education	Psychology	Science	Medicine	Statistics
5	20	30	50	50	75

Hartley and Kostoff (2003).

## WHO CHOOSES THE KEY WORDS?

Table 2.4.2 shows that there are several different ways of choosing key words. The most common method (used by over fifty per cent of authors) is for them to supply as many words as they choose (within bounds), but sometimes a specified number of words is required (often about six). The next main method (used by about twenty per cent of authors) is for them to choose key words that fit into categories already prescribed by the journal's 'instructions to authors'. Thus, for example, authors generating key words for medical articles often have to select only words from the medical subject headings (MeSH) taxonomy – a structured taxonomy used by MEDLINE. In situations like this the number of words allowed and the number of categories to choose from can vary. Many psychology journals, for example, ask authors to list key words from any of the 5,000 terms that appear in the American Psychological Society's *Thesaurus of Psychological Index Terms*. Finally, key words are sometimes generated automatically at proof stage (as is the case for the *Journal of Information Science*, where the key words are derived from *Library and Information Science Abstracts*).

## HOW TO SELECT KEY WORDS

Gbur and Trumbo (1995) published a list of ways of producing effective key words and phrases. Table 2.4.3 provides an abbreviated version.

It is possible that, with future developments, all of these problems will actually disappear. As one colleague has put it, 'Inverted-full-text-Boolean indexing and online searching (with similarity algorithms and citation-

*Table 2.4.2* Different methods for supplying key words

---

Authors supply them with no restrictions on the numbers allowed.

Authors supply up to a fixed number (e.g. six).

Authors supply key words as appropriate from a specified list.

Editors supplement/amend authors' key words.

Editors supply key words.

Editors supply key words from a specified list.

Referees supply key words from a specified list.

Key words are allocated according to the 'house-rules' applied to all journals distributed by a specific publisher.

Key words are determined by computer program at proof stage.

---

Hartley and Kostoff (2003).

Table 2.4.3 Ten ways to produce effective key words and phrases

- 1 Use simple, specific noun clauses. For example, use *variance estimation*, not *estimate of variance*.
- 2 Avoid terms that are too common. Otherwise the number of 'hits' will be too large to manage.
- 3 Do not repeat key words from the title. These will be picked up anyway.
- 4 Avoid unnecessary prepositions, especially *in* and *of*. For example, use *data quality* rather than *quality of data*.
- 5 Avoid acronyms. Acronyms can fall out of favour and be puzzling to beginners and/or overseas readers.
- 6 Spell out Greek letters and avoid mathematical symbols. These are impractical for computer-based searches.
- 7 Include only the names of people if they are part of an established terminology, for example *Skinner box*, *Poisson distribution*.
- 8 Include, where applicable, mathematical or computer techniques, such as *generating function*, used to derive results, and a statistical philosophy or approach such as *maximum likelihood* or *Bayes' theory*.
- 9 Include alternative or inclusive terminology. If a concept is, or has been, known by different terminologies, use a key word that might help a user conducting a search across a time-span, or from outside your speciality. For example, the statistician's *characteristic function* is the mathematician's *Fourier transform*, and in some countries *educational administration* is *educational management*.
- 10 Note areas of applications where appropriate.

Adapted from Gbur and Trumbo (1995), pp. 29–33, and reproduced in substantially altered form with permission of the authors and *The American Statistician*. © the American Statistical Association, 1995. All rights reserved.

ranking) will soon make keywords and human-subject-classification a thing of the past'. Put more simply, this means that we will soon be able to input any words, pairs of words or phrases that we like from an article into a search engine and come up with related materials. Unfortunately, of course, this also means that the searcher is likely to be swamped with information – most of which will be inappropriate. If, for example, you use Google Advanced Scholar to search for 'key words', you will obtain approximately 800 citations.

All of this suggests that considerable thought needs to go into the selection of key words. Borrowing from Hughes (2005), it might be worth considering selecting words from a series of categories such as:

- discipline: for example economics, management, psychology, education
- method: for example experiment, case study, questionnaire, grounded theory
- data source: for example primary, secondary, tertiary students, senior citizens
- location: for example country, town, institution
- topic: for example academic writing.

## REFERENCES

- Gbur, E. E. & Trumbo, B. (1995). Key words and phrases – the key to scholarly visibility and efficiency in an information explosion. *The American Statistician*, 49(1), 29–33.
- Hartley, J. & Kostoff, R. N. (2003). How useful are 'key words' in scientific journals? *Journal of Information Science*, 29(5), 433–8.
- Hughes, W. P. (2005). Keywords: Their choice and their importance. *Association of Researchers in Construction Management (ARCOM) Newsletter*, 20(1), 2–3 and 21(1), 4–5.

# Introductions

---

It is but a short step from structured abstracts to structured texts. In the following chapters we shall see how each part of the structure of a scientific article (the introduction, method, results, discussion and conclusion) can indeed be subdivided into finer structures.

Swales and Feak (2004) describe what they characterise as ‘moves’ in the various sections of academic articles. Basically, a ‘move’ is a stage in the argument that all writers go through. The ‘moves’ for the introduction are typically as follows (p. 244):

- **Move 1:** The authors establish a research territory:
  - (a) by showing that the general research area is important, central, interesting, problematic or relevant in some way (optional);
  - (b) by introducing and reviewing items of previous research in the area (obligatory).
- **Move 2:** They then establish a ‘niche’ by indicating a weakness in the account so far:
  - (a) by indicating a gap in the previous research, raising a question about it or extending previous knowledge in some way (obligatory).
- **Move 3:** They then occupy the niche by saying they are going to put this right:
  - (a) by outlining the purposes or stating the nature of the present research (obligatory);
  - (b) by listing research questions or hypotheses to be tested (optional);
  - (c) by announcing the principal findings (optional).

Swales and Feak argue that most introductions to academic articles follow this basic structure. Lewin *et al.* (2001) offer a similar, but more detailed, analysis that readers might also find useful.

## AN EXAMPLE

While writing this section of *Academic Writing and Publishing*, I coincidentally received a copy of a paper by Slatcher and Pennebaker (2006). This paper was about the effects of one of the partners of a dating couple writing either neutral or strongly emotional letters to the other one about their relationship. The paper concluded that the participants who wrote the emotional letters were significantly more likely to be dating their romantic partners three months later than were the writers of the neutral letters. Be that as it may, I was intrigued to observe that the introduction to this paper followed almost exactly the generic structure described by Swales and Feak.

