

Interpreting Psychometric Assessments – The WISC III Demystified

By Molly Tweedie, Educational Psychologist

A large number of school age children are referred to Learning Links because they are not developing literacy skills.

Their parents and teachers are concerned that the child, who appears to be of average ability and has some very good skills and abilities just doesn't seem to be able to read like their peers.

The child often started school learning letters and sounds like many of the other children, getting by until the end of Year 2 or the beginning of Year 3 by depending upon their sight word vocabulary – words they know just by looking at them.

As Year 3 progresses, children who are not keeping up with their peers' reading abilities can become frustrated and self-esteem suffers. Often homework time is a nightmare because reading impacts on all areas of learning. Parents become frustrated because there doesn't seem to be any reason for this slowing of progress and try to find help.

Many are referred to Learning Links in the hope that an assessment will show a reason for their child's learning difficulties and where they can get help.

Reading difficulties often don't show up until a child has moved from infants to primary school. Early school reports usually indicate that the child has been coping, reading and understanding what they read and writing simple stories.

Up until the beginning of Year 3 children can manage with a sight vocabulary of approximately 400 words. By Year 4, the vocabulary of words that appears in their books increases dramatically to about 4,000 and this increases again to about 7,000 by Year 6.

A child relying on a small sight vocabulary can not possibly cope with increases such as these. Hence difficulties start to become more apparent and a child's behaviour and self-esteem can suffer.

The earlier a child's difficulties are detected, the better will be their success in catching up. A child who is two years behind in Year 4 must develop their reading twice as fast as their peers if they are to catch up by the end of Year 6.

How do we assess whether your child has a learning difficulty?

When a parent asks for an assessment of a child with possible learning problems, one of the assessments often used is a Psychometric Assessment, which determines a child's potential for learning and current level of cognitive functioning (IQ).

This test will determine whether there is a difference between a child's ability and their performance or whether they are finding it hard to learn because they have lower cognitive skills (or IQ).

For many, a Psychometric test can be a source of bewilderment and frustration, but if correctly explained and understood, the psychometric report should give you an insight into how your child learns most effectively.

A Psychometric Assessment is a test of your child's intelligence and for children between the ages of 6 and 16 years 11 months, the Wechsler Intelligence Scale for Children – Third Edition (WISC III) is used.

The WISC III is an individually administered and standardised test and is one of three tests that belong to the Wechsler family. The other two tests cover children between 4 and 7 (WPPSI-R) and adults (WAIS III).

Learning Links is a non-profit charity assisting children who have difficulty learning and their families.

We raise funds to help children from birth to 18 years by offering a range of services including the following.

Early Childhood Services for children from birth to six years.

- Early childhood intervention and support for very young children.
- An inclusive preschool for children with and without special needs.
- An assessment and consultancy service for families who are concerned about their young child's development.
- Specialist early childhood teaching and therapy.

School Age Services for children from Kindergarten to Year 12 who have low support needs.

- Comprehensive assessments.
- Small group tuition and therapy.
- Occupational and speech therapy programs combining specialist education services and therapy.
- Outreach programs.
- The Ronald McDonald Learning Program for seriously ill children and the Reading for Life Program for children falling behind in their reading.

Family Services helping and supporting families and health professionals.

- Centre and home-based family counselling.
- Parenting Programs and groups for families.
- Case Management Services.

Professional Development for teachers and health professionals.

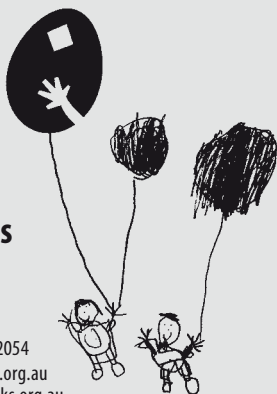
Presentations, workshops and advice on identifying and helping children with learning difficulties, learning disabilities and developmental delays.

Learning Links has branches in six Sydney locations at Peakhurst, Penshurst, Fairfield, Miller, Dee Why and Randwick. We also offer some services to children in country NSW, the ACT, Victoria and New Zealand. A complete list of branch locations and contact numbers is on the back cover.

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The WISC III is an achievement test and measures past accomplishments to predict success in a traditional school setting.

What does the WISC III involve?

The test consists of two scales – Verbal and Performance.

