

Research in Biomedicine and Health – I

Day 1 Seminar
Communicating research

A naturalist's life would be a happy one if he had only to observe and never to write.

Sir Charles Darwin



PUBLICATION

new knowledge

for the first time



... it is only in attempts to explain his work to *somebody who has not done it* that he can acquire the discipline of clear and reasoned communication which too is part of scientific method.

Karl R. Popper



Attributes of scientific communication

clarity

simplicity



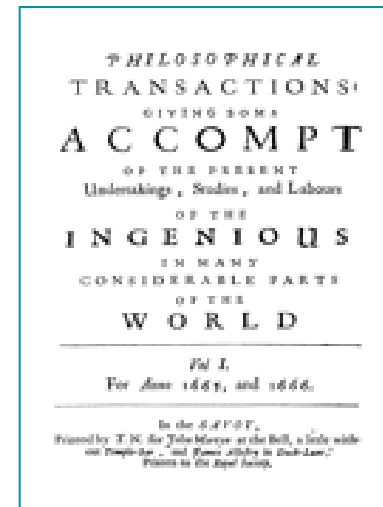
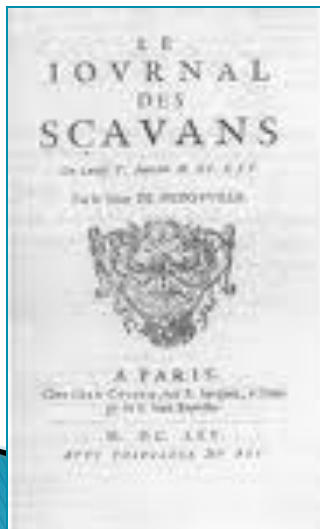
accuracy

understandability

1665

Journal des Scavans

Philosophical Transactions of the Royal Society of London



The basics of writing a paper: The importance of structure

Introduction What did I want to do?

Method How did I do it?

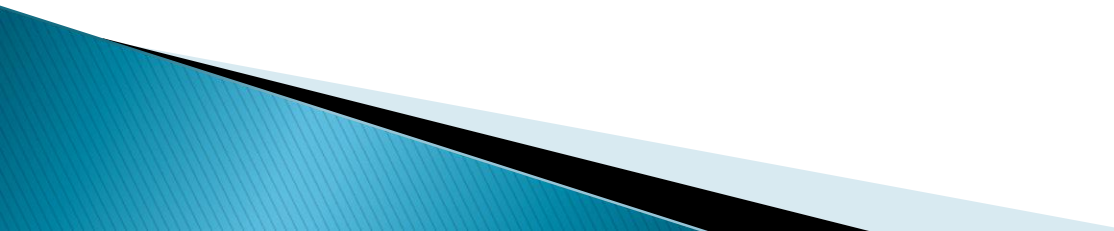
Results What did I find?

And

Discussion What might it mean?

Evidence-based writing

Draws on research in:

- cognitive psychology
 - graphic design and typography
 - instructional design
 - linguistics
 - reading research
 - rhetoric
- 

