

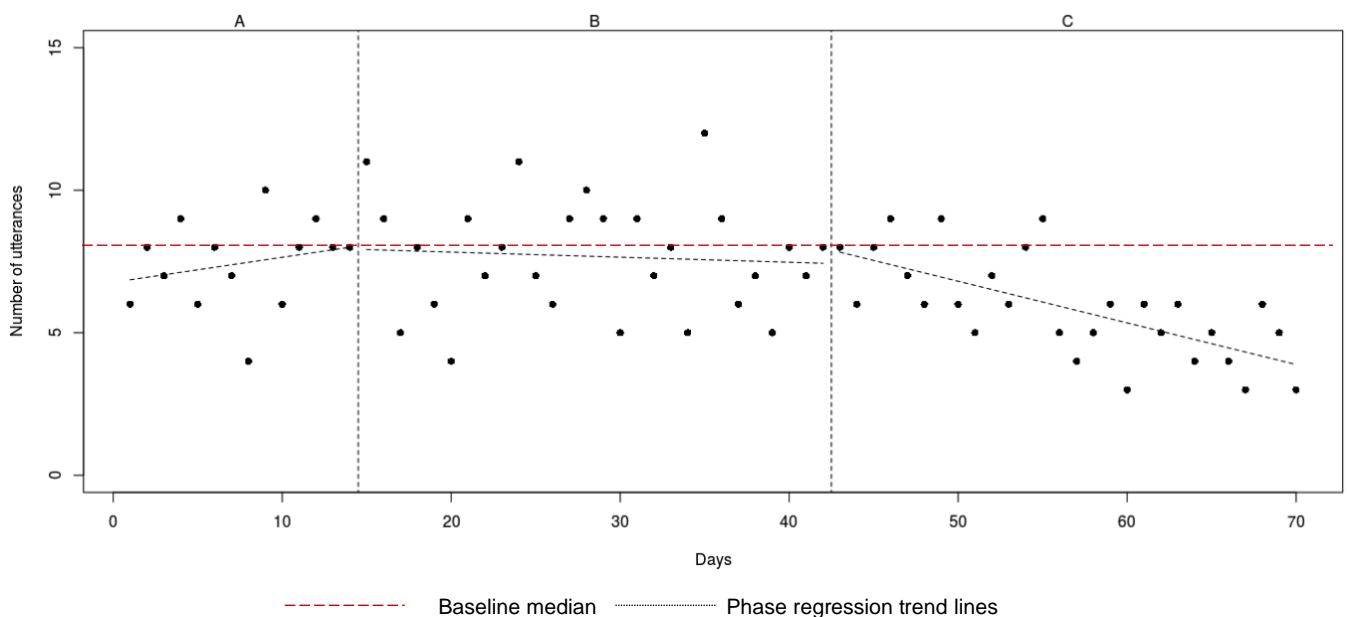
# ABC design

|  |                     |
|--|---------------------|
| <b>Setting</b>   | Child               |
| <b>Design</b>  | ABC                 |
| <b>Length of baseline (A)</b>  | 14                  |
| <b>Length of 1st intervention (B)</b>                                  | 28                  |
| <b>Length of 2nd intervention (C)</b>                                  | 28                  |
| <b>Idiographic measures</b>  | <b>Scale</b>        |
| Number of obscene utterances in D&T lessons (teaching assistant rated) | Count               |
| Number of gestures in D&T lessons (teaching assistant rated)           | Count               |
| Difficulty paying attention (self-rated)                               | 0-10                |
| Feeling anxious (self-rated)   | 0-10                |
| <b>Nomothetic measures</b>   | <b>Outcome</b>      |
| TODS-PR  | Tourette's disorder |