Slatcher and Pennebaker's introduction contains five paragraphs. Here are some examples of how the moves appear:

### Move 1: Establishing a research territory

The paper starts (paragraphs 1 and 2) with describing the background and setting the scene. Key phrases are: 'Researchers are now . . .', 'Preliminary findings suggest . . .', 'There are a number of ways in which one could measure the effects of expressive writing . . .'.

### Move 2: Establishing a niche

The paper continues (in paragraphs 3 and 4) with the following key phrases: 'Although previous studies have addressed . . . none have . . .', 'One potential mediator is . . .', 'There are various ways to measure . . .', 'The use of emotional words may be particularly relevant . . .', 'One way is to analyse the texts used in instant messaging . . .'.

### Move 3: Occupying the niche

The introduction concludes (in paragraph 5) with the following key phrases: 'In the present study we sought to investigate the social effects of expressive writing . . .', 'Three predictions were tested. First . . .'.

Slatcher and Pennebaker thus follow Swales and Feak's analysis almost line by line. It is also worth noting, in passing, that the literature review in this paper is quite short, and there are only nine references. Day and Gastel (2006) comment that, 'Introductions should supply sufficient information to allow the reader to understand and evaluate the results of the present study without (them) needing to refer to previous publications on the topic' (pp. 57–8).

Of course many papers are written with more detailed substructures. Three types of structure typical in introductions are:

- 1 The one listed above – where the authors establish their niche by indicating limitations or omissions in the previous research.
- 2 One where two (or more) different areas of research are reviewed – and the authors establish their niche by bringing them together.
- 3 One where some previous research has provided support for a particular finding or theory, and some has not – and the authors establish their niche by seeking to resolve and explain this.

Further, there are disciplinary variations: Haggan (1998), for example, examined the introductions for twenty-six articles in the sciences, twenty-six in linguistics and twenty-six in the arts. She found that the introductions in the science papers were less likely to contain a plan for the paper than were the introductions in linguistics, and that they lay midway in their use of impersonal language between introductions in the arts (the least personal) and introductions in linguistics (the most personal). Introductions in the sciences were more personal, however, when there was more than one author.

Such disciplinary formulaic introductions enhance the clarity of a paper and ensure that the readers' expectations about the format and the purpose of an introduction are maintained. Such devices keep the reader reading.

## REFERENCES

- Day, R. A. & Gastel, B. (2006). *How to write and publish a scientific paper* (6th edn). Cambridge: Cambridge University Press.
- Haggan, M. (1998). In search of the linguistics niche: A study of research article introductions in Linguistics, Literature and Science. *Arab Journal for the Humanities*, 61, 345–77.
- Lewin, B., Fine, J. & Young, L. (2001). *Expository discourse: A genre-based approach to social science research texts*. London: Continuum.
- Slatcher, R. B. & Pennebaker, J. W. (2006). How do I love thee? Let me count the words. *Psychological Science*, 17(8), 660–4.
- Swales, J. M. & Feak, C. B. (2004). *Academic writing for graduate students* (2nd edn). Ann Arbor, MI: University of Michigan Press.

## FURTHER READING

- Kendall, P. C., Silk, J. S. & Chu, B. C. (2000). Introducing your research report: Writing the introduction. In R. J. Sternberg (Ed.), *Guide to publishing in psychology journals* (pp. 41–57). Cambridge: Cambridge University Press.





# Methods

---

Method sections vary in journal articles, but rather less so than introductions. This is because the ‘moves’ in the method sections generally involve working through a series of subsections. Most method sections are usually subdivided (with subheadings) into three sections, as follows:

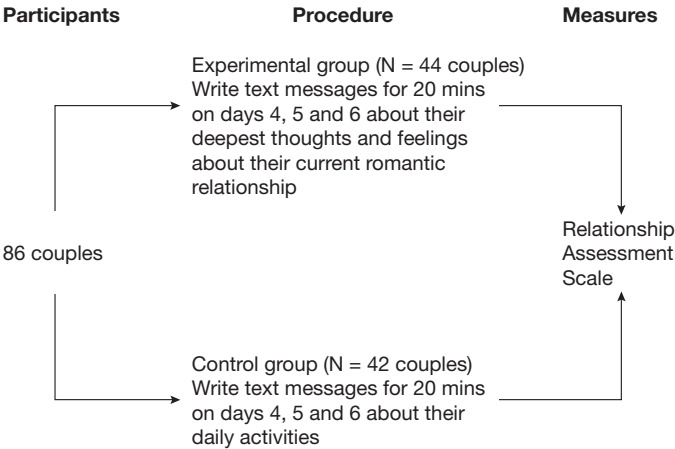
- 1 participants
- 2 measures
- 3 procedure(s).

If no participants are involved, then the method simply describes the measures and procedure(s). In the Slatcher and Pennebaker (2006) example, there are three subheadings in the method section: Participants, Procedure and Linguistic Analysis (or measures).

Method sections may be brief and succinct – when the methods used are well known and standardised – or quite lengthy, when the methods used are new or different and thus require careful elaboration.

Students and authors are typically instructed to write their method sections in such a way that readers can repeat the method from the descriptions given. Day and Gastel (2006, p. 64) recommend that colleagues unfamiliar with what was done should be asked to read the account to see if they can follow it. Authors are sometimes too close to what they did and thus tend to forget to mention tiny but – sometimes – key details.

A useful device for clarifying the procedure or the method for the reader – especially if it is complicated – is to summarise it in a table or figure (e.g. see Gotzsche, 2006). Figure 2.6.1 gives a schematic version of Slatcher and Pennebaker’s prose description of their method. Such procedures, though, are rarely used. None of the authors of fifty-six articles in the 2005 volume of the *Journal of Educational Psychology* used this strategy, and only two provided illustrations of the equipment used. However, eleven (i.e. twenty per cent) of these articles did include figures to illustrate either the theoretical models underlying the reasoning for their experiments or the analyses that they were going to use.



**Figure 2.6.1** A schematic illustration of the prose version of the Method used in the study by Slatcher and Pennebaker (2006).