Evidence-based writing

Gunning Fog Index: a measure of the readability of textual material

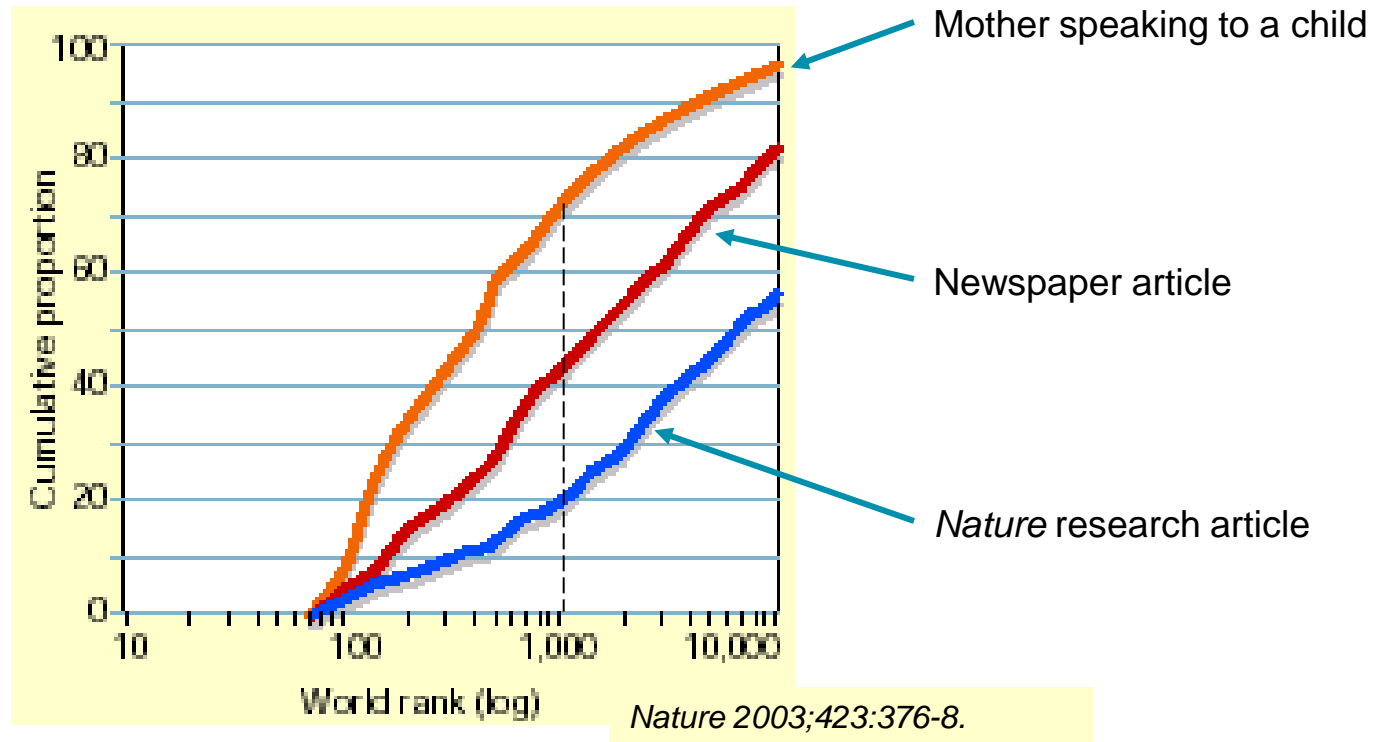
- Robert Gunning. *The Techniques of Clear Writing*. New York: McGraw-Hill, 1968.

Interpretation:

- Easy reading range is 6-10.
- The average person reads at the level 9.
- Anything above 17th level is difficult for university students.

childrens' books	6-10
regular newspapers	12-14
medical journals	14-16
law journals	16-18
insurance policies	18-20