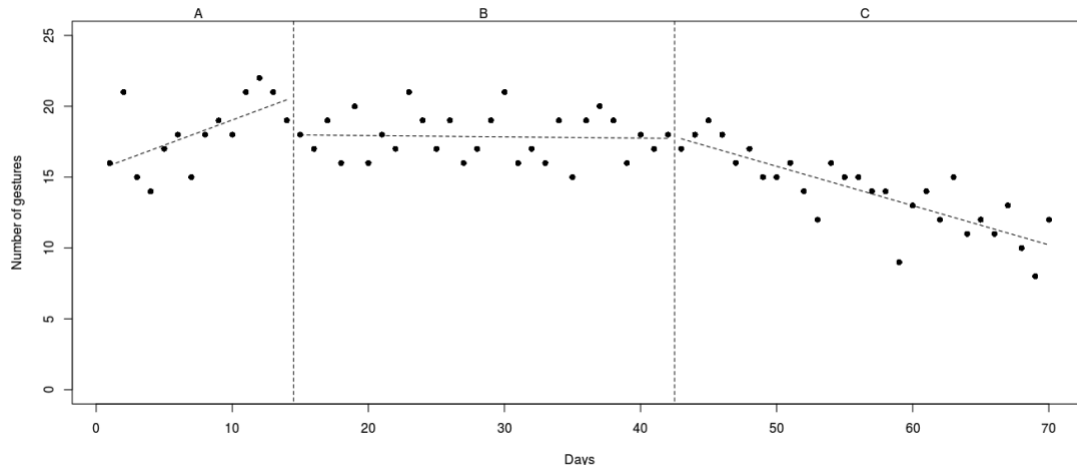
## 1. Visual analysis

Idiographic measure 1: Number of utterances (OLS regression trend line)

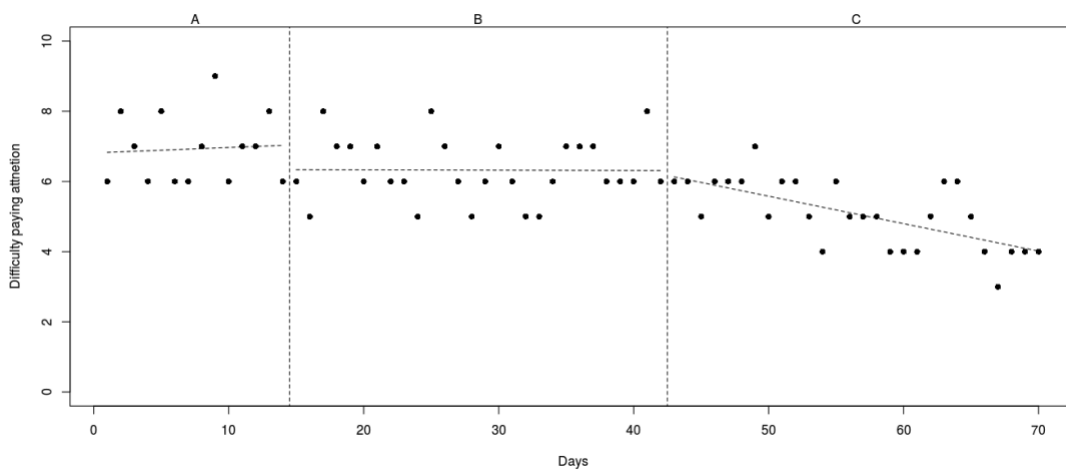
- Regression trend line plot manually customised using text boxes and shapes in Microsoft Word to add baseline median line and legend. See [Box 1](#) in the Analysis Guide for tips.



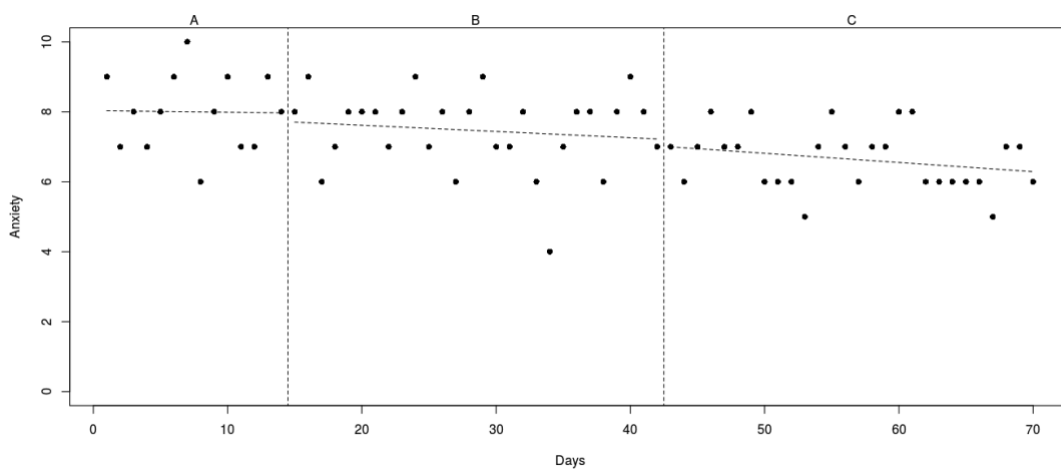
Idiographic measure 2: Number of gestures (OLS regression trend line)  
 - *Cut directly from app with no customisation.*



