CHAPTER II

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HISTORICAL BACKGROUND OF INTELLIGENCE TESTING

Early Attempts

Intelligence tests as we today find them were never known anywhere in the world before the twentieth century. Although people have always been interested in the measurement of human attributes and embryonic studies can be traced even to ancient China. In the early days, there was a tendency to forecast the intelligence of a person by looking at his external and physical features. In 1927, Lavater wrote his essay on Physiognomy "destined to make man known and loved" in which he stressed upon the examination of facial features and expression to judge the disposition and capacities of the mind. But Lavater's theory was challenged by Charles Bell, in his book "Anatomy of Expression" in 1806.

During these days, there was also a tendency to accept phrenology as a scientific device to know the working of mind. But this method too, was found futile. Casare Lombroso advocated that the visible deformation of the body, particularly of the head, had direct connection with the mind. But this doctrine, too, was rejected by Francis Galton in 1906. Thus all these early attempts to measure intelligence from outward measures of physical structure failed.
For the testing of learned scholars or selecting high officers, a variety of puzzles, conundrums and problematic situations used to be set before them in the court of Hindu Kings in ancient India and the 'darbars' of Muslim rulers in the medieval times, and the correct solutions were either expected instantaneously or after a specific period.

Although such attempts at measuring intelligence were made in India and other eastern countries, the honour of establishing them on a scientific scale goes to the psychologists of western countries.

Attempts in the Nineteenth Century

However, it was only hundred years ago that the first systematic attacks were made on problems of intelligence measurement. The nineteenth century was a period of great progress in the physical sciences. The progress of physical sciences influenced the methods of mental measurement. It was during this period that psychophysics was born.

Until the last quarter of the nineteenth century, psychology was considered a branch of philosophy and introspection was the only method used for psychological measurement. In these early days, psychology the science of mind, was purely abstract and its laws were based on
introspection. During these days, the study of the working of the mind was done by the mind itself.

The first psychological laboratory was established at Leipsing (now in GDR) by Wilhelm Wundt in 1879. Since Wundt's time, experimental psychology has made great advances and psychological laboratories have been instituted in most European countries, in America and also in many developing countries like India. In 1979, century celebrations of the establishment of Wundt's laboratory were held in many parts of the world including India.

The principal aim of early psychologists of the nineteenth century was to formulate general description of human behaviour and not to study and measure individual differences. The attention was focused on the uniformities rather than on the differences in behaviour. The differences in reactions were regarded as error.

Researches in the beginning were concerned with lower senses. It was found that the tests of lower senses were not useful in the measurement of mental capacities. As tests of lower senses failed to discriminate among the persons with different mental capacities, the tests of higher senses such as tests of acuity of seeing and hearing were constructed. But they too, failed to give satisfactory results for mental measurement. Hence these tests did not get further encouragement.
Motivating Factors

Two factors influenced greatly the early movement of measurement of intelligence. One of these early motivating influence was the interest in the study of individual differences which some scientists possessed. Another influence grew out of attempts to measure the intelligence of the feeble minded. While discussing these motivating factors, Jorden says:

There were then, these two streams of influence which stimulated development of measuring instruments of intelligence: the theoretical one, which arose out of general interest in individual differences, and the practical one, which stemmed from the educational problem of separating feebleminded from normal children.

(Jorden, p. 53)

Galton was the first person to conceive and put into practice the idea of measuring intelligence by sensory discrimination. He devised methods of studying the sensory discrimination of different people. Pointing Galton's efforts, Guilford comments:

Galton was influenced by the traditional associationism of philosophical origin and by the physiological psychology of Alexander Bain. The former source of theory led to an emphasis upon measurement of motor qualities.

(Guilford, pp. 2-3)
In France, during the first half of the nineteenth century some work was done in more accurate differentiation among individuals with regard to mental abilities. Jean Esquirol (1772-80) made explicit the distinction between mental deficiency and mental illness. He also distinguished among the several levels of mental deficiency.