**REFERENCES**

Day, R. A. & Gastel, B. (2006). *How to write and publish a scientific paper* (6th edn). Cambridge: Cambridge University Press.

Gotzsche, P. C. (2006). Believability of relative risks and odds ratios in abstracts: A cross sectional study. *British Medical Journal*, 333, 231–4.

Slatcher, R. B. & Pennebaker, J. W. (2006). How do I love thee? Let me count the words. *Psychological Science*, 17(8), 660–4.

**FURTHER READING**

Reis, H. T. (2000). Writing effectively about design. In R. J. Sternberg (Ed.), *Guide to publishing in psychology journals* (pp. 81–97). Cambridge: Cambridge University Press.

# Results

---

A ‘moves’ analysis of the results sections of academic articles either looks like this:

- *Move 1*: State the main findings in order – relating them in turn to the hypotheses and methods used.
- *Move 2*: State the subsidiary findings – relating them in turn to the hypotheses and methods used.

or it is an interweaving of the two – the first set of main findings and related subsidiary ones, followed by the second set, and so on.

Again these subsections may be cued by subheadings. Slatcher and Pennebaker (2006), for example, divide their results section into two main parts (separated by the subheadings, ‘Relationship stability and language use’, and ‘Mediation effects of changes in use of emotional words’). They provide a description of the results obtained, mainly in prose, in each part, indicating that the partners who wrote the romantic letters were significantly more likely to be dating their romantic partners three months later than were the partners who wrote the neutral ones.

It is typical in results sections to present the main data that support (or reject) the hypotheses in the form of tables and graphs. Indeed, it is quite common to find that the first sentence of a results section begins, ‘Table 1 shows that . . .’. Slatcher and Pennebaker’s paper is unusual here in that they provide only one such table, near the start of their second section of results, and this table is not used to illustrate their main findings. Because tables and graphs are so important in academic and scientific writing, I shall discuss them separately, in more detail, in Chapter 3.5.

Salovey (2000) argues that the art of writing a good results section is to take the readers through a story. This does not mean working step by step through the results obtained, but rather – as implied above – articulating what happened and illustrating it clearly, usually with data. In my view, this story is clearer if the sequence of topics addressed in the results section is the same as that articulated in the introduction and the method(s) sections.

Swales and Feak (2004) comment that the distinction between the results and the subsequent discussion section is not always as sharp as one might think. They cite a study by Thompson (1993) that showed that the authors of papers in biochemistry used a variety of rhetorical devices in their results section to justify their methodology, to interpret and comment on the findings, and to relate them to previous research. Indeed, the only thing that they did not do in their results sections was to call for further research – this was left for the discussion.

## REFERENCES

- Salovey, P. (2000). Results that get results. Telling a good story. In R. J. Sternberg (Ed.), *Guide to publishing in psychology journals* (pp. 121–32). Cambridge: Cambridge University Press.
- Slatcher, R. B. & Pennebaker, J. W. (2006). How do I love thee? Let me count the words. *Psychological Science*, 17(8), 660–4.
- Swales, J. M. & Feak, C. B. (2004). *Academic writing for graduate students* (2nd edn). Ann Arbor, MI: University of Michigan Press.
- Thompson, D. K. (1993). Arguing for experimental 'facts' in science: A study of research article results sections in biochemistry. *Written Communication*, 10(1), 106–28.

# Discussions

---

Discussions, like introductions, have a typical structure. Lewin *et al.* (2001) and Swales and Feak (2004) describe typical ‘moves’ in the discussion sections of academic research papers. Putting these descriptions together suggests the following moves:

- *Move 1*: Restate the findings and accomplishments.
- *Move 2*: Evaluate how the results fit in with the previous findings – do they contradict, qualify, agree or go beyond them?
- *Move 3*: List potential limitations to the study.
- *Move 4*: Offer an interpretation/explanation of these results and ward off counter-claims.
- *Move 5*: State the implications and recommend further research.

Discussions, then, go beyond a summary of the findings and, indeed, there may be disciplinary differences in how they are approached. Holmes (1997), for instance, found that the discussion sections of papers in sociology and political science were similar in format to those in the sciences, whereas those in history were less complex. Swales and Feak (2004) state that some scientists believe that a long discussion implies weak methods and results, whereas social scientists and people in the arts may well believe the opposite.

## AN EXAMPLE

Lewin *et al.* (2001) provide numerous quotations from the discussion sections of several research articles to support the above ‘moves’ analysis. In terms of Slatcher and Pennebaker’s (2006) paper referred to earlier, we may note the following sentences contained in the six paragraphs of their discussion section:

- *Move 1*: Restating the findings and accomplishments:
  - Par. 1: ‘The very simple act of writing about their romantic relationship changed the way in which participants communicated . . .’;
  - Par. 2: ‘Taken together these findings shed light on processes underlying interactions in close relationships . . .’;
  - Par. 3: ‘An advantage of the current design is that . . .’;
  - Par. 6: ‘Unlike previous expressive-writing studies, this is the first to demonstrate . . .’.
- *Move 2*: Evaluating how the results fit in with previous research:
  - Par. 3: ‘In particular, the findings relating to increases in emotion words illuminate previous research [3 references provided]’.
- *Move 3*: Stating the limitations:
  - Par. 5: ‘There are some potential limitations in this study. First . . . Second . . .’.
- *Move 4*: Warding off alternative explanations:
  - Par. 5: ‘. . . make this an unlikely possibility’.
- *Move 5*: Stating implications:
  - Par. 4: . . . [this finding] ‘has clear implications for clinicians’;
  - Par. 5: ‘. . . future studies should address this issue’.

These quotations illustrate that the five moves are present, but they are not as clearly sequenced or indicated as might be implied from the list above. Authors seem more flexible in how they tackle their discussions, although the moves listed are usually present.

Discussion sections are difficult to write because their aim is to discuss and comment on the findings, rather than just to report them. Day and Gastel (2006) suggest that journal editors reject many papers because of their weak discussions. They recommend that discussions should end with a short summary regarding the significance of the work, which, they claim, is not always adequately considered.

Woods (1999) recommends:

- 1 that writers should keep notes about what it might be useful to include in the discussion as ideas occur to them when they are writing other sections; and
- 2 that it might be wise to set aside a day or two to tackle this section of the paper.

