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The Learning Disability Research Unit

The University of Huddersfield
Floor effects on the WISC-IV and WAIS-III

By

Simon Whitaker
and
Shirley Gordon
IQ tests

Wechsler Adult Intelligence Scale (WAIS)

Wechsler Intelligence Scale for Children (WISC)
Raw score and scaled scores

Raw score on subtests are converted to normalised scaled scores with a mean of 10, a standard deviation of 3 and a range between 1 and 19.
Sum of scaled scores

The IQ figure is calculated from the sum of scaled scores of all the subtests that measure IQ.
Floor effect 1:  
Scaled score of 1 for low raw scores  

WISC-IV Digit Span  
Age group 16:00 to 16:30  

Raw Score:   18  17  16  15  14  13  12  11  10  0-9  
Scaled Score: 10  9  8  7  6  5  4  3  2  1  

Age group 6:00 to 6:30  

Raw Score:   11  10  8-9  7  6  5  -  4  3  0-2  
Scaled Score: 10  9  8  7  6  5  4  3  2  1
Floor effect 2:
Scaled score of 1 for raw scores of zero

Where there is a raw score of zero there is no indication what abilities, if any, the client has on the subtest.

The current manuals for the WISC-IV and WAIS-III suggest that if a client gets too many raw scores of zero, IQ scores should not be reported. For example on the WAIS-III a FS IQ should not be given unless the client has raw scores above zero on at least three Verbal and three Performance subtests.
Floor effect 3:
Allocating based IQs or Index scores to low sums of scaled score.

WISC-IV FS IQ
SSS: 22 21 20 19 18 17 16 15 14-10
FSIQ: 45 44 44 43 42 42 41 41 40

WAIS-III FS IQ
SSS: 25 24 23 22 21 20 19 18 17 16-11
FSIQ: 50 50 49 49 48 48 47 46 46 45
Whitaker and Wood (2008)

50 WISC-III: Mean FSIQ 58.04; SD 9.92
49 WAIS-III: Mean FSIQ 65.20; SD 7.03
Frequency of WAIS-III scaled scores

Frequency of WAIS-III scaled scores
Frequency of WISC-III scaled scores
Proportion of scaled scores on WAIS-III for IQs in 50s
Proportion of scaled scores on WAIS-III for IQs in 60s

![Bar chart showing the proportion of scaled scores on WAIS-III for IQs in 60s. The x-axis represents scale scores from 1 to 13, and the y-axis represents the proportion of scale scores ranging from 0 to 0.3. The bars peak at scale scores 5 and 6, indicating the highest proportion of scaled scores in that range.]
Proportion of scale scores on WAIS-III for IQs in 70s
Percentage of scaled scores on WISC-III for IQs in 40s
Percentage of scale scores on WISC-III for IQs in 50s
Percentage of scale scores on WISC-III for IQs in 60s
Percentage of scale scores on WISC-III for IQs in 70s
Criteria for Scaled Score 2 on WISC-III and WAIS-III

Coding

<table>
<thead>
<tr>
<th>WISC-III</th>
<th>WAIS-III</th>
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<tbody>
<tr>
<td>raw score 39</td>
<td>raw score 14</td>
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</table>
### Criteria for Scaled Score 2 on WISC-III and WAIS-III

<table>
<thead>
<tr>
<th>WISC–III Block Design</th>
<th>WAIS-III Block Design</th>
</tr>
</thead>
</table>
| Raw score 29
Completion of one 2-block model and six 4-block models gaining full bonus points for time on three of the models. | Raw score 3
Completion of two 2-block models, being given a second trial on one model if an error occurred on the first trial. |

Gave the WISC-IV and WAIS-III to seventeen 16-year-olds in special education.

<table>
<thead>
<tr>
<th>FS IQ</th>
<th>WISC-IV</th>
<th>WAIS-III</th>
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<tbody>
<tr>
<td>53.00</td>
<td>64.82</td>
<td>11.82</td>
<td>.93</td>
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Distribution of Scaled Scores WAIS-III
Distribution of Scaled Scores corrected for Floor Effect (WAIS-III)
Distribution of Scaled Scores (WISC-IV)

![Graph showing the distribution of scaled scores with percentage on the y-axis and scaled scores on the x-axis. The graph illustrates the distribution of scaled scores ranging from 1 to 13, with the highest percentage at scaled score 1, and decreasing percentages as the scores increase.]
Distribution of Scaled Scores Corrected for Floor Effect (WISC-IV)
<table>
<thead>
<tr>
<th>Subjects</th>
<th>Uncorrected</th>
<th>Corrected</th>
<th>Difference in</th>
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<td>WISC FS IQ</td>
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<td>2</td>
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<td>56</td>
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<td>3</td>
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<td>3</td>
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Conclusions

• WAIS-III floor effect could be corrected.
• The accuracy of the WISC-IV must be severely compromised by floor effects.
• WISC-IV floor effect should be corrected but it is not clear by how much.