STEC Guidance

The Wide Range Assessment of Memory and Learning 3 (WRAML 3)

June 2024

Author:	Wayne Adams, David Sheslow
Publisher:	Pearson
Date of standardisation:	2021
Age range:	5-90
Access level:	Psychologists only
Cost	£1062.56 including VAT

Test content: what tests does it include and what do they measure/evaluate?

What is its purpose or design?

The WRAML 3 is a battery of tests that examines memory, attention and concentration

How is it organised?

There are 17 subtests in total that are organised into three groups:

- Immediate recall subtests
- Delayed recall, recognition and working memory subtests
- Additional subtests

The 17 subtests are organised into core subtests and supplementary subtests

Core subtests (6 subtests):

Picture Memory

Story Memory

Design Learning

Verbal Learning

Finger windows

Number Letter

Supplementary subtests (10 subtests)

Picture Memory delayed recall

Story Memory delayed recall

Design Learning delayed recall

Verbal Learning delayed recall

Picture Memory recognition

Story Memory recognition

Design Learning recognition

Verbal Learning recognition

Visual Working Memory

Verbal Working Memory

Additional subtest (1 subtest)

Sentence Memory

Index scores

Subtest scores are used to produce composite index scores as follows (subtests used are in brackets):

- **Visual immediate Memory** (Picture Memory and Design Learning)
- **Verbal Immediate Memory Index** (Story Memory and Verbal Learning)
- **Attention/concentration Index** (Finger Windows and Number Letter)
- **Visual Delayed Index** (Picture Memory Delayed and Design Learning Delayed)
- **Verbal Delayed Index** (Story Memory Delayed and Verbal Learning Delayed)
- **Visual Recognition Index** (Picture Memory Recognition and Design Learning Recognition)
- **Verbal Recognition Index** (Story Memory Recognition and Verbal Learning Recognition)
- **Working Memory Index** (Visual Working |Memory and Verbal Working Memory)

Superordinate Index scores

The index scores listed above can be used to calculate four superordinate index scores:

- **General Immediate Memory Index** (Visual Memory Index, Verbal Memory Index and Attention/concentration Index
- **General Delayed Index** (Visual Memory Delayed Index and Verbal Memory Index)
- **General Recognition Index** (Visual Memory Recognition Index and Verbal Memory Recognition Index)
- **Screener Memory Index:** (Visual Immediate Memory I dex and Verbal Immediate Memory Index)

SHORTENED VERSIONS OF ASSESSMENT

Screener Memory: Made up of Picture Memory, Story Memory, Design Memory and Verbal Learning subtests

Brief assessments:

- ***Brief Immediate Memory Index BIMI:*** Story Memory and Design Learning
- ***Brief Delayed Index BDI:*** Made up of Story Memory Delayed and Design learning Delayed subtests
- ***Brief Recognition Index BRI:*** made up of Story Memory Recognition and Design learning Recognition

What types of score does it offer?

The subscales give scaled scores and the composite index scales give standard scores. Scoring can be hand scored or electronically via Person's Q Global Platform

There is guidance for giving process scores for some of the subtests. Process scores are: *'provided to quantify what otherwise would be various qualitative observations of test performance. Such scores can be useful in determining how an examinee obtained a scaled score and thereby provide some diagnostic usefulness.'* (Administration Manual page 10). There are different process scores for the subtests, set out in detail on pages 11 and 12 of the administration manual, For example, commission errors in Picture Memory (the examinee marks a detail that has not been changed) or quadrant analysis in Design Learning (measures the number of details recalled by the examinee per quadrant).

Parallel forms?

There are no parallel forms of the test.

Description of individual subtests

VISUAL MEMORY

Picture Memory (pictures for 5-9 years; pictures for 10-90 years) - looking at a picture for 10 seconds and then being given a similar picture but with some parts changed added or moved. Examinee recalls any differences and then shown the original picture again for 20 seconds see if they can add other differences they might have missed

Design Learning - drawing out an observed design of 18 geometric shapes, after 10 seconds delay which is after 10 seconds exposure to the design and chance to increase learning over 4 trials.