This, he says, will make the task less daunting.

## REFERENCES

- Day, R. A. & Gastel, B. (2006). *How to write and publish a scientific paper* (6th edn). Cambridge: Cambridge University Press.
- Holmes, R. (1997). Genre analysis, and the social sciences: An investigation of the structure of research article discussion sections in three disciplines. *English for Specific Purposes*, 16(4), 321–37.
- Lewin, B., Fine, J. & Young, L. (2001). *Expository discourse: A genre-based approach to social science research texts*. London: Continuum.
- Slatcher, R. B. & Pennebaker, J. W. (2006). How do I love thee? Let me count the words. *Psychological Science*, 17(8), 660–4.
- Swales, J. M. & Feak, C. B. (2004). *Academic writing for graduate students* (2nd edn). Ann Arbor, MI: University of Michigan Press.
- Woods, P. (1999). *Successful writing for qualitative researchers*. London: Routledge.

## FURTHER READING

- Calfee, R. (2000). What does it all mean? The discussion. In R. J. Sternberg (Ed.), *Guide to publishing in psychology journals* (pp. 133–45). Cambridge: Cambridge University Press.





# Acknowledgements

---

Most academic articles contain acknowledgements to various sources of help received during their preparation, although one editor of my acquaintance steadfastly deletes them on the grounds that they add nothing to the content. However, I believe that it is courteous to thank sources of financial support and colleagues and referees for their help in improving articles. Slatcher and Pennebaker conclude:

Portions of this research were funded by a grant from the National Institutes of Health (MH53291). We would like to thank Greg Hixon, Amy Kaderka and Girish Tembe for their assistance on this project and Amie Green, Timothy Loving, Mathew Newman, William Swann, and Simine Vazire for their helpful comments on an earlier draft of this article.

(Slatcher and Pennebaker, 2006, p. 663)

Suls and Fletcher (1983) counted the acknowledgements to colleagues in papers in chemistry, physics, psychology and sociology, with the number of acknowledgements adjusted for the number of authors of the papers. (The number of joint authors was highest in physics and lowest in sociology.) Suls and Fletcher found that the proportion of acknowledgements to colleagues increased as one moved through the disciplines from chemistry to sociology.

More recently, Cronin *et al.* (2003) examined the acknowledgements in all of the several hundred articles published in the *Psychological Review* and in *Mind* from 1900 to 1999. In both journals, there was an upswing in the percentage of articles with acknowledgements – from the 1960s for *Psychological Review* and from the 1980s for *Mind* – until 1999, when almost ninety per cent of their articles contained them. Cronin *et al.* (2004) then repeated their analyses with samples from the *Journal for the American Chemical Society*. Here the upswing started earlier (in the 1940s) and over ninety per cent of the articles in this journal have contained acknowledgements since the 1960s.

Cronin *et al.* (2003) separated the different parts of an acknowledgement as follows:

- *financial* (recognition of extramural or internal funding);
- *instrumental/technical* (providing access to tools, technologies, facilities, and also furnishing technical expertise, such as statistical analysis);
- *conceptual* (source of inspiration, idea generation, critical insight, intellectual guidance, assistance of referees etc.);
- *editorial* (providing advice on manuscript preparation, submission, bibliographic assistance etc.); and
- *moral* (recognising the support of family, friends etc.).

Table 2.9.1 shows the relative proportions of these categories in the acknowledgements in the three journals examined by Cronin *et al.* (2003; 2004). These data reveal clear disciplinary differences, and they also tell us indirectly something about the intellectual debts incurred in writing a paper.

However, even *within* disciplines, a closer examination of the acknowledgements can reveal interesting things (see Cronin and Franks, 2006; Hartley, 2003). It appears, for example, that – in psychology – there are differences in the numbers of acknowledgements given by single authors compared with those given by pairs or trios of authors. In one study, for example, I examined the acknowledgements made in the *Journal of Educational Psychology*, *Teaching of Psychology* and *Psychological Science* (Hartley, 2003). Here fifty-seven per cent of single authors acknowledged the help of colleagues, referees and editors, compared with forty-nine per cent of pairs and forty per cent of trios. It appeared then that single authors benefited from discussions with other colleagues – who were acknowledged – more than did pairs or groups of writers who were perhaps in a better position to discuss salient issues among themselves.

In all of the studies described above, the authors worked by hand when counting the elements in the data. However, automated methods for analysing acknowledgements are now available and, with these, larger samples from many more journals can be considered. Giles and Councill (2004), for example,

**Table 2.9.1** The proportions of acknowledgements (%) devoted to different aspects of acknowledgements in *Mind*, *Psychological Review* and the *Journal of the American Chemical Society*

	<i>Mind</i>	<i>Psychological Review</i>	<i>Journal of the American Chemical Society</i>
Financial	11	36	46
Technical	4	20	34
Conceptual	69	31	18
Editorial	11	11	1
Moral	1	–	–

Data derived from Cronin *et al.* (2003; 2004) and reproduced with permission of the authors.

carried out one such automated study of 188,052 acknowledgements in science papers. They showed that funding agencies got the highest rates of acknowledgements, commercial companies the next, educational institutions the third, and individuals the least. More interesting, perhaps, is that it will soon be relatively easy, using such computer-based techniques, to trace which people are acknowledged most in a given field, and thus to assess their currently hidden contribution, and also to see if acknowledgements to colleagues are reciprocal in different papers.

Finally, Day and Gastel (2006) remind us that it is always appropriate to check with the people named in acknowledgements that they are happy with what is said and, if necessary, to reword it in the light of their comments. Indeed, some journals require that all the people listed in the acknowledgements, as well as all the authors, each sign separate consent forms allowing publication.