James McKeen Cattell of Columbia University was the first among the students of Wundt who established a psychological laboratory in Pennsylvania in 1883. According to Thorndike, it was Cattell who first refined the method of Galton. Some of his mental measurement experiments were based on memory and judgement along with those of sensory discrimination and motor movement. Cattell did much work in this field and published in the British Journal, 'mind,' his article on 'Mental Tests and Measurement.' Thus it was he who suggested the term 'mental tests' which was to become trade-mark for the whole measurement work. He also pleaded strongly for standardizing the procedure in giving tests and obtaining norms. Cattell's work in Columbia University was continued by Wissler. His Columbia Tests and their results were published in a monograph in 1901.

Another motivating factor for the development of intelligence tests was the problem of the feeble minded. At one period in history defective children were exposed
on a hill side to die, at another, regarded with a sort of religious awe and at still another, blamed directly for their condition and punished accordingly. A scientific interest in the insane and feeble minded and a deeper sense of social justice to all classes resulted in the modern attitude. A movement for the better treatment of the insane and feeble minded prosecuted vigorously during the nineteenth century. The physicians and psychologists paid their attention to this class and studied insanity and feeble mindedness.

It can be said that before Binet people did not recognize the significance of intelligence but history tells us that people used to take interest in the improvement of methods of diagnosis and treatment of the feeble minded and backward children. The earliest case of feeble minded person probably studied was that of a wild boy who was found by some hunters in 1797 in the woods of Aveyron in southern France. This wild boy of Aveyron was brought to Paris who aroused the keenest interest among the psychologists of the time. They believed that here was a case of a boy brought up in complete ignorance and totally unacquainted with the civilized world. They, therefore, set about training the child in the most scientific manner. Itard, a well known psychologists of the feeble minded, took up the case and worked hard to educate him. He worked very hard and
accomplished much but was unable to restore the child to complete normality. He gave up the work, thinking that the boy was an idiot and ineducable. After Itrad his pupil seguin started the work of coaching the feeble minded. Thus it was that psychologists began to realize that these feeble minded children were not a class by themselves, but were only at the lower end of the general population arranged in ascending order according to their mental abilities.

Thus these two factors motivated psychologists of various countries to device an instrument for intelligence measurement. Among the earlier workers in the field were Boston, Gilbert, Jastrow and Bagley in America and Krapelin, Oehrn, Ebinghaus, Burt and Binet in European countries. Reliable statistical methods evolved by Karl Pearson, Spearman and R.A. Fisher put the research work in the field of intelligence on the right line. Thus efforts of two traditions were the major influencing factors for the development of intelligence tests. While discussing the influencing factors and the role of statistical methods Nunnally remarks:

It was only during the last several decades that these two traditions have merged. The union of scientific technology and mathematics with clinicians approach and his concern with people produced a modern methodology of testing.

( Nunnally, p. 14 )
Binet Scales and Their Revision

Binet has done pioneering work in the field of measurement of intelligence. Young has quite properly said:

The contribution of Binet stand supreme for its general originality and the fact that he synthesized the growing movement into his now well known scale.

( cited by Freeman, p.40 )

Binet and his coworkers expressed a strong preference for the more complex tests and proposed that ten functions be explored by means of tests: memory, imagery, imagination, attention, comprehension, suggestibility, aesthetic appreciation, moral sentiment, muscular force and force of will and motor skill and judgement of visual space. In 1904, the French Minister of public Instruction appointed a commission to recommend means of educating subnormal children, in the school of Paris because these children were unable to profit from regular instructions. Binet, in collaboration with Theodore Simon, a medical doctor, undertook task for devising tests which could help the detention of mentally deficient children.

In 1905 he published a list of such tests arranged in order of difficulty. This scale consisted of 30 tests such as naming designed objects, sentence completion, comparison of lengths, repetition of digits and comprehension. The 1905 Binet scale was, however, very important because tests later
on were modelled on this basis. In this first scale the degree of intelligence at a particular level was measured by the number of tests passed by an individual. An idiot passes just the first six tests, an imbecile up to fifteen tests, and the feeble minded from 16 tests to the level of normal intelligence. A person with more than normal intelligence will pass more tests.