Each of these two scales is made up of 6 sub-tests. Of these 6 sub-tests, the results of 5 are used to produce the overall scores for each scale. We can also combine some of the sub-tests for more accurate scores of particular skills.

Verbal Scale

The Verbal Scale is an overall measure of a child's ability in language related areas. It includes their understanding of language (such as understanding instructions) as well as their ability to answer questions. The quality of the answers can give valuable information about verbal skills and language processing.

The Verbal Scale is made up of the following sub-tests:

- Information – testing general knowledge such as days of the week, famous people and simple science concepts,
- Similarities – the ability to perceive the relationships between two objects,
- Arithmetic – arithmetic reasoning and mathematical concepts,
- Vocabulary – meanings of words,
- Comprehension – understanding of social rules and common sense regarding personal safety or social situations, and
- Digit Span – a recall of random sequences of digits, both in direct and reverse sequence.

The Digit Span is not used when calculating the overall result.

In the Similarities, Vocabulary and Comprehension sub-tests, answers can score either 0, 1 or 2 points. An answer that earns two points shows that the child demonstrates a good understanding of what is being asked as well as an understanding of a generalisation or abstract idea.

Examples of this type of question are as follows.

Similarities sub-test question:
How are a cat and a mouse alike?

Possible Answers:

The cat chases the mouse – 0 points

They are both pets or they both have fur or are brown – 1 point

They are both animals – 2 points

Vocabulary sub-test question:
What does ancient mean?

Possible Answers:

Something over 50 years old – 0 points

Something very old – 1 point

Something from a very long time ago; hundreds of years old – 2 points

If we want to get a 'purer' indication of a child's verbal ability, we can compare the Verbal Scale score with the Verbal Conceptualisation Index score, which takes out the score for Arithmetic.

Unless a child's score for Arithmetic is very high or low, the two scores will not vary greatly.

If we add the Arithmetic and Digit Span scores together, we get what is called the Freedom from Distractibility Factor. This factor is an indicator of a child's ability to pay attention and remember and use information as in both the Arithmetic and Digit Span sub-tests the child has to listen, remember and reply. Their performance is significantly affected if their attention is poor.

Performance Scale

The Performance Scale is a measure of perceptual organisation. It includes the ability to think in visual images and manipulate those images with fluency and speed; to reason without the use of words; and to interpret visual material quickly.

It provides information about visual processing, planning and organisation skills, attention, non-verbal learning and memory.

The Performance Scale comprises:

- Picture Completion – identifying the missing part of a picture of a common object,
- Coding – copying symbols that are paired either with shapes or numbers,

- Picture Arrangement – arranging picture cards in a logical sequence to tell a story,
- Block Design – copying patterns presented on cards using blocks,
- Object Assembly – creating whole objects from their parts, and
- Symbol Search – scanning an array of symbols to identify if a target figure appears in the array.

Symbol Search is not always used when calculating the overall result for this scale, although many assessors prefer to use Symbol Search rather than Coding because of a better fit (or correlation) with the other sub-tests on this scale.

We can work out two Indexes from the sub-test results in the Performance Scale. These indexes are Perceptual Organisation (PO) and Processing Speed (PS). Perceptual Organisation consists of the four sub-tests without Coding or Symbol Search. These latter two sub-tests combine to form the Processing Speed Index.

The overall Performance Scale score can be compared with the PO index for a clearer indication of a child's visual spatial skills. The PS score is also a check on motivation and attention as it is unlikely that a child will score highly on these two relatively routine tasks if they are poorly motivated.

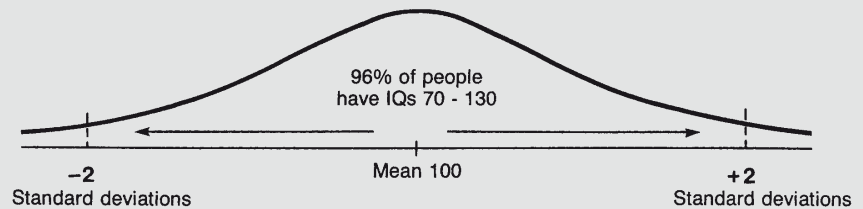
Scores on the Performance Scale are likely to be more vulnerable to other influences such as vision and physical ability. If a child has poor vision, he or she may not be aware of what is missing to complete a picture or subtle changes in a picture for the Picture Arrangement sub-test.