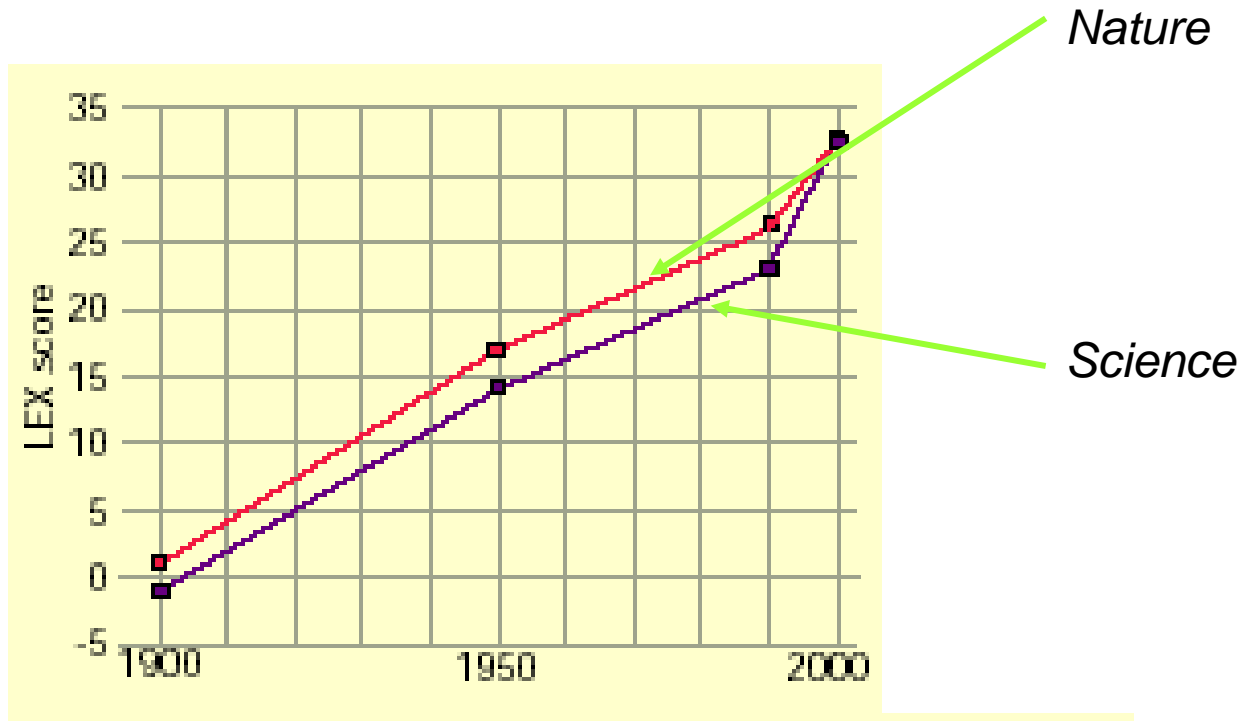
Evidence-based writing



Lexical difficulty index: Donald Hayes ranked 87000 words by their frequency of use in textbooks, novels, magazines, and encyclopedias.

1st: “the”; 10,000th: “whooping”; neuron – 23,595th

Evidence-based writing



Nature 2003;423:376-8.

Lex ratings:

Nature	+35
New Scientist	+7
Time	+2
US/UK newspapers	0
Ranger Rick	-18
TV (prime show)	-36
Farmer talking to cows	-56

The basics of writing a paper: Still structure

- Readers have to know where they are, where they are going, and why.

Research paper: Structure is everything

Introduction

What did I want to do?

Method

How did I do it?

Results

What did I find?

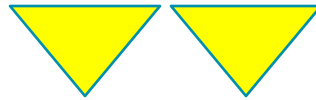
And

Discussion

What might it mean?

Structure again!!

Introduction



Method

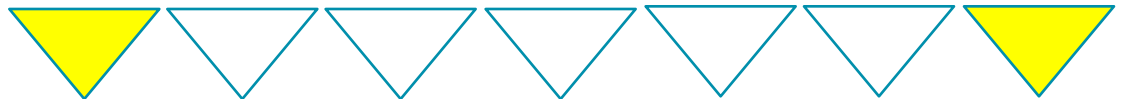


Results



And

Discussion



Organizing to show the structure: Make connections with a relevant title

- Readers bring their prior experience and knowledge
- Relevant title helps to make appropriate associations

Washing clothes

The process is actually quite simple. First you arrange things into different groups depending on their makeup. Of course one pile may be sufficient depending on

Title

Why whip egg whites in copper bowls?