## REFERENCES

- Cronin, B. & Franks, S. (2006). Trading cultures: Resource mobilization and service rendering in the life sciences as revealed in the journal article's paratext. *Journal of the American Society for Information Science & Technology*, 57(14), 1909–18.
- Cronin, B., Shaw, D. & La Barre, K. (2003). A cast of thousands: Coauthorship and subauthorship collaboration in the 20th century as manifested in the scholarly literature of Psychology and Philosophy. *Journal of the American Society for Information Science and Technology*, 54(9), 855–71.
- Cronin, B., Shaw, D. & La Barre, K. (2004). Visible, less visible and invisible work: Patterns of collaboration in 20th century Chemistry. *Journal of the American Society for Information Science and Technology*, 55(2), 160–8.
- Day, R. A. & Gastel, B. (2006). *How to write and publish a scientific paper* (6th edn). Cambridge: Cambridge University Press.
- Giles, C. L. & Councill, I. G. (2004). Who gets acknowledged: Measuring scientific contributions through automated acknowledgement indexing. *Proceedings of the National Academy of Sciences*, 101(51), 1759–64.
- Hartley, J. (2003). Single authors are not alone: Colleagues often help. *The Journal of Scholarly Publishing*, 34(2), 108–13.
- Slatcher, R. B. & Pennebaker, J. W. (2006). How do I love thee? Let me count the words. *Psychological Science*, 17(8), 660–4.
- Suls, J. & Fletcher, B. (1983). Social comparison in the social and physical sciences: An archival study. *Journal of Personality and Social Psychology*, 44(3), 575–80.

## FURTHER READING

- Cronin, B. (1995). *The scholar's courtesy: The role of acknowledgement in the primary communication process*. London: Taylor Graham.
- Cronin, B. (2005). *The hand of science: Academic writing and its rewards*. Lanham, Maryland: Scarecrow Press.



# References

---

Many different styles of referencing have developed over the years. National standards have been agreed in the USA, UK, Europe and China. However, few publishers appear to follow these standards precisely, perhaps because they each allow some degree of choice. Today variation seems rife, and this is made worse by computer-based systems for preparing references, such as EndNote, Procite and Reference Manager. EndNote (2007) proudly boasts that it includes 'more than 2,300 predefined bibliographic styles for leading journals', although quite why anyone should want such a number is anybody's guess.

Currently there are four main styles of referencing for academic articles, as follows:

1 The APA style. This system is also known as the Harvard or, more colloquially, as the 'name(date)' system. This is because an author's surname in the text is followed by the date of the publication in brackets, and entries in the reference list are listed alphabetically, starting with the name and the initials of the author(s) followed by the date of publication for each entry. For example:

- Sharples, M. (Ed.). (1993). *Computer supported collaborative writing*. London: Springer-Verlag.
- Speck, B. W., Johnson, T. R., Dice, C. P., & Heaton, L. B. (1999). *Collaborative writing: An annotated bibliography*. Westport, Connecticut: Greenwood Press.
- Tang, C. (1998). Effects of collaborative learning on the quality of assignments. In B. Dart & G. Boulton-Lewis (Eds.), *Teaching and learning in higher education* (pp. 102–23). Melbourne: Australian Council for Educational Research.
- Zammuner, V. L. (1995). Individual and co-operative computer writing and revising: Who gets the best results? *Learning and Instruction*, 5(2), 101–24.

2 The Modern Languages Association (MLA) style. In this version the authors' surnames (with or without the dates) appear in the text and the first author's surname comes first in the reference list. This is followed by his or her first name, but first names then come first for any additional authors. Dates of the publications are given after journal titles, or at the end of the references for books, etc. The list is ordered alphabetically. For example:

- Sharples, Michael (Ed.). *Computer Supported Collaborative Writing*. London: Springer-Verlag, 1993.
- Speck, Bruce W., Teresa R. Johnson, Catherine Dice, and Leon B. Heaton. *Collaborative Writing: An Annotated Bibliography*. Westport, Connecticut: Greenwood Press, 1999.
- Tang, Catherine. 'Effects of collaborative learning on the quality of assignments.' *Teaching and Learning in Higher Education*. Eds. Barry Dart and Gillian Boulton-Lewis. Pp. 103–23. Melbourne: Australian Council for Educational Research, 1998.
- Zammuner, Victoria L. 'Individual and co-operative computer writing and revising: Who gets the best results?' *Learning and Instruction* 5 (1995) 101–24.

3 The Institute of Electronic and Electrical Engineers (IEEE) style. Here, the authors in the text are numbered in order of their appearance in the text, sometimes without their names, and the numbers are enclosed in square brackets. The reference list is then numbered sequentially. Names are presented with the initial(s) first, followed by surnames. Dates of the publications are given after journal titles, or at the end of the references for book, etc. Journal titles are sometimes abbreviated. For example:

- [1] M. Sharples, Ed., *Computer Supported Collaborative Writing*. London: Springer-Verlag, 1993.
- [2] V. L. Zammuner, 'Individual and co-operative computer writing and revising: Who gets the best results?' *Learning and Instruction*, vol. 5, no.2, pp. 101–24, 1995.
- [3] C. Tang, 'Effects of collaborative learning on the quality of assignments,' in *Teaching and Learning in Higher Education*, B. Dart and G. Boulton-Lewis, Eds. Melbourne: Australian Council for Educational Research, 1998, pp. 102–23.
- [4] B. W. M. Speck, T. R. Johnson, C. P. Dice and L. B. Heaton, *Collaborative Writing: An Annotated Bibliography*. Westport, Connecticut: Greenwood Press, 1999.

An alternative version is to list (and number) the authors *alphabetically* in the reference list, and to assign these numbers to the authors in the text as appropriate.

4 The Vancouver style, popular in medical journals, is named after its inception following agreements made during a meeting in Vancouver in 1987 by the International Steering Committee of Medical Editors. Here, as with the IEEE system, the authors are numbered in the text in order of their appearance, and the numbers are enclosed in square brackets. The reference list is numbered sequentially, but the authors are listed surnames first, followed by their initials. Again the dates of publications are given after journal titles, or at the ends of the references for books etc. The key feature of the Vancouver style is its 'spare' typography and punctuation, and the use of abbreviated journal titles.

For example:

- 1 Sharples M, editor. Computer supported collaborative writing. London: Springer-Verlag, 1993.
- 2 Zammuner VL. Individual and co-operative computer writing and revising: Who gets the best results? *Learn Instruc* 1995;5 (Pt 2): 101–24.
- 3 Tang C. Effects of collaborative learning on the quality of assignments. In: Dart B, Boulton-Lewis G, editors. *Teaching and learning in higher education*. Melbourne: Australian Council for Educational Research, 1998;102–23.
- 4 Speck BW, Johnson TR, Dice CP, Heaton LB. Collaborative writing: an annotated bibliography. Westport, CT: Greenwood Press, 1999.