Poor physical skills may mean that a child is slow arranging the pieces in the Object Assembly sub-test and keeps knocking them out of line. They may also show up in slowness with pencil and paper tasks.

Despite the fact that the results of all sub-tests are not used, they all need to be administered as the additional scores add to the amount of information the assessment can give you and can help with an overall understanding of the child's performance.

INTELLIGENCE

Intelligence is like money – if you have it but don't use it, it is useless. There are lots of stories of misers dying of hunger because they won't spend their own money. Similarly there are stories of people with IQs of 200 doing work requiring little intelligence.



Intelligence or IQ is generally thought to be normally distributed within the population. What this means is that if we grouped everyone's intelligence levels together the result would be a graph like a bell:

The average IQ for the Wechsler Scales of Intelligence is 100.

The majority of people (68.26% or two thirds of the population) would have an IQ between 85 and 115 – 15 points (or technically one standard deviation) either side of the average IQ of 100. A further 27.2% would have IQs from 70 to 85 and 115 to 130.

The further we move away from the average IQ of 100, the smaller the number of people with IQ levels in each segment. If we move out to IQ ranges of 55 to 70 and 130 to 145, we will find only 4.28% of the population have IQs within these ranges. Less than 1% of the population has IQs below 55 and above 145.

When we talk in descriptive terms about IQs, we usually talk in ranges of ten points, not 15. So when we say someone has average intelligence, their score would be between 90 and 109, or 10 points either side of the average. A high average score is 110 – 119, superior 120 – 129, and very superior above 130.

Going the other way, between 80 and 89 is low average, 70 – 79 is borderline and between 55 and 70 there is a mild disability. Below 55 is a moderate disability.

Interpreting and Analysing the Results

Each sub-test in both Verbal and Performance Scales has a range from 1 to 19, with scores between 8 and 12 considered average.

The sub-test scores are added to create the Verbal and Performance Scales and then these two results are added together to give the Full Scale score.

The results from the two tests are often similar and the test assumes a child's skills are fairly evenly distributed.

It is quite common for children to have a large difference between their Verbal and Performance scores and that these differences do not necessarily represent significant difficulties.

About 40% of children, adolescents and adults without any learning difficulties have discrepancies greater than 11 points between their two scores. There is a strong chance (about 95%) that the difference is not due to random causes but is a true reflection of the child's ability.

Children with average intelligence or above without a specific learning difficulty generally find learning easy. They appear to acquire knowledge 'out of the air' and they constantly surprise their parents with what they know.

They understand language readily and express themselves well. There may be the odd time when they have some difficulty grasping a new concept especially in Maths, but learning generally moves along steadily.



A student with an IQ in the low average to borderline range, especially if the Verbal Scale score is low, will experience more difficulty learning.

For them instructions need to be kept simple and direct and, especially with younger children, supported with lots of visual material. Lessons need to be summarised and important information highlighted. They need lots of repetition and new ideas should be discussed before a topic is learnt.

They will generally continue to need concrete aids much longer than their peers with average IQs. Maths will often be a stumbling block for them, especially the more complex ideas such as fractions, decimals and percentages.

With the integration of children who have cognitive skills (or an IQ) in the borderline to mildly disabled range (IQs of 80 and below), teachers will be no doubt reading more and more Psychometric Assessments results for their students.

A child with an IQ within the range of mild cognitive disability will have very different needs from even a child in the borderline range.

The disability may affect all levels of functioning and the old form of reporting (giving a mental age) was perhaps helpful when it came to establishing expectations for that child.

The difference in IQ becomes more apparent as the child with a mild cognitive disability moves through school. They can cope well in the infants' years, especially if they have adequate language and social skills.

As academic demands increase, the gap becomes wider and it is often about Year 4 that it becomes particularly noticeable.

By Year 4, the majority of children with average IQs are reading and writing competently, they have sophisticated language use and are beginning to reason abstractly. A child whose mental age is closer to six is finding it increasingly difficult to keep up.

The results from IQ testing should tell you not only what a child's overall level of ability is, but also whether they have strengths in verbal and visual-spatial areas.

The analysis of sub-test results will give more specific information and should indicate whether the child is having problems with language-based activities, short-term memory or other areas.

It is important to feel that you understand a child's results. If there is anything that concerns you when you read a Psychometric Assessment, we suggest you contact the relevant Psychologist to clarify the results.

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– contact your local branch

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– contact your local branch

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