Nature 1984;308



Effect of colour coordination of attire with poster presentation on poster popularity

David A. Keegan, Susan L. Bannister

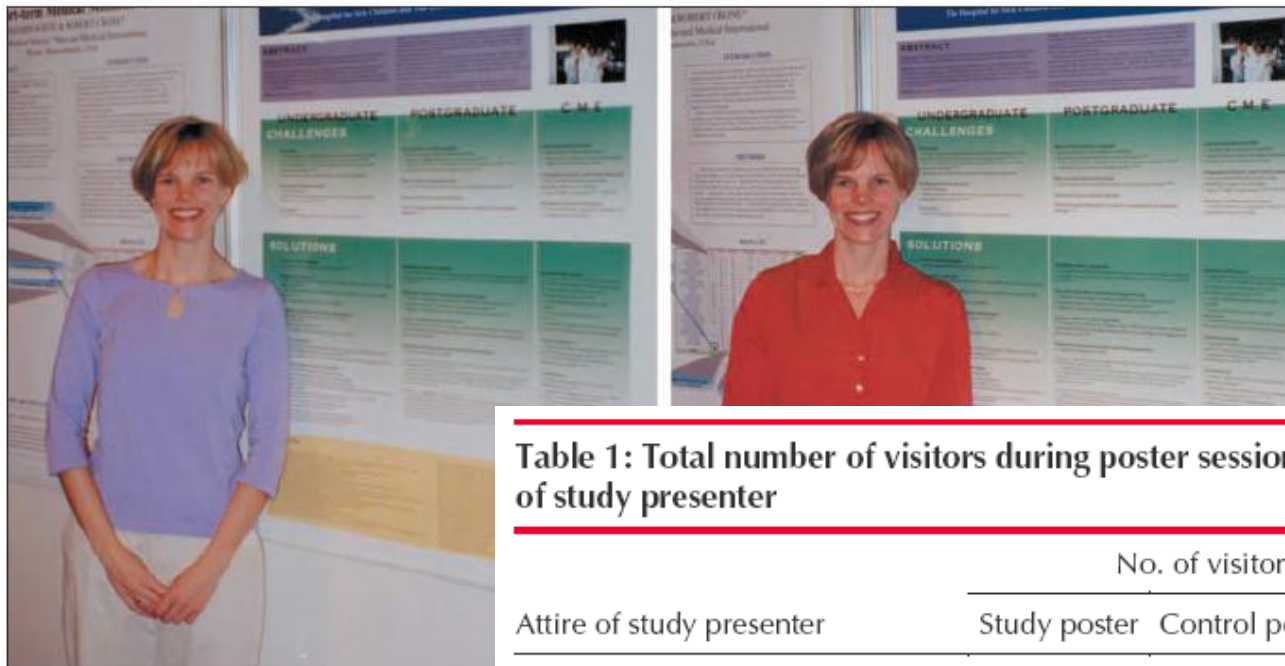


Fig. 1: Study presenter in lavender-coloured rust-coloured blouse (chosen to clash)

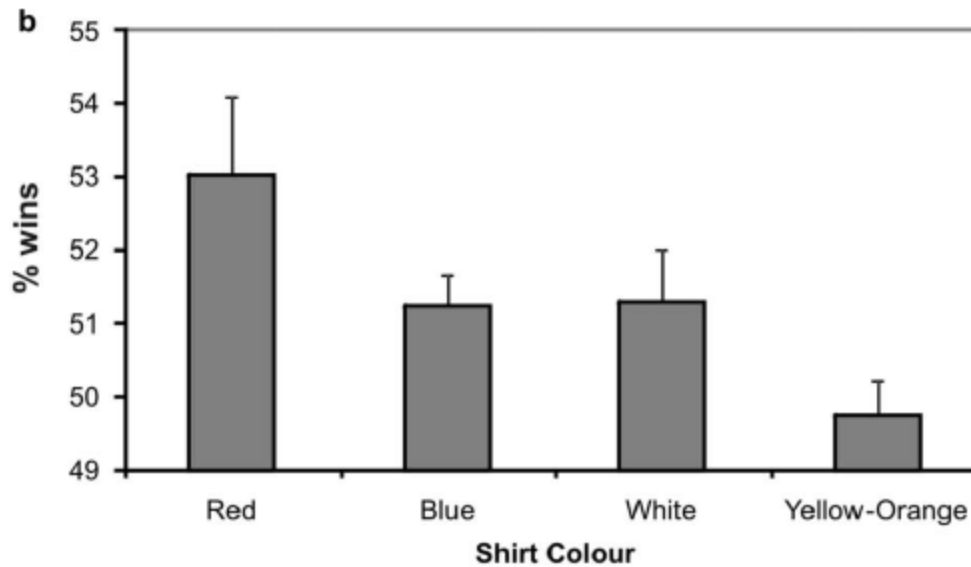
Table 1: Total number of visitors during poster session, by attire of study presenter