Binet’s first scale (1905) which he himself used in Paris, was also tried out by other psychologists in Europe. As a result of these trials and consequent suggestions and criticisms, a second and considerably revised scale was constructed which appeared in 1908. The idea of mental age was utilised in this revision. However, Binet himself does not state anywhere how he got the idea of preparing the age scale. Binet’s greatest contribution to mental testing is the concept of mental age. In this revision, tests are classified for each age from three to thirteen years. The examiner administers tests in order of increasing difficulty. He starts at a point when the child can probably pass all tests, and proceeding upwards until he fails on all tests. Then mental age is calculated. It is equal to the age at which all tests are passed plus one year for every five tests passed. The mental age thus calculated gives a measure of the child’s mental maturity, but not his intelligence or brightness.
When the Binet Simon Scale of 1908 was used on children and its results reported, some of the weaknesses of the tests were brought to light. Degand in Belgium, Robertage in Germany, and Goddard in America pointed out that individual tests in the Scale were not properly placed, and that some of the tests were too easy, and some too difficult. For the lower ages tests were too easy and for the upper ages the tests were too difficult. The system of calculating mental age was also defective. Binet took account of the findings and criticisms of the above mentioned psychologists. As a result of these and his own investigations, he published his 1911 revision. The major changes made in 1911 revision were the following:

1. Four of the tests at 11 year level were raised to 12 year level.
2. All 12 year level tests were raised to the 15 year level.
3. The three tests of year 13, plus two new ones constituted a new adult level.
4. A few tests were placed at either higher or lower age level.
5. Several tests found in 1908 scale were omitted from the 1911 scale because of their too much dependence on school learning.
The Binet Simon tests were adapted by the psychologists of different countries. In England in 1922, Burt published the London Revision of the Tests known as 'Mental and Scholastic Tests.' In America Terman carried out his revision between 1913-16, and named it 'Stanford Revision and Extension of Binet Simon Scale of Measuring Intelligence.' In Germany, Bobertage issued his revision in 1913 and in Italy, the psychologist Saffiotte issued a similar revision for his country.

Among these most known revisions are the Stanford Revision of Binet Scales 1916, 1937 and 1939. Terman and Merrill prepared three revisions in order to provide an adequately standardized instrument for the use in the United States. The 1916 scale includes 90 test items, covering an age range from 3 years to 14 years, with a group of test items added at the "average adult" level and another at the "superior adult" level. Out of these 90 items, 54 were adapted from 1911 Binet Scale, 5 from earlier Binet Scale, and 4 from other American tests and 27 were newly constructed.

Though Terman has not included any new concepts or principles, he did extend, refined and adapt the Binet Scale so that it can be a better standardized and more valid and reliable instrument for mental measurement. At each age level,
he included alternative tests, which are to be used by
the examiner in case he finds any other item or its
administration inappropriate. They also made some impor-
tant changes in the method of scoring. Test items at each
age levels from 3 to 13 carry credit of two months each.
There are no separate tests for 11 year level and 12 year
level as the author was unable to device one that would
indicate a one year difference at this stage of mental
development. Thus eight items at 12 year level and six
items at 14 year level cover the credit of two years. The
possible highest mental age on this Scale is 19.5 and
the persons having mental ages above 17 are considered
"superior adults." Terman designed IQ tables, a
calculated IQs for each examined subject, analyzed the
distribution of IQs and gave a classification of IQs for
groups like genius, very superior, superior, normal, dull,
borderline, deficient and feeble minded.

