Reviewer's report

Title: A puzzle form of a non-verbal intelligence test gives significantly higher performance measures in children with severe intellectual disability

Version: 1 Date: 6 June 2008

Reviewer: Eric Emerson

Reviewer's report:

This paper describes a well-executed study that makes a useful contribution to the literature. It is, however, rather poorly presented and probably more detailed than appropriate for a generic journal.

Major Compulsory Revisions
None

Minor Essential Revisions

1. For a generic journal it would be useful to include a very brief description of intellectual disability (definition, prevalence) and make a brief case why a general readership should be concerned with this issue.

2. Referencing should be reviewed to ensure accuracy. At present, references relating to ASD are used to support assertions relating to severe ID (e.g., 4, 5). This is misleading.

3. Table 1. The text on p8 reports that sex is presented in this table. It is not.

4. Description of the procedure on p9 repeats information presented on p7

5. Results are discussed on p10 prior to their presentation in the results section. This is inappropriate.

6. Table 2 is missing RCPM scores (see text on p10)

7. p11 the statement that ‘the mean raw performance score for the first attempt was lower than for the second attempt irrespective of the order of completion’ is rather confusing (an order effect that is independent of order?). Maybe ‘irrespective of version ‘?

8. p14 (and elsewhere). I fail to see how the authors can argue that the puzzle version gives more ‘accurate’ results and that the standard version ‘underestimates’ performance. The puzzle version certainly gives higher scores for ID children. To make claims of accuracy would require comparison with some gold standard. For example, providing typically developing children with major incentives and encouragement would probably increase their performance. Would it make it more ‘accurate’?

9. p15. A claim is made in the discussion that the performance advantage is greater than would be expected by random response. The basis on which this claim is made should be described in the results section.

10. Competing interests. On p5 it sounds as though the authors may be
marketing these materials. If true, this would constitute a competing interest.

11. Figures. Y axes on the figures require labelling

12. The MS should be shortened.

**Level of interest:** An article of limited interest

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

'I declare that I have no competing interests'