Attire of study presenter	No. of visitors		
	Study poster	Control poster	Total
Coordinated (lavender-coloured blouse)	68	40	108
Clashing (rust-coloured blouse)	32	71	103
Total	100	111	211



Study presenter, in neutral-coloured attire.

Red shirt colour is associated with long-term team success in English football

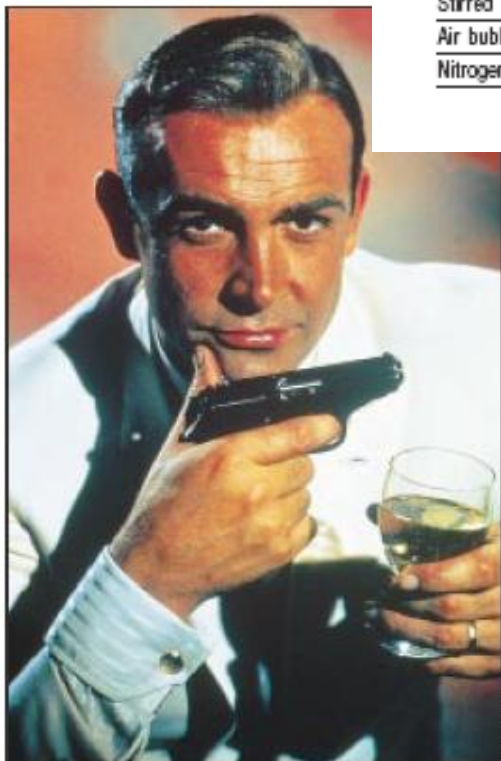


Shaken, not stirred: bioanalytical study of the antioxidant activities of martinis

C C Trevithick, M M Chartrand, J Wahlman, F Rahman, M Hirst, J R Trevithick

Table 1 Remaining luminescence after addition of martinis to the luminescent assay containing peroxide

Manoeuvre	No of samples	Percentage of peroxide control value			Significance (shaken v stirred)
		Mean	SE	95% CI	
Shaken	7	0.072	0.020	0.023 to 0.121	t=3.418(df=11)P=0.0057
Stirred	6	0.157	0.016	0.113 to 0.201	
Air bubbled through mix	5	0.061	0.007	0.044 to 0.077	t=0.126 (df=8)P=0.904
Nitrogen bubbled through mix	5	0.057	0.030	-0.027 to 0.140	



Is it martinis that help James Bond stay so healthy?

Discussion

Although the reason for the superior antioxidant activity of shaken martinis is not clear, is it possible that James Bond chose shaken (not stirred) martinis because of the improved antioxidant potential? This added antioxidant effect could result, of course, in a healthier beverage. There is no indication in the literature that 007 suffered from cataracts or cardiovascular disease, hence he must be considered a moderate consumer of alcoholic drinks. The authors have not examined any antioxidant contributions from olives.

Scientific jargon:

From the time immemorial, it has been known that the ingestion of an “apple” (i.e., the pomme fruit of any tree of the genus *Malus*, said fruit being usually round in shape and red, yellow, or greenish in color) on a diurnal basis will with absolute certainty keep a primary member of the health care establishment absent from one’s local environment.

The Six Honest Serving Men

R. Kipling

A survey of the writer's personal methodology in general inquiry has been carried out, and the results analyzed to determine components of the interrogatory technique. Six distinct forms of question were isolated, as tabulated below. It is claimed that responses evoked by these were responsible for the total quantity of knowledge acquired by the author (3).

I keep six honest serving men

(They taught me all I know):

Their names are What and Why and When

And How and Where and Who.