Each of these main referencing systems has advantages and disadvantages for both readers and authors. Some key points are, first, that the name(date) system clutters the text when long lists of references are given. For example, twenty names and dates might be cited in a row, whereas in the numbered system one simply puts [1–20]. Incidentally there seems to be some confusion here in the name(date) system over whether or not these lists of names and dates should be cited in alphabetical or historical order. I recommend one or the other (but not a mixture, as sometimes is the case). Second, it is difficult for readers to judge the recency of an in-text reference in a numbered reference system. Third, in writing the text, getting all of the numbers in sequence is tedious, especially when revising or rewriting the text (if this is not computer-aided). Finally, abbreviated journal titles cause difficulty for readers and authors unfamiliar with the abbreviations.

## REASONS FOR CITING REFERENCES

According to Robillard (2006), *students* are taught that 'the primary function of citing references is to avoid plagiarism by giving credit where credit is

due'. However, when it comes to publishing academic papers, the reasons for citing references increase. Robillard suggests that references:

- tell the readers where they can find the material being discussed;
- provide evidence for the writers' claims;
- draw the readers' attention to little-known or unknown work;
- indicate to the reader the scholarship of the writer:
  - (a) by displaying erudition, and
  - (b) through self-citation;
- show the writers' respect for particular people;
- align the author with particular schools of thought; and
- allow mutual grooming: colleagues cite colleagues and friends, and vice versa.

Indeed, there is a small research literature on the benefits or otherwise of making self-citations (e.g. see Fowler and Aksnes, 2007; Hellsten *et al.*, 2007). Fowler and Aksnes report (in a study of more than half a million citations made by Norwegian scientists) that the more one cites oneself, the more one is cited by others.

## **CITING PAGE NUMBERS FOR QUOTATIONS IN THE TEXT**

There is some debate in the literature about the necessity for citing in the text the page numbers of a quotation, table or figure from another article when giving a reference to it. Generally speaking, this is done more frequently in papers in the arts than it is in the sciences, and studies have shown that many science journals are lax in this respect (e.g. Donovan, 2006; Henige, 2006). Clearly the level of detail required for an in-text reference is a matter of debate, but the actual page numbers can be very helpful for readers if they want to check up on what was actually said or shown.

Sometimes it is not possible for writers to include the page numbers of a specific quotation because they are working from a prepublication electronic text and it is simpler to refer the reader to the final printed publication than to the unique resource location (URL) for the preliminary or alternative version. (This explains why there is no page number for the quotation from Robillard cited above!) Nevertheless, the moral of the tale, however tedious, is that it is best to include information rather than leave it out. Someone, somewhere, will want to check it.



## USING APPROPRIATE STYLES AND REFERENCES

In most situations authors have no say in what reference system will be used, and they prepare their texts in accordance with publishers' demands. They do, however, have different aims and can use different referencing styles to match these, as shown in Table 2.10.1.

Historical analysis shows that referencing styles are not fixed and predetermined, and that incoming editors can and do make changes. *The British Journal of Psychology*, for example, started in 1910 with a footnote system and continued this until 1930. Between 1930 and 1950, a variety of systems were used within individual volumes: in 1930, for example, Volume 21 had mainly footnotes, but one article included a bibliography. In 1940, it was possible to find articles in the same volume:

- (i) with footnotes;
- (ii) with a numbered reference system and a sequential listing of the references; and
- (iii) with an alphabetical listing of the references in a numbered sequence.

In 1953, the journal changed to the current name(date) system of referencing.

In other journals, such changes have been more abrupt. *The American Journal of Psychology*, for instance, used footnotes from 1887 until 1970 and then it changed to the name(date) system in 1971. *The American Psychologist* started life in 1946 with a numbered referencing system and an alphabetical listing of the references until it changed to the name(date) system in 1959. Connors (1999) cites similar changes in other APA and MLA journals, concluding that, 'the APA style now bids fair to become the de facto standard for all fields over the next five decades' (p. 232). Connors' judgement now seems premature.

Table 2.10.1 Writers' aims and preferred referencing styles

Aim	Style
To communicate to fellow colleagues/scholars	Style of own discipline
To communicate to a different (academic) audience	Style of that discipline
To communicate to a general academic audience	Style of journal chosen
To communicate to students within own discipline	Style of own discipline
To communicate to students generally	Few references needed
To communicate to the general public	No formal references needed

## REFERENCES

- Connors, R. J. (1999). The rhetoric of citation systems – Part II: Competing epistemic values in citation. *Rhetoric Review*, 17(2), 219–36.
- Donovan, S. K. (2006). Comment: Discouraging verification: Citation practices across disciplines. *Journal of Scholarly Publication*, 37(4), 313–16.
- EndNote (2007). EndNote information. Retrieved 19 May 2007 from [www.endnote.com/eninfo.asp](http://www.endnote.com/eninfo.asp).
- Fowler, J. H. & Aksnes, D. W. (2007). Does self-citation pay? *Scientometrics*, 72(3), 427–47.
- Hartley, J. (2002). On choosing typographic settings for reference lists. *Social Studies of Science*, 32(5–6), 917–32.
- Hellsten, T., Lambiotte, R., Scharnhorst, A. & Ausloos, M. (2007). Self-citations, co-authorships and keywords: A new approach to scientists' field mobility? *Scientometrics*, 72(3), 469–86.
- Henige, D. (2006). Discouraging verification: Citation practices across the disciplines. *Journal of Scholarly Publication*, 37(2), 99–118.
- Robillard, A. E. (2006). Young scholars affecting composition: A challenge to disciplinary citation practice. *College English*, 68(3), 253–70.

## FURTHER READING

- Hutson, S. R. (2006). Self-citation in Archaeology: Age, gender, prestige, and the self. Retrieved 20 January 2007 from *Journal of Archaeological Methods and Theory*, 13(1) (page numbers unspecified) ([www.ingentaconnect.com/content/klu/jarm](http://www.ingentaconnect.com/content/klu/jarm)).