It was experienced that 1916 Revision of Stanford-
Binet was inadequate as a measure of adult mental capacity.
This revision was also criticized on several other grounds.
As it was standardized on 1000 native born white children
its validity was considered doubtful. It was also criticized
for its heavily weighted verbal and abstract materials.
The scale was also found to be defective at some points with
respect to procedures in administration and scoring.
In the light of experiences, criticism and accumulated data the 1937 Revision of Stanford Binet was published. So far the basic assumptions, conceptions, methods and principle of age scale are concerned, the 1937 Revision does not differ either from 1916 scale or the original Binet Simon Scale. The 1937 Scale has two equivalent forms (L and M), each of which contains 129 items, covering the age range two years to three levels of 'superior adults.' From the age of 2 to 5, this Scale provides group of test items at half year intervals. The half year intervals are possible because the rate of mental growth is more rapid in the earlier years. At the earlier age levels, the scale does provide more performance and other non verbal materials. The scale was standardized on a carefully chosen sample of 3000 American born white children from eleven states. The authors also designed appropriate tests for the ages eleven and thirteen. The statistical procedures adopted for the purpose of validation were also more refined. The limitations regarding the adult IQ of 1916 Revision was overcome by fixing up the maximum possible attainable mental age of 22 years and 10 months. The maximum CA in denominator was fifteen, thus the highest IQ on 1937 Revision comes to 152. On the basis of analysis of available IQs, the authors gave the revised classification of composite L - M forms.
The third Revision of Stanford Binet by Terman and Merrill was published in 1960 incorporating both the L and M forms in a single form. The scale retains all the main features and concepts of the previous scales, the only innovation is the inclusion of deviation IQs. The scale measures intelligence regarded as general mental adaptability. The mental functions in the successful prosecution of the test items are: visual perception and analysis of motor development, immediate recall, language development and concept formation, reasoning with abstractions and number concept formation. In 1972, the same revision L→M was administered to a bigger sample in the U.S.A. and norms were established.

The Wechsler Scales

The work of Wechsler has been outstanding in the field of intelligence testing. Wechsler was a clinical psychologist in New York's Bellevue Hospital. It was part of his duty to examine criminals and patients who might be feeble minded, illiterate or even psychotic. Wechsler was not satisfied with the Binet Scales as its several revisions are largely verbal except some non-verbal items for early age levels. It was also experienced that neither Binet's own scale nor its 1916 Stanford Binet Revision were suitable for use with regard to adults. Wechsler was
dissatisfied with previous intelligence tests because most of them were meant for children and utilized the concept of mental age. This concept was used even in adult's tests. Wechsler found unsuitability of mental age concept and IQ based on it for adults. He constructed his own scales by point scale method and devised his own ways of calculating IQ. All the items of a given type are grouped into subtests and arranged in increasing order of difficulty within each subtests. Another remarkable characteristic feature of the scale is the inclusion of verbal and performance subtests, from which separate verbal and performance IQs are computed.

Wechsler's first scale published in 1939 was known as the Wechsler Bellevue scale. The U.S. Army requested Wechsler to make a parallel form of these tests for its use; therefore he prepared a paralleled form. The scale was intended to test the intelligence of persons from the age of 10 years through 60 years, although norms were provided beginning at 7.5 years. Each form of the scale consists of eleven subtests. Five of these subtests plus the vocabulary test constitute the verbal scale and the other five as the performance tests. The verbal scale consists of Information, Comprehension, Arithmetic, Digit forward and backward, Similarities and Vocabulary. Performance scale consists of Picture completion, picture Arrangement, object Assembly, Block Design and Digit symbol. The scale was standardized on a group of 1081 literate white individuals. The sample was selected from the New York city
and places near New York. The principal criticism leveled against form I is inadequate and non representative character of its sample. Reliability studies were meagre in number.

