

Laterality Newsletter 2014 issue 1

Editor: Dr Steve Williams

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Colchester, England
steve.williams7@ntlworld.com

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1 Introductory

I am beginning with as many readers as when print *Laterality Newsletter* started in 1986.

- Do please e-mail any stories you would like the others to see.
- As always I am particularly indebted for material to MARIANNE SCHULTZ of COPENHAGEN.

The makeover is due to different software as well as the changed medium. My desktop PC is now dual boot and I work mainly in Linux so it is out with

PagePlus and in with the LyX frontend to L^AT_EX. It’s especially good with mathematics, which is a keener interest these days than psychology, but don’t expect to see too many equations here! Though saying that reminds me straightaway of Lewin’s classic

“Behaviour is a function of the person and the environment”, $B = f(P, E)$.

I hope to do two issues a year, as before, but no promises. It does depend upon how much there is to say.

First, I will describe¹ two studies that the BRITISH PSYCHOLOGICAL

¹The write-ups are by Jonathan Calder, Press & Public Relations Officer

SOCIETY (BPS) asked me to comment on.

2 Forty per cent of people with schizophrenia and related disorders are left-handed[1]

Four in ten people with schizophrenia and related psychotic disorders are left-handers, according to a new study carried out at YALE UNIVERSITY in the US.

Research published in the SAGE Open journal pointed out that the proportion of left-handers with mood disorders such as depression is similar to that for the US population overall.

However, figures showed that this is not the case for people with schizophrenia and schizoaffective disorders, as a "striking" 40 per cent of these individuals are left-handed.

JADON WEBB, a Researcher at YALE UNIVERSITY, commented:

"In general, people with psychosis are those who have lost touch with reality in some way, through hallucinations, delusions or false beliefs."

This, he said, means it is "notable that this symptom constellation" apparently correlates with being a left-hander.

MR WEBB added that finding this type of biomarker might potentially enable researchers to identify and differentiate mental disorders sooner rather than later and therefore develop more effective treatment.

I commented:

"The suggestion that left-handedness is a biomarker for schizoid psychosis will outrage left-handers far and wide, though many negative things have been said about them. Indeed it created a stir when evidence emerged that they are *more* rather than less intelligent. The population prevalence of left-handedness is about 10%, with which the finding is clearly out of line. But the 40% is itself considerably higher than some previous estimates."

3 Personality "not determined by whether people are right or left brained"[2]

An individual's personality is not determined by which side of the brain they use the most. This is the suggestion of new research published in the journal PLoS ONE, which has served to debunk the myth that people are more creative or analytical depending on whether they are predominantly right-brained or left-brained.

Carried out by investigators at the UNIVERSITY OF UTAH, the study spanned two years and included reviews of brain scans of 1,011 individuals aged between seven and 29 years old, which had been collected as part of the International Neuroimaging Data-Sharing Initiative.

The researchers found no evidence

to suggest that people are either mostly right-brained or left-brained - it had previously been put forward that individuals who are predominantly the former are more creative and those who are mainly the latter are more analytical.

DR JEFF ANDERSON, a neuroscientist at the UNIVERSITY OF UTAH, said:

"People don't tend to have a stronger left or right-sided brain network. It seems to be determined more connection by connection."

I commented:

"It has very frequently been asserted that whether people are logical or creative (verbal or non-verbal) depends on which side of the brain they use more (the "hemisphericity" hypothesis). There has long been a healthy vein of skepticism about this among laterality researchers. The Utah study now questions, on the basis of hard neuro-imaging evidence, whether there is even such a thing as a prepotent hemisphere for the individual person. The *Gestalt* outlook emphasizes that the brain acts as a whole. The observation remains intact that in most people there is some sort of association between verbal processes and the left hemisphere."

4 On data analysis

At the beginning of my career there was no alternative to quantitative analysis of the empirical studies that provided the mainstay of the behavioural sciences and neurosciences. Now there is qualitative analysis as well, concerning which I know little except that it has its fervent devotees and forms the focus of one of the largest Sections of the BPS. But I still have *numerical* data, some of it going back to the 1970s, in electronic files.

I wrote in this newsletter about twenty years ago about the difficulties (for someone without access to commercial software) in porting the data to any software but electronic spreadsheets such as Excel and Calc, with their limited range of statistics and limited accuracy. Now however there is R, which started life as a free and open source version of a commercial package called S.

Many statisticians and computer scientists around the world contribute on an ongoing basis to the R project. I feel dubious that commercial packages like SPSS and Minitab can compete in terms of what you can do with data using R; though direction within a company may contribute to consistency and so user-friendliness. To download R, do a Google search for CRAN, its repository. It is available for both Windows and Linux. You download R-base to begin with but there are many additional packages with added functionality that will install upon request.

I know less about SAS and STATA. But with its free front-end R Studio there is easy-to-access online help for R, and I have the impression that there are far more current books on it than on any other package. I have found it

possible to read old data in, check previous analyses with other packages and add some new ones. In sum:

- Excel - Microsoft spreadsheet
- Calc - free spreadsheet
- SPSS - for the social sciences
- Minitab - interactive
- SAS - expensive
- STATA - likewise

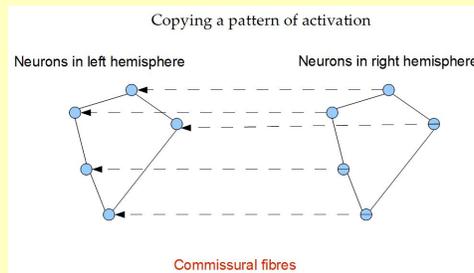
5 An analysis of data - laterality bibliography

A major problem with spreadsheet statistical analysis is its focus on parametric statistics and lack of means to check the parametric assumptions. I

took the corpus of 546 journal articles based on my doctoral dissertation bibliography and reanalyzed them not with a spreadsheet, as twenty years ago, but with R, and investigating the non-parametric Spearman ρ as well as Pearson r correlation coefficients.

I tabulated citations to each article with its number of authors, year of publication, volume number and number of pages. The main findings were confirmed, notably that longer (but not multi-author) articles were cited more. But one finding changed using Spearman ρ . It was the age of the journal, not the recency of publication, that went with shorter articles.

Though it is a digression, I am also finding that factor analytic results of a questionnaire study I did of the “metapsychological presuppositions” of psychologists (*e.g.* that their discipline is a science) have changed from the original findings with SPSS to R.



References

- [1] Webb, Jadon; Schroeder, Mary; Chee, Christopher *et al.* (2013). Left-handedness among a community sample of psychiatric outpatients suffering from mood and psychotic disorders. *Sage Open* 3 (4). Full text online.
- [2] Nielsen, Jared; Zielinski, Brandon; Ferguson, Michael *et al.* (2013). An evaluation of the left-brain vs. right-brain hypothesis with resting state functional connectivity magnetic resonance imaging. *PLoS One* 8 (8). Full text online.