A Major Revision of the Edinburgh Handedness Inventory

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Edinburgh Handedness Inventory (revised)					
Please mark the box that best describes which hand you use for the activity in question					
	Always Left	*Usually Left*	*No Preference*	*Usually Right*	*Always Right*
Writing					
Throwing					
Scissors					
Toothbrush					
Knife (without fork)					
Spoon					
Match (when striking)					
Computer mouse					

Note (2pp): "A major revision of the Edinburgh Handedness Inventory"
by Dr Stephen M. Williams, Colchester, Essex, United Kingdom.

Everything in this Note is contained in the above proposed revision of the Edinburgh Handedness Inventory [1]. The rest is no more than description of and justification for the changes, which though major do not alter the procedure for arriving at a Laterality Quotient [2]. This can be used to identify mixed-handers :- as anyone having an *LQ* between fifty and minus-fifty [3].

It is now about forty years since Oldfield's article, and it has inspired a mass of work (already the Web of Knowledge records over seven thousand citations of it). This might, but should not, have the effect of stultifying development of the test instrument. This corpus of work should be taken as supplying evidence of ways to improve the inventory.

The biggest change in the revision here proposed is the discarding of three of the original Edinburgh activities (opening box; broom; drawing) and the adding of a new one (computer mouse).

Drawing could still be used as a *substitute* for writing (in the context, say, of possible dysgraphia) – these two activities are very highly (about 0.90) correlated. To include both adds little to no new information and risks straining the testee's cooperativeness.

Opening box and broom have been discarded on the basis of somewhat more sophisticated statistical evidence [4, 5, 6]. For example, numerous factor-analytic studies find a single ("Handedness") factor, and the loadings on it of these two activities are low outliers. (In the studies where multiple factors have been found the samples tend both to have been selected for handedness and to have been questioned about many more activities than ten.)

Computer mouse as an addition is a suggestion due to Dragovic. This item of equipment can be configured so that the index finger and middle finger do the same as usual, but using the left hand. This must surely be one major unimanual activity in today's world.

The other changes proposed amount to adopting the Likert-scale format that has become standard in the years since Oldfield trialled his inventory. Each category of response gets its own column, which is verbally labelled, making it possible to reduce the instructions to a single sentence of sixteen words. There is no doubt that the Edinburgh format confuses many respondents. For this

revision the layout is laterally compatible, with the response “always left” on the left. This also makes life easier for the respondent and it is strange to see it neglected in some laterality work.

Notes

1. Oldfield, R. Carolus (1971). The assessment and analysis of handedness: The Edinburgh inventory. *Neuropsychologia* **9**, 97-113.
2. Ignore “no preference” responses and total right and left responses separately counting “always” responses double. With two totals *R* and *L,* the Laterality Quotient (*LQ*) is defined :-

$$LQ = \frac{(R-L)}{(R+L)} \; . \; 100 \qquad (1)$$

3. Dragovic, Milan (2004a). Categorization and validation of handedness using latent class analysis. *Acta Neuropsychiatrica* **16**, 212-218.
4. Dragovic, *ibidem.*
5. Dragovic, Milan (2004b). Towards an improved measure of the Edinburgh Handedness Inventory: A one-factor congeneric measurement model using confirmatory factor analysis. *Laterality* **9**, 411-419.
6. Williams, Stephen M. (1986). Factor analysis of the Edinburgh Handedness Inventory. *Cortex* **22**, 325-326.