Understanding Intellectual and Achievement Assessment Findings
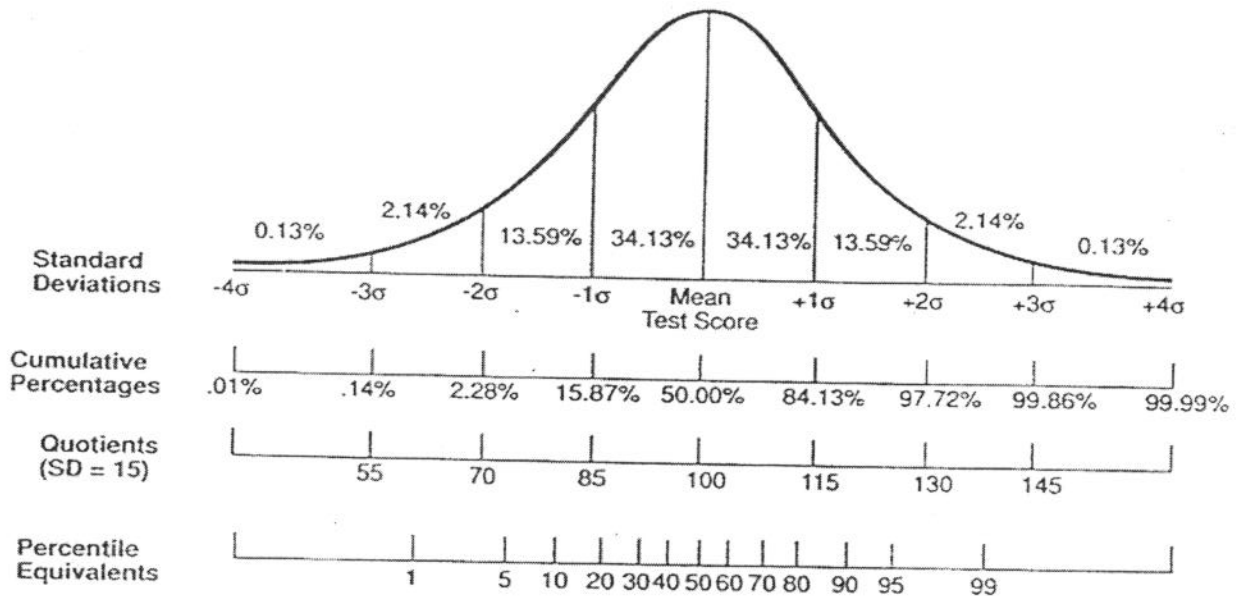
Figure 4

Figure 4 shows the normal curve with Standard Deviations, Cumulative Percentages, Quotients and Percentile Equivalents. This figure combines the prior three figures and allows you to see the relationship of the scales.

(See ArticleTest Scores: A Guide to Understanding and Using Tests)

Standardized test scores are reported in a variety of ways but most can be understood using the "Normal Distribution" Concept. The diagram above shows how Standard Deviations, Percentiles and Quotients are represented on a normal distribution curve. These metrics (i.e. reported numbers on assessment reports) can be compared within and across tests.

This is actually a simple concept. When measuring human traits, behaviours or skills, the scores or performance ratings tend to be distributed like a curve when graphed. In other words, a small number of people perform very poorly, more people perform within the "average range" and a few people perform better than the majority. (This is somewhat simplified as human behaviours vary within the individual and actual performance is on a continuum, not clearly discreet increments.)

An example: if we randomly select 100 children of exactly the same age and administered a familiar task, about 2 children would perform very poorly (far-below average), and about 14 would perform slightly better (below average), about 68 would perform similarly and be considered an "average" performance because the majority would be represented. About 14 would perform somewhat better (above or high average to superior) and 2 would perform far above the others (very superior or gifted).