A second form of Wechsler Bellevue Scale, published in 1946, was also not adequately standardized. The scale has been replaced by Wechsler Adult Intelligence Scale (WAIS) 1955 and Wechsler Individual Scale for children (WISC) 1949. The WAIS covers the age range of 16 years and above and the WISC covers that of 5 years to 15 years. So far as the contents, principles of standardization and validity processes are concerned, both the scales differ only in the degree and not in kind. Both the scales are standardized in a better way than the original 1939 and 1946 scales and are also validated adequately. The principal changes incorporated in WAIS lies in its improved content, more representative sample and better directions for test administration and scoring. The scale was standardized upon a sample of 1700 persons, 850 of each sex. The sample was selected from four widely separated geographic area. The subjects ranged from 16 years to 64 years. The age range was divided into seven age group, within each of which numbers were proportioned according to the 1950 United States Census with respect to geographic area, race (white and non white), occupation, urban-rural, and years
of formal education. The scale consists of eleven subtests: six verbal and five nonverbal. The six verbal tests are: Information, Comprehension, Digit Span, Similarities, Arithmetic and Vocabulary. The five performance tests are: Picture Arrangement, Picture Completion, Block Designs, Object Assembly and Digit Symbol. The reliability coefficient for three types of IQ are highly satisfactory. Their standard error of measurement also indicates high 'absolute' reliability. The test retest reliability of subtests and full scale appears to be reasonably satisfactory. The WAIS manual itself contains no validity data, but several aspects of validity are covered in subsequent books by Wechsler and by Matarazzo.

The scale for children from the age range 5 years to 15 years is developed on the same principle and same form as the WAIS. The scale was standardized on a sample of hundred boys and hundred girls at each of the eleven age levels. The selection of 2200 subjects was based upon rural-urban residence, father's occupation and geographic area. The proportion in these sample factors were based upon United States Census data of 1940.

A revised edition, WISC-R was published in 1974. As in other Wechsler scales, the subtests are grouped into verbal and performance Scales with regard to content,
the only subtest that does not appear in the Adult Scale is Mazes. The coding subtest corresponds to the Digit Symbol subtest of the WAIS, with an easier part added. The remaining subtests represent downward extension of the Adult Scale. In the revised edition WISC-R, special efforts were made to replace and modify adult-oriented items and to bring their content closer to common child experiences. The revised edition WISC-R also has been standardized on a sample of 1200 subjects. WISC-R also yields mean IQ. that is very close to Stanford-Binet IQ. The split-half and test retest reliability coefficients were computed for subtests as well as Performance, Verbal and Full scale IQ. Average split-half reliabilities for Verbal, Performance and Full Scale IQ. were 0.94, 0.90 and 0.96 respectively. The corresponding retest coefficient were 0.93, 0.90 and 0.95 respectively.

The Wechsler preschool and primary scale of Intelligence (WPPSI) is the baby of the series. It was published in 1967. The Scale covers the age range of 4 years to 6 ½ years. The scale consists of eleven subtests, only ten of which are used in finding the IQ. Eight of these subtests are down-ward extension and adaptations of WISC subtests. The other three subtests were constructed newly to replace WISC subtests which proved unsuitable -
for this age group. As in WAIS and WISC, the subtests are grouped into Verbal and Performance Scales. The new subtests are Sentences, a supplementary subtest, Animal House and Geometric Design. Sentences is a memory test, substituted for the WISC Digit Span. This test can be used as an alternative for one of the other verbal tests, or it can be administered as an additional test to provide further information about the child, in which case, it is not included in the total score in calculating IQ. "Animal House" is basically similar to the WAIS Digit Symbol and WISC coding Tests. "Geometric Design" requires the copying of ten simple designs with a coloured pencil.

The WPPSI was standardized on a national sample of 1200 subjects, 100 boys and 100 girls in each of six half year groups from age range 4 years to 6½ years. The sample was stratified against 1960 census data of United States with reference to geographic region, urban and rural residence, and father's occupation level. In this Scale raw scores on each subtest are converted into normalized standard scores with a mean of 10 and a standard deviation of 3 within each quarter year group. The sum of the scaled scores on Verbal, Performance and Full Scale is then converted to deviation IQ with a mean of 100 and standard
deviation of 15. The reliability coefficients reported in the manual are quite satisfactory. The correlation of the WPPSI IQ with Stanford Binet IQ is reported to be 0.75 in a group of 98 children of the age 5 to 6 years.

