CHAPTER V

ADAPTATION OF THE TESTS

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Difficulties of Adaptation

Intelligence Test adaptation is neither an easy task, nor equivalent to translation. K. G. Desai has rightly said that if all the steps of standardization of a new test are also to be done in adapting a foreign test, why should one not construct an original test (Desai, K.G., p. 37) While adapting a foreign test one comes across many difficulties. American or British tests are based on their own environments which are altogether different from the Indian. Things like dress, house, articles of every day use, social customs, accepted social behaviour, ideals, every day experiences and experiences resulted from tremendous growth in science and technology are totally different. This renders the mere translation of foreign tests inadequate and undesirable. Furthermore every language has its own niceties and ways of expression which cannot be exactly expressed through another language by mere translation. In a particular language, every word has its own specific significance, denotation and connotation, which cannot be maintained by the translation of the word. The word to word translation may perhaps lose the original subtlety and significance of the word. Moreover, some of the words may not have exact equivalents in another language. The sentence pattern of a particular language has also specified characteristics.

The content of the test items of intelligence tests is usually based upon day to day experiences as well as
school experiences of the pupils and school subjects they learn in school. The curricula and the courses of studies offered in India and other countries are much different and therefore the test based on the experiences of American and British children cannot be adequate for the