Idiographic measure 3: Difficulty paying attention (OLS regression trend line)  
 - *Cut directly from app with no customisation.*



Idiographic measure 4: Feeling anxious (OLS regression trend line)  
 - *Cut directly from app with no customisation.*



## 2. Statistical analysis

Table 1: Nonoverlap effect and Tau-u statistics for ideographic measures between specific phases of SCED

| Baseline (A) vs. 1 <sup>st</sup> Intervention (B) Massed Practice           |   |  |   |       |       |       |       |
|---|---|--|---|-------|-------|-------|-------|
| Idiographic measure   | Baseline trend ( $\tau^{\text{trendA}}$ )   | <sup>1</sup> Tau ( $\tau^{\text{AvsB}}$ )<br><sup>2</sup> Tau-U ( $\tau^{\text{AvsB} - \text{trendA}}$ ) | PEM   | NAP   | PND   | PAND  | IRD   |
| Utterances  | 0.192   | <sup>1</sup> 0.041   | 55.36   | 47.19 | 0.00  | 66.67 | 25.00 |
| Gestures  | 0.495*  | <sup>2</sup> -0.677*   | 53.57   | 53.57 | 0.00  | 71.43 | 35.71 |
| Attention   | 0.064   | <sup>1</sup> -0.250  | 75.00   | 65.69 | 17.86 | 69.05 | 30.36 |
| Anxiety   | 0.012   | <sup>1</sup> -0.179  | 64.29   | 61.48 | 3.57  | 69.05 | 30.36 |
| <i>Interpretation:</i>  | Higher $\tau^{\text{trendA}}$ value indicates more evidence of phase trend – positive or negative values indicate direction of trend (increasing/decreasing). Larger ( $\tau^{\text{AvsB}} / \tau^{\text{AvsB} - \text{trendA}}$ ) values indicate larger differences between phases. Where improvement = increased scores, larger positive Tau values reflect improvement due to intervention. Where improvement = decreased scores, larger negative Tau values reflect improvement due to intervention. |  | Higher scores reflect improvement due to 1 <sup>st</sup> intervention (B – Massed practice).              |       |       |       |       |
| Baseline (A) vs. 2 <sup>nd</sup> Intervention (C) Cue-controlled Relaxation |   |  |   |       |       |       |       |
| Idiographic measure   | Baseline trend ( $\tau^{\text{trendA}}$ )   | <sup>1</sup> Tau ( $\tau^{\text{AvsB}}$ )<br><sup>2</sup> Tau-U ( $\tau^{\text{AvsB} - \text{trendA}}$ ) | PEM   | NAP   | PND   | PAND  | IRD   |
| Utterances  | 0.192   | <sup>1</sup> -0.361*   | 83.93   | 74.74 | 10.71 | 71.43 | 35.71 |
| Gestures  | 0.495*  | <sup>2</sup> -0.676*   | 92.86   | 86.35 | 39.29 | 80.95 | 57.14 |
| Attention   | 0.064   | <sup>1</sup> -0.616*   | 98.21   | 90.31 | 60.71 | 83.33 | 62.50 |
| Anxiety   | 0.012   | <sup>1</sup> -0.493*   | 91.07   | 82.02 | 7.14  | 78.57 | 51.79 |
| <i>Interpretation:</i>  | Higher $\tau^{\text{trendA}}$ value indicates more evidence of phase trend – positive or negative values indicate direction of trend (increasing/decreasing). Larger ( $\tau^{\text{AvsB}} / \tau^{\text{AvsB} - \text{trendA}}$ ) values indicate larger differences between phases. Where improvement = increased scores, larger positive Tau values reflect improvement due to intervention. Where improvement = decreased scores, larger negative Tau values reflect improvement due to intervention. |  | Higher scores reflect improvement on due to 2 <sup>nd</sup> intervention (C – Cue-controlled relaxation). |       |       |       |       |