The mental functions in various subtests of Wechsler Scales can be listed as immediate recall, longer range relation, association and organization of experiences and knowledge, reasoning with abstractions, concept formation, language development, auditory imagery and visual imagery. The mental process required in the performance tests can be identified as visual perception, its analysis together with synthesis, insight of relationship, synthesis of non-verbal materials, visual motor integration, preparation of forms and immediate rote memory.

Factor analysis carried out by various persons through various statistical techniques have given factors ranging in number from 6 to 10. But most of them have agreed on four factors namely: (1) a general or 'g' factor known as "educative" or general reasoning (2) a verbal factor or verbal comprehension (3) "non-verbal" or a non-verbal organization factor and (4) a general non specialized memory factor. Most important
among these is the general factor which accounts for about fifty percent of the total factor loading when all subtests are taken into consideration.

A short scale for all the three Wechsler Scales, where some of the subtests are omitted and scores are prepared for the purpose of obtaining an IQ, comparable with Full Scale, are suggested by some psychologists, but this type of abbreviated version can be used as a time saver for rough screening.

**British Ability Scales**

The recent development in the field of mental measurement is the British Ability Scales published in 1979. The Scales are prepared by Elliot, Murray and Pearson of Manchester University for educational and clinical use. The BAS provides a new approach to the individual assessment of children's abilities. The Scales cover a very wide range of different abilities from speed of problem solving, reasoning, spatial imagery, perceptual matching, short term memory to the retrieval and application of knowledge including test of fluency and of basic scholastic achievements. The important and noteworthy character of the scale is use of the Rasch model. The Rasch model assumes that the probability of a person getting a test
item right is determined by only two variables: the ability of the person and the difficulty of the item. The British Ability Scales cover age range from 2½ years to 17 years. They were standardized on a representative sample of subjects between 2 and 17 years, drawn from all regions of England, Scotland and Wales. The British Ability Scales consist of 24 abilities scales. Though the idea of intelligence is strongly criticised in Britain there is a provision to estimate such global ability with the help of some of the tests.

**Group Tests**

The individual tests can be administered to only one person at a time and require a lot of training on the part of the test administrator. The entry of the United States into the First World War is usually accepted as a beginning of group testing. A pressing practical need arose for the rapid classification of million and a half recruits with respect to general intelligence level. To fulfil this need, Army Alpha and Army Beta group tests were developed by the army psychologists. After World War I, these two tests were released for the civilian use and served as a model for the most group tests developed afterward. Now-a-days there are
several group tests available for various age groups and in various forms. To quote a few here, The Revised Henmon-Nelson Tests of Mental Ability, Otis Scales, The Lorge-Thorndike Intelligence Tests, Terman-McNemar Test of Mental Ability, College Qualification Tests and multifactors batteries such as S.R.A. Primary Mental Abilities, The Differential Aptitude Tests and General Aptitude Test Battery are in use now-a-days.

Tests for Younger Children

Tests for the younger children can be divided into three groups: (1) Developmental Scales (2) Individual-Intelligence Scales and (3) Group Tests of Intelligence. Some of these tests are purely developmental while some of them measure developmental aspects as well as mental abilities. The developmental scales are concerned with the development of the child and they cover early age years, from birth to four years and so on. The developmental scales for the early age group are purely observational. Needless to say that purely developmental tests are not useful to measure mental abilities of a child.

The period between four years to six years is a period of rapid growth of the mental abilities of the child. This age period constitutes a well defined landmark in a young child's mental development. According
to Wechsler it is the period when he is exposed for the first time to some sort of formal education and is deliberately brought into wider social contacts with children of his own age group. At this age he can express himself in a variety of ways, and he can perform outstanding works in various ways. Showing importance of these tests Anastasi points out:

The decades of the 1960s and the 1970s witnessed an upsurge of interest in test for infants and preschool children. One contributing factor was rapid expansion of educational programmes for mentally retarded children. Another was the widespread development of preschool programmes of compensatory education for culturally disadvantaged children. To meet these pressing practical needs, new tests have appeared and considerable research has been conducted on innovative approaches to assessment.

