(C Disc: singles versus groups of authors)

Are two authors better than one? Can writing in pairs affect the readability of academic blogs?

James Hartley & Guillaume Cabanac

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In an earlier study we examined the readability of blogs written by men and women academics, and found no significant differences between them. Here we extend this study to compare the readability of academic blogs written by single and pairs of academic authors.

Our method in this study was much the same as that used in the earlier research. Indeed we used the data from that enquiry to provide our measure of the readability of blogs of individual authors. Here we have added to those data the additional data that we obtained from the pair of bloggers in this study. Our procedure in each study was to make a copy of the appropriate blog, delete the headings, lists, illustrations and extraneous information (such as notes on the authors) and to use Google's *Readability-Score.com* to calculate the Flesch readability score of the remaining text. We did not differentiate between whether or not the pairs were of the same or mixed sexes. The data for the single authors were obtained between X and Y and those for the pairs of authors between July 2013 – April 2016 - indicating that many fewer pairs of authors write blogs compared with single ones.

Table 1 shows the results that we found.

Table 1. The median Flesch readability scores for the blogs written by single and pairs of bloggers. Easier text is characterised by higher Flesch[1] scores and shorter sentence lengths).

	Flesch[1] Scores		Sentence lengths	
	Singles	Pairs	Singles	Pairs
N	52	52	52	52
Mean				
Median				
Range				

[1]Although the validity of the Flesch Readability scores has been questioned recently (Hartley, 2016a) they do give scores that are useful for comparison purposes.

How do these results compare with findings from other studies of writing in pairs or groups? It would appear that there are few studies of the actual readability of texts produced by different numbers of authors, despite the considerable discussion about the advantages and disadvantages of writing with others (see, e.g., Hartley, 2008; Hartley & Cabanac, 2016; Hu, Chen and Liu, 2014; Speck, Johnson, Dice and Heaton, 1999; Zhao, Zhang and Wang, 2014). Table 2 summarises the main points of this discussion.

Table 2. Advantages and disadvantages of different ways of writing in pairs

Advantages
Each person may act as editor for the other
Each person may have different skills/knowledge that can be pooled together
Writing in pairs with different writing abilities may be helpful for novice writers
Papers by joint-authors are often cited more than papers by single ones
New technology facilitates working together from different countries and institutions
Disadvantages
Problems arise if colleagues don't agree
Production can be slowed down if one person has many other commitments
Problems arise if the work of one of the authors is not as competent as that of the other
There may be potential hassles over who will be designated first author and/or the sequence of the authors
As readers/researchers we do not know from the finished article who contributed what (although today some journals provide this information)

Indeed, the possibilities for different kinds of co-operation are numerous. Here are some:

No real collaboration – one author writes it all and the other agrees to it

The different authors write different parts according to their expertise, and the lead author is responsible for the whole

Some authors exchange drafts sequentially, but some work together on the same screen (via the wonders of new technology)

When an article is written by partners with different nationalities one (preferably a native of the language of the publication) can check the language

The conventions for listing the names of the authors differ in different countries and different disciplines. In Psychology for instance, it is usual to put the lead author first, whereas in some subjects (e.g., Maths) it is conventional to put the authors in alphabetical order, and in some subjects (e.g., Medicine) it is conventional to put the senior author last.

There are other, perhaps unexpected, earlier findings from studies of co-authorship. Hartley (2003) and Lewison and Hartley (2005), for instance, reported that:

1. The more authors there were (in science journals) the longer (on average) were the titles of their papers.
2. The more authors there were (in science journals) the longer (on average) were the lengths of their papers; and perhaps more surprising:
3. Single authors (in science journals) used colons in their titles significantly more than did pairs of authors or groups - until the number of authors reached 12 or more - and
4. Single authors (in Psychology) acknowledged the help of colleagues and referees more than did pairs or groups of authors.

Currently it is often suggested that articles written by pairs or groups of authors are cited more than articles written by single authors (see Gazni & Thelwall, 2014; Hartley & Cabanac, 2015) but we are of the view that these studies have not been adequately controlled (Hartley 2016b). Furthermore, if two or more people share a publication, then it seems likely that each of them will cite this paper in other articles, thus increasing the number of citations to the original one (Bornmann & Haunschild, 2016).

Now that joint writing is facilitated by new technology, we anticipate an even greater upsurge in the number of multi-authored papers and that these matters will be explored further.

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DATA

Pairs Sex	Reading Ease	Sentence Length
MM	25.2	23.3
MF	26.3	29.5
MM	47.9	14.5
MF	34.4	29.2
MM	39.9	20.4
MM	27.4	29.5
MM	49.5	22.5
MM	41.5	22.0
FF	34.1	28.1

FF	41.9	27.0
1-10		
FM	36.7	25.8
MM	33.6	24.1
FM	39.9	21.7
MM	44.5	8.6
FM	28.9	38.9
MM	46.6	16.7
MM	35.7	21.7
MM	36.0	28.0
MM	27.6	24.3
FF	34.9	18.4
11-20		
MM	38.8	23.1
MF	41.0	24.2
MM	35.4	15.8
FF	27.0	30.5
MM	32.1	16.0
MM	36.6	25.4
MM	25.0	22.5
MF	40.3	24.4
FM	15.8	25.1
FF	30.3	27.7
21-30		

FM	47.9	21.0
MF	64.2	18.1
MM	24.3	25.8
FF	27.0	27.8
FF	32.9	28.7
MM	47.4	23.6
FF	21.8	31.0
MF	25.8	25.1
FF	21.1	32.3 – extract from previous publication
FF	31.6	21.9 "

31 – 40

FF	55.3	19.7 - "
FF	37.4	25.9
FF	27.7	28.3
MM	54.2	13.3
FM	18.2	33.0
MM	35.0	13.9
MM	31.9	20.5
MF	39.1	24.5
FF	40.5	24.3
MM	51.6	15.2

41-50

FM	41.7	19.8
FF	35.2	22.5

51-52

Additional data I propose we don't use because of the small N?

Trios +, 4s and 5s

N	Reading Ease	Sentence length
3	15.7	28.6
5	46.5	23.3
5	48.5	24.0
3	47.0	19.0
3	56.5	19.2
3	56.5	19.2
4	39.2	18.0
5	47.9	19.0
6	18.4	22.5
7	45.1	14.9