# Footnotes

---

Some journals in some disciplines use footnotes as well as references. Footnotes are most commonly found in journals in the humanities and least in journals in the sciences, with social science journals somewhere in between. Footnotes serve the same purposes as references, as outlined by Robillard in the previous chapter (p. 60) perhaps more clearly. The differences are that they are sometimes more extensive than references, often containing more exposition, and they usually appear, as their name suggests, at the foot of the page. However, it is also common to find such notes at the end of a chapter, or even grouped chapter by chapter at the end of a book.

The use of footnotes has an ancient pedigree. Slomanson (1987) dates the first use of the term to 1822, but cites the use of footnotes occurring shortly after 1066. Grafton (1997) is more cautious. He writes, 'Scholars have placed the birth of the footnote in the twelfth century, the seventeenth, the eighteenth, and the nineteenth – never without good reason' (p. viii). Be that as it may, what appears to happen with many academic journals is that footnotes first appear in their early history, but that these are then replaced with numbered references, before finally a name(date) system takes over (as described in the previous chapter).

The literature on writers' and readers' attitudes to footnotes is long on anecdote and assertion, but short on evidence (Hartley, 1999). Two common assertions are:

- (i) that footnotes seem irresistible, and that they can thus distract the reader;<sup>1</sup> and
- (ii) that it is sometimes difficult to find your place back in the main text to continue reading when you have moved away to read the footnote.

In order to obtain some data on feelings such as these, I once gave a questionnaire on the topic to approximately fifty academics whose disciplinary

---

1 See what I mean . . .

journals typically used footnotes (e.g. law, history, education and English and modern languages), and to another fifty whose disciplinary journals typically did not (e.g. medicine, physics and psychology). The questionnaire asked these academics about:

- 1 their attitudes to footnotes generally;
- 2 their attitudes to footnotes being placed at the ends of individual chapters as opposed to the end of a book; and
- 3 their preferences for notes or references being placed at the ends of individual chapters in a book rather than at the end of the book (or vice versa) when the chapters were written:
  - (a) by the same author, or
  - (b) by different authors.

The results showed that both groups of academics responded positively to footnotes – that is, they did not find them irritating. However, as might be anticipated, the members of the ‘footnotes’ group were significantly more positive towards footnotes than were the members of the ‘no-footnotes’ group. The ‘footnotes’ group claimed that they had significantly less difficulty in returning to where they were on the page after reading a footnote, and that footnotes could be less easily ignored than did the ‘no-footnotes’ group.

However, the respondents in both groups agreed that:

- 1 notes at the ends of chapters or books were more irritating than notes at the foot of the page;
- 2 it was difficult to find your way back to where you originally were after reading a note at the end of a chapter or a book, as opposed to a note at the foot of the page; and
- 3 it was better to have notes or references at the end of each chapter (as here) rather than at the end of the book, especially when the chapters were written by different authors.

These findings suggest that readers attach greater significance to the value of footnotes and endnotes if they are used to reading them in their books and journals. They thus form an accepted way of conveying additional information within certain disciplines. However, for a more general audience, it might be best to avoid them.<sup>2</sup>

2 Caught you again?

## REFERENCES

- Grafton, A. (1997). *The footnote: A curious history*. Cambridge, MA: Harvard University Press.
- Hartley, J. (1999). What do we know about footnotes? Opinions and data. *Journal of Information Science*, 25(3), 205–12.
- Slomanson, W. R. (1987). The bottom line: Footnote logic in law review writing. *Legal References Services Quarterly*, 7(1), 47–69.

## FURTHER READING

- Bensman, J. (1988). The aesthetics and politics of footnoting. *Politics, Culture and Society*, 1(3), 443–70.
- Jansen, F., van Lijf, A. & Toussaint, E. (2002). A note on the evaluation of footnotes and other devices for background information in popular scientific texts. *IEEE Transactions on Professional Communication*, 44(3), 195–201.
- Stiff, P. (1997). ‘A footnote kicks him’: How books make readers work. *Journal of Scholarly Publishing*, 28(2), 65–75.



# Responding to referees

---

As noted in the postscript to Chapter 1.1, refereeing can be a lottery. Referees' comments – and recommendations – can vary. Consider three more referees' advice and comments to an editor about an article that I had submitted for publication:

- *Referee 1*: Accept. It would be quite helpful to non-specialists to provide grade reading equivalents to the Flesch scores to give perspective.
- *Referee 2*: Accept with revision. This paper addresses an interesting and important topic . . . Despite this . . . the results are somewhat of a mixed bag overall. Accordingly I would recommend the following revisions before it is considered for publication. I begin with the more serious concerns and then touch on some relatively minor ones . . .
- *Referee 3*: Reject. [. . .] This paper conflates (this technical task) with some non-technical terms, some common-sense beliefs about reading and writing that there is no strong evidence for, normative expectations of what texts should be and moralistic stances towards textual patterns, and relies unanalytically on a measure that aggregates factors and itself is not widely respected . . .

These quotations are extracts from the referees' reports. Which referee do you imagine I found most useful when asked by the editor to consider them all when making a resubmission? Answer: Referee 2. Referee 1 was complimentary, but did not require much. The report contained only three sentences and was rather cursory. Referee 2 wrote two pages of useful suggestions and I was able to use most of these to improve the paper. Referee 3 wrote at length but required a completely different approach to the topic so that there was not much I could do to meet these criticisms.

There are similar accounts in the literature of irreconcilable comments from referees (e.g. see Griffiths, 1992). So what do you do, especially if you get a rejection letter? Here is one suggestion:

When you are the recipient of an unexpected rejection letter, don't sit down and fire off a letter to the editor. Talk it over with your friends. Indulge in intemperate verbal expressions to your colleagues. Write a letter to the editor that says exactly what you want to say, then delete it . . .

(Warren, 2000, p. 172)

The first thing is to calm down. It may take a week or two, but eventually you may begin to see that what the referees say might have some sense. Then you can start to revise your manuscript.

It is probably wiser to revise the manuscript than just send it without changes to another journal. Different journals have different requirements, and it is important to try to meet these, as well as to pre-empt the criticisms made by the original referees (Donovan, 2007).

If you are luckier and an editor asks you 'to revise and resubmit' you can take the opportunity to improve your paper. Most editors ask you to indicate when you resubmit your manuscript what you have done to meet the criticisms of the referees. Figure 2.12.1 shows a typical reply for another paper. Here it can be seen that the main focus of Referee 2's comments (that the article was not theoretical enough) has been skirted round, but that most of the less important criticisms have been taken on board. In this case the editor accepted the revised manuscript for publication, indicating that she found the reply to be 'a balanced and constructive response'.