VERBAL MEMORY

Story Memory: recall of two short stories (stories 5-9 years; stories for 10-90 years)

Verbal Learning of a list of words over 4 learning trials (13 word list for 5-9; 16 word list for 10-90 years)

ATTENTION AND CONCENTRATION

Finger Windows: memory for motor sequence of pencil going through a hole

Number Letter memory: memory for recalling a series of numbers and letters verbatim (also verbal memory)

SUPPLEMENTARY SUBTESTS

Delayed recall and recognition memory for visual and verbal material

Visual:

Picture Memory Delayed; **then** ***Picture Memory Recognition*** - after 20-30 minutes since the Picture Memory test was administered

Design Learning Delayed**; then** ***Design Learning Recognition*** - after 20-30 minutes since the Design Learning test was administered

Verbal

Story Memory Delayed; **then** ***Story Memory Recognition*** - after 20-30 minutes since the Story Memory test was administered

Verbal Learning Delayed; then Verbal Learning Recognition - after 20-30 minutes since the Verbal Learning test was administered

VISUAL AND VERBAL WORKING MEMORY

Visual: recalling the pictures that have been pointed out from a sheet of lots of pictures, and putting them in a different order according to e.g. category or size)

Verbal: (different sets in age group 5-9 and from 10-90) Examinee listens to words of animals and non animals and say them back animals first and then non-animals, the size variable is added for 10-90 range

Additional subtest: Sentence Memory (recalling by rote contextual verbal material): Repeat the sentence with increasing semantic and syntax complexity

The sequence of administration is set out in the manual. Visual and verbal subtests and alternated and if this pattern is followed there should be sufficient time between subtests to facilitate delayed recall. The standard administration is to administer all 17 subtests in the order that they appear in the manual.

Ease of administration and clarity of instructions

Overall the instructions are clear. The only subtest that caused some administration problems was working memory as it wasn't immediately obvious how many trials to carry out (the instructions in the examiner's manual did not match up with what was being recorded on the record sheet). There are some Americanisms which would disadvantage UK pupils (for example a jar of jam is called jelly). A stand for the Working Memory acetates would be useful.

Relevance to a diagnostic assessment – what useful information does each test provide and where would this be used within the report format

Information obtained from the WRAML would fit into the cognitive profile section of a diagnostic report. Working memory is a key diagnostic criterion; therefore, the WRAML is a useful tool for assessing this. It is also useful to be able to compare immediate and delayed recall, because this might lead to implications for teaching and learning in the recommendations section of a diagnostic report. The distinction between visual verbal memory can be used to support recommendations about the modality in which material is presented to the learner in order to facilitate optimum recall (but at the same time identify an area of weakness that might be supported)

Information provided in manual or other documents about analysing responses and what they reveal

The Administration manual includes a chapter about interpretation, which gives information related to all of the Index scores, interpreting subtests and interpreting process scores

Information provided in manual or other documents about observing and interpreting behaviours

This is not covered in detail due to the use of the process scores (see above*): 'while behavioural observations can aid in formulating opinions about an examinees effort, the WRAML3 also provides a quantitative measure reflecting effort. Two embedded measures are combined to provide an overall estimate of performance validity. The first is the score on the attention/concentration index. The second indicator is the sum of scores from the first five items of each of the four recognition tests.'*

(Administration Manual page 13). Chapter 4 provides information on how to interpret these scores.

Additional information provided about diagnosing SpLDs

This test is not designed as a SpLD diagnostic test. However, there is a case study of a 'specific learning disorder-reading' in the Technical Manual.

Rigour of standardisation

Sample representative of US English speaking population aged 5 to 90 years. Demographics given on page 22 of the Technical Manual. Race and ethnicity represented in the sample. Large sample. Reliability compares well with other measures.

Points to Consider:

- Real life school type task e.g. story memory
- Differentiating between the recognition and recall so showing how multiple choice format can really support student if they have significant difficulties
- Measuring the learning over trials to gain an appreciation of the exposure and practice required to shift progress e.g. dynamic learning (learning slope analysis)
- Visual focus on memory learning is helpful
- Flexibility of administration: the whole test does not have to be administered
- Helpful to have immediate and delayed recall
- Range of index scores can be obtained, Index scores can be compared. This means that a more detailed and nuanced assessment of different aspects of memory can be made, which is helpful when feeding back,
- The WRAML clearly shows that there are many elements of memory, which is also useful for feedback
- Correlations to other assessments are not very strong
- Americanisms
- It might not be helpful to rely solely on the attention and concentration score to comment on this area
- Weak reliability for the attention and concentration subtests