| 1 <sup>st</sup> Intervention (B) Massed Practice vs. 2 <sup>nd</sup> Intervention (C) Cue-controlled Relaxation |                     |   |   |       |       |       |       |
|---|---------------------|---|---|-------|-------|-------|-------|
| Idiographic measure   | Baseline trend      | <sup>1</sup> Tau ( $\tau^{AvsB}$ )            | PEM   | NAP   | PND   | PAND  | IRD   |
|   | ( $\tau^{trendA}$ ) | <sup>2</sup> Tau-U ( $\tau^{AvsB - trendA}$ ) |   |       |       |       |       |
| Utterances  | n/a                 | n/a   | 83.93   | 74.23 | 10.71 | 71.43 | 42.86 |
| Gestures  | n/a                 | n/a   | 92.86   | 89.16 | 53.57 | 83.93 | 67.86 |
| Attention   | n/a                 | n/a   | 78.57   | 80.74 | 32.14 | 71.43 | 42.86 |
| Anxiety   | n/a                 | n/a   | 91.07   | 73.21 | 0.00  | 69.64 | 39.29 |
| <i>Interpretation:</i>  |                     |   | Higher scores reflect improvement due to 2 <sup>nd</sup> intervention (C - Cue-controlled relaxation) compared to 1 <sup>st</sup> intervention (B – Massed practice). |       |       |       |       |

\* = Significant at  $p = <.05$ . <sup>1</sup>If baseline trend is not significant, Tau between phase effect size is reported ( $\tau^{AvsB}$ ). <sup>2</sup>If baseline trend is not significant, Tau-U between phase effect size is reported ( $\tau^{AvsB - trendA}$ ).

### 3. Descriptive analysis

Table 2: Means and Standard deviations of each phase

| Idiographic measure | Means (SD)                      |                                       |                                       |
|---------------------|---------------------------------|---------------------------------------|---------------------------------------|
|                     | Baseline (Phase A)<br>(14 days) | Intervention 1 (Phase B)<br>(28 days) | Intervention 2 (Phase C)<br>(28 days) |
| Utterances          | 7.43 (1.55)                     | 7.68 (2.02)                           | 5.86 (1.78)                           |
| Gestures            | 18.14 (2.54)                    | 17.86 (1.63)                          | 13.96 (2.76)                          |
| Attention           | 6.93 (1.00)                     | 6.32 (0.90)                           | 5.07 (0.98)                           |
| Anxiety             | 8.00 (1.11)                     | 7.46 (1.14)                           | 6.64 (0.87)                           |

#### 4. Nomothetic measures

Table 3: Nomothetic measures and reliable and clinically significant change analysis

| Nomothetic measure | Outcomes         |                       |                       | Norms                   |             | RCSI analysis            |                  | Pre-baseline A to post-intervention B |                       | Pre-baseline A to post-intervention C |                       |
|--------------------|------------------|-----------------------|-----------------------|-------------------------|-------------|--------------------------|------------------|---------------------------------------|-----------------------|---------------------------------------|-----------------------|
|                    | Pre-baseline (A) | Post-intervention (B) | Post-intervention (C) | Community/ non-clinical | Clinical    | Reliable change criteria | Clinical cut-off | Reliable change (Y/N)                 | Clinical change (Y/N) | Reliable change (Y/N)                 | Clinical change (Y/N) |
| TODS-PR            | 78               | 69                    | 45                    | Unavailable             | 75.2 (34.1) | >26.73                   | -                | N                                     | -                     | Y                                     | -                     |

TODS-PR– reliable change criteria based on Cronbach alpha value of 0.92 and sample SD=34.1. No defined clinical cut-off and community norms unavailable so Clinically significant change could not be calculated.

#### *Summary of findings*

**Visually** – The number of utterances, gestures and difficulty paying attention all appeared to be mostly unaffected by the first intervention, but showed improvement during the 2<sup>nd</sup> intervention suggesting Cue controlled relaxation was an effective intervention for those three outcomes, but Massed practice was not. Neither intervention appeared to be overly effective for reducing anxiety.

**Statistics** – Baseline trend assessments indicated there was a significant baseline trend for the gestures outcome with symptoms deteriorating during the baseline (significant  $Tau^{trendA}$ ). There was no baseline trend evident for the three other outcomes. Tau-U effect sizes indicated that the difference between baseline and Massed practice (B) was only significant for number of gestures, whereas all the Tau-U effect sizes for baseline versus Cue-controlled relaxation (C) were significant for all four outcomes. The same pattern was seen in the non-overlap effect sizes, with larger effects for the Baseline versus Cue-controlled intervention phase. In general, the different non-overlap effect sizes were relatively similar, although PND (is known to have limitations). and IRD were more variable. The comparison of the B phase with the C phase also suggested Cue-controlled relaxation was a more effective intervention than Massed practice, with higher non-overlap scores.

**Nomothetic** – TODS-PR did not show reliable change between baseline and the end of B phase (Massed practice), but by the end of the C phase (Cue-controlled relaxation) it had shown reliable change.