Woods (1999) suggests that authors keep working on their papers once they have been submitted, especially if they come across some new and relevant findings that ought to be included or discussed. This is sensible advice, as this will help authors to respond more authoritatively to any referees' criticisms when they eventually arrive.



## Summary of changes made in revising an article

### Re – referee 1

A summary has been added to meet this reviewer's suggestion.

### Re – referee 2

#### *General comments*

This referee finds the paper descriptive and a-theoretical, and wants a different approach. We have not met this requirement – largely because it would involve completely re-writing the paper from a different viewpoint. We have, however, met this criticism in places by responding to it. Thus we have moved up Panel 1 from the end of the Introduction to the beginning of the paper, and we have explicitly said (pp. 7–8) that we are not particularly interested in a theoretical approach at this stage. Indeed, Panel 1 implicitly lists 20 theories – so there is no consensus anyway.

#### *Specific changes*

We have given the proportion of the sample who were Mature students in the abstract, as requested.

We have added a paragraph to explain the rationale for including the analyses of the sub-sample as well as the main one (p. 10).

We have clarified the description of the results on p. 10 (originally) and on p. 12 (originally) as requested.

We have deleted Table 5 and the discussion around it as suggested.

We have explained more clearly the rationale for choosing the two methods of standardisation (now on p. 16).

We have not commented on why the results differ for the different methods of assessment – as we do not feel this is necessary.

We have taken the opportunity in doing the revisions to:

- Add more relevant references where appropriate.
- To re-write the sub-section in the introduction on small-scale studies of sex differences under three sub-headings to match the previous text. (In doing this we found a set of results on essay examinations had not been included in the original submission!)

Figure 2.12.1 The authors' response to an editorial request to consider the comments of two referees in revising a manuscript.

## REFERENCES

- Donovan, S. K. (2007). The importance of resubmitting rejected papers. *Journal of Scholarly Publishing*, 38(3), 151–5.
- Griffiths, M. (1992). Under (peer) pressure. *The Psychologist*, 5(7), p. 336.
- Warren, M. G. (2000). Reading reviews, suffering rejection, and advocating for your paper. In R. J. Sternberg (Ed.), *Guide to publishing in psychology journals* (pp. 169–86). Cambridge: Cambridge University Press.
- Woods, P. (1999). *Successful writing for qualitative researchers*. London: Routledge.

## FURTHER READING

- Gosden, H. (2003). ‘Why not give us the full story?’: Functions of referees’ comments in peer reviews of scientific research papers. *Journal of English for Academic Purposes*, 2(2), 87–101.
- Wagner, R. K. (2000). Rewriting the psychology paper. In R. J. Sternberg (Ed.), *Guide to publishing in psychology journals* (pp. 187–96). Cambridge: Cambridge University Press.

# Proofs

---

The day will come when the proofs of an article that you submitted some months ago arrive unexpectedly in the post or on your screen. The proofs will be accompanied by a note:

- 1 indicating that they need to be corrected and returned to the publishers within a day or two; and
- 2 making dire threats about the costs of making major changes.

Proofs allow the author to check the accuracy of the typesetting, especially if the text has been altered to fit the printer's house style, and possibly to make minor changes. In point of fact, most proofs these days have few spelling and typographical errors because the text is handled electronically. However, errors still creep in. It is indeed amazing that these 'typos' do occur, despite the fact that the text has been repeatedly read by the author(s), the journal editor, the referees and the copy editor setting the text.

Checking the accuracy of the typesetting is not the same as reading the text. When reading we make inferences, and the text flows on without us noticing minor errors. When checking the proofs, we need to look at every word, every number and every comma separately, two or three times at least. Some authors find it useful to read the individual sentences and the table entries backwards, and to do it at least twice – on separate occasions – using fresh copies of the text each time.

Publishers using printed rather than electronic methods usually supply a set of 'proofreaders' marks' – ways of indicating changes – that they send to the authors with the proofs (see Day and Gastel, 2006, p. 134). Authors are required to mark the text and to indicate in the margins their requirements. However, these days, electronic proofs are more common, and these are typically accompanied by a numbered set of 'author queries'. Here, the numbers are printed in the text at the appropriate places, and a numbered list of queries is printed at the end. Typically, these ask about minor things, such as the spelling of a particular word or name; page numbers omitted in a reference; the date of a reference in the text being different from that

in the reference list; the name of an author in the text spelled differently in the reference list; and whether or not references listed as 'in press' when the manuscript was submitted can now be updated, and so on.

These queries apply to the proofs as they are printed. Making changes rather than corrections is more complicated. Minor revisions of grammar may be acceptable, but complete revisions of paragraphs of text, deletions and insertions are not. Including a new additional reference might be appropriate if the name(date) system is used, but it might be seen as more difficult if a numbering system is used and every subsequent reference number has to be changed in both the text and the reference list. Making changes can thus be time-consuming and expensive if the results require re-pagination of the article and, indeed, possibly the whole issue of the journal in question.

Nonetheless, electronic typesetting makes this much easier than it was. Consequently, I find it helpful when returning proofs to indicate those changes that are essential, those that are optional, and those that might fit in between. For example, if the spacing between the elements in a table is poorly done, then you can ask for this to be improved, but, if you want to move a table (say back from the discussion to the results section where you originally placed it), then I find it best to ask if this can be done (Hartley, 2007). Often there is more space available to make changes than you think, as few articles run to the foot of their final page.

Sometimes, authors will find that a copy editor has changed what they originally wrote to make it fit the house style. Thus, a structured abstract might emerge in a traditional block form, a sentence written in a lively present tense might be rewritten in the passive, and your in-text boxed examples relabelled as appendices and placed at the end of the article. Authors need to reaffirm that what they wrote is what they want, and hope that it will be achieved.

## REFERENCES

- Day, R. A. & Gastel, B. (2006). *How to write and publish a scientific paper* (6th edn). Cambridge: Cambridge University Press.
- Hartley, J. (2007). Guiding the copy editor: Positioning tables and figures in the text. *PsyPAG Quarterly Newsletter*, Issue 63, June, pp. 54–9.