REPORTED SCORES ON REPORTS OF INTELLIGENCE OR ACHIEVEMENT

<u>Obtained score (raw score)</u>: The score the child achieved during a particular assessment session. Children perform differently on different days and under different circumstances. A small amount of change in scores is expected and examiners consider this "error" when interpreting the findings of an assessment. Well constructed tests (such as the IQ tests Wechsler scales and Stanford Binet) have been proven to be quite stable over time and administrations.

The following scores can be compared within and across standardized tests.

<u>Standard Scores:</u> Standard Scores are reported on a scale on which the mean is 100 and the average range is 85-100.

Standard scores express how far a child's obtained score is from average (mean) score obtained from children of the child's age or grade. It also gives consideration to the standard deviation (the average change in children's scores over several administrations of a task.) Knowing the "mean" and "standard deviation", the examiner can interpret a child's obtained score and report how different the performance is from that of the majority of children of the same age.

<u>Percentiles</u>: Reported on a scale from 1-100 with 50 the mean (average) score. These are derived scores that allow the child's score to be compared to the scores of other children of the same age or grade. The percentile indicates the percent of children who obtain a score at or below the child's obtained score. (Percentile do not reflect equal distance – 2% of individuals achieve scores below a standard score of 70 while 68% obtain scores between 85-115).

<u>Age Equivalent scores</u>: A.E. reflect the age at which children, on average, obtain a score or demonstrate a skill the same as the child's obtained score. For example, a reported age equivalent of 3 years 6 months (3:6) suggests that the majority (about 68%) of the children age 3:6 are able to do that task (or obtained that raw score).

Grade Equivalent scores: G.E. reflect the grade level, year and month, at which the enrolled children obtained a score the same as the child's obtained score. For example, a reported grade equivalent score of grade 5 during the 6th month (5.6) of school (i.e. February) suggests the majority (68%) of children enrolled at that time (February grade 5) can do the task or obtained the same raw score.

WHAT IS IQ and WHAT IS AN IQ TEST?

A General Intelligence Quotient Score (IQ Score) is a statistically derived number, achieved through testing tasks that require different kinds of thinking and problem solving skills. The abilities that are measured are the ones people use to learn academic skills and to demonstrate their academic knowledge (i.e. reading, writing, mathematics). Actually, people have hundreds of specific mental abilities. Some of these abilities can be measured accurately some cannot. Some of these measurements (IQ tests) can reliably predict an individual's potential for academic achievement.

The IQ tests do not predict success or failure. There are many different reasons why students do well or do poorly in school, but sometimes, the IQ score helps in understanding why school learning is harder for some students than for other students.

An IQ test measures only a few of a human's mental abilities. Only a few abilities are measured in an IQ test, because they have been proven to predict academic learning. In a real IQ test, how high you score on some tasks, will strongly predict how high you would be expected to score on other abilities that are not measured directly.

The best reason for parents or teachers to know a student's IQ score is to have an independent observation of the student's potential for academic achievement. If a student's score is high, the student may find learning easier than others and could set realistic educational goals. In some cases, a high IQ and difficulty learning may indicate that the student has a learning difference and requires extra help to achieve to their level of ability. If a student's score is low, parents and teachers can use that knowledge to set realistic educational goals for the student that can be achieved using the amount of time and effort that that feel you can provide and provide appropriate support to reach those goals.

IT IS IMPORTANT TO REMEMBER:
- A high IQ score does not guarantee that an individual will achieve happiness, maintain sanity, or obtain spiritual growth.
- A lower IQ score does not mean that an individual will be unsuccessful financially, emotionally, or morally.
- There are people with "high IQ" and "average and lower IQ" in all walks of life. Most of the people you know would score as having "normal" or average intelligence on an IQ test.
- No test of human ability is capable of testing every kind of human ability. In every case, a test is just a "snapshot" of how you perform at that time. You could possibly be inaccurately measured by any test. No IQ test has ever been devised that measures all human intellectual abilities.