(Anastasi, pp. 271-272)

There are several developmental scales as well as intelligence tests for younger children available in Western countries. It is difficult to describe all of them here, so the important among them are listed here.

1. Gesell Developmental Schedule
3. Vineland Social Maturity Tests
4. Lincon Oseretsky Motor Development Scale
5. Adaptive behaviour scale prepared by American Association of Mental Deficiency

6. Bayley scale of Infant Development

7. McCarthy Scales of children's abilities

8. Piagetian Scale

9. Ordinal Scale of Psychological Development

10. Cattell development and Intelligence scale

11. The Merrill-Palmer Scale for mental Ability

12. Minesota Preschool scale

13. California First year Mental Scale

14. North-Western Intelligence Tests

15. Kuhlmann's revision of Binet Scale

16. Griffith Mental Development Scale

17. Valentine's Intelligence Test for children

18. Columbia Mental Maturity Scale


20. Leiter International Performance Scale

21. Pinter-Paterson Scale of performance Tests

22. There are certain group tests available for younger children. Some of the good group tests for kindergarten and
beginning first grade are:

1. Pinter-Cunnigham Primary Mental Test from K. G. to grade II,

2. Kuhlmann-Anderson Intelligence Test for the first semester of grade I,

3. Detroit Beginning First Grade Intelligence, revised 1935,

4. Goodenough Intelligence Test from K. G. to grade III,

5. California Test of Mental Maturity from K. G. to grade I,

6. SRA Primary Mental Abilities for the age group 5 years to 7 years.

At the level of kindergarten and the beginning first grade the administration of group tests is very difficult. As Jorden describes:

The attention of children of this age shifts easily from one object to another. They are not yet accustomed to work on a topic more than a few minutes. Negativism may appear at almost any time and express itself in a down right refusal to cooperate.

( Jorden, p. 390 )
To overcome these difficulties and to get clear estimation of the mental abilities of younger children, it is advisable to use individual scales. So far India is concerned very little work has been done in the field of the measurement of the intelligence of younger children. When emphasis is laid upon compulsory primary education and preprimary education, the use of intelligence tests at this stage may explore so many things with regard to learning and teaching methods.

Intelligence Tests in India

Intelligence tests have a very chequered history in India. In the second decade of the twentieth century, the development of intelligence tests started in India. The first attempt in constructing intelligence tests in India on scientific lines was made by C.H. Rice of Lahore, who about the year 1922 published his "Hindustani " Binet performance point scale". The scale was adaptation of the Binet scale along with some additional performance tests. Norms of the scale were published on the basis of tests on 1027 Panjabi boys between the age group 5 to 16 years. V.V. Kamat adapted the 1916 Stanford Revision of Binet in two Indian languages, Marathi and Kannada and published it in 1935. In 1914 Sohanlal of Government Training College, Allahabad, took up the Standardization of group verbal tests of intelligence suitable for children.
between the age of 11 and 12 years. It proved quite useful. In 1927 J. Maury of Ewing Christain College published the verbal group test adapted to Indian conditions. In 1939 Pandit Lajjashanker Jha published the Hindustani adaptation of 'Simplex Mental Test' by C.A. Richardson. Pandit Jha also adapted Terman's Group Tests of Intelligence. S. Jalota of Panjab prepared a group verbal test for the use of college students. The Draw-A-Man test was standardized for Indian children by Emil W. Menzel.

Bhatla's contribution in the field of testing is worth noting. He standardized a battery of individual performance Tests for school age for the first time. It was standardized on 642 literate and 512 illiterates and obtained norms for the ages above eleven.

Jalota first prepared a group test in English by selecting some test elements from Burt and Terman. He also added a few of his own. This work gave him confidence to prepare a test in Hindi and Urdu. His later tests have been well received in North India. The first original group test in India was constructed by K. G. Desai for Gujarati children, in 1954. He standardized his tests on 10,000 pupils of std. VIII to XI of the age group 12 to 18 of Gujarat and Bombay.

So far the field of Intelligence testing is concerned the progress is fairly satisfactory in Gujarat. Various
types of intelligence tests for various age-group have been constructed and standardized. The following intelligence tests are available in Gujarat.

1. The first verbal group intelligence scale in Gujarati for the pupils of std. VII to XI was constructed and standardized by K. G. Desai. The same scale is revised by K. G. Desai and Champa L. Bhatt and is widely used in Gujarat.

2. Champa L. Bhatt has constructed and standardized a battery of group tests of intelligence which are verbal and non-verbal for the pupils of std. V to VII.

3. D. M. Bhavsar has constructed and standardized non-verbal Group Tests of Intelligence for the pupils of std. IX to XI.

4. Verbal group tests of intelligence have been devised by A. J. Joshi for the pupils of std. V to VII.

5. T. P. Lele has constructed and standardized verbal group tests of intelligence for the pupils of age group 12 to 16 years.

6. Jaya Patel has constructed and standardized verbal group test of intelligence for the pupils of the age group 13 to 16 years.
7. A social Intelligence Test has been constructed and standardized by M. B. Buch for the pupils of std. XI, insurance agents, distributors and supervisors.

8. G. B. Shah has constructed and standardized a non-verbal group test of intelligence for the pupils of std. III and VII of the age group of 8 to 14 years.

9. M. M. Patel has constructed and standardized a non-verbal and culture-fare test of intelligence for the pupils of std. VIII to XI.

10. Patel verbal Group Intelligence test has been constructed and standardized by Motibhai Patel for the pupils of the age group 13 to 16 years.

11. J. M. Patel has constructed and standardized group tests of Intelligence which are verbal and non-verbal for the age group 13 to 16 years.

12. Bhanu Shah has constructed and standardized verbal group tests for the pupils of Bombay of std. VIII to XI.

13. N. N. Shukla has adapted the 1916 revision of the stanford-Binet Intelligence Scale for Gujarati children.

15. Mahendrika C. Bhatt has adapted the Wechsler Intelligence Scale for children on the pupils of Ahmedabad.

16. Leela K. Patel has constructed and standardized performance Tests of Intelligence for the pupils of std. II to XI.

17. Premila Phatak has adapted Goodenough's Draw-A-Man Test for Gujarati population with her own scoring method.

18. Recently Pina Sheth has adapted Wechsler Adult-Intelligence Scale for Gujarati population of Ahmedabad.

There are also some other adaptations of Goodenough's Draw-A-Man Test and Goddard form board standardized for the Gujarati children. A study of the above list shows that there are very few tests for the younger children. Most of the tests constructed or adapted for the Gujarati population are for the pupils of std. III to XI.

The Present Position

As early as 1939, the Acharya Dev Committee report on the reorganisation of primary and secondary education emphasised the need for various types of tests. They recommended the construction and standardization of intelligence tests and aptitude tests suitable to Indian environment. The Mudaliar Report (1952-53) recommended that a central research organisation may be established for carrying out research on educational and vocational guidance and for the preparation
of tests with particular reference to India conditions and needs of pupils concerned and opportunities available to them from time to time.

Now, India has its own unique circumstances. Mitra, concluding his review of psychological testing in India, states:

For the country like India, with its large population and its wide differences in language, manner, customs and differential rates of growth in industry and education, it is very necessary that tests be developed cooperatively by persons working in different parts of the country rather than by individuals.

(Mitra 1, p.134)

The same veteran psychologist has recommended the setting up of "a central testing agency (CTA) which would act as a co-ordinating agency having a pool of psychologists, statisticians, item-writers, field-workers, computers etc." (Mitra 2, p.141) Mitra's recommendation has been accepted by the NCERT and a Central Testing Agency has come in vogue and has started functioning.

The present investigator undertook this investigation to satisfy the great need that was felt in Gujarat
for an adaptation in Gujarati of the Wechsler's well known scale for younger children - WPPSI. It is an humble attempt of an individual and much more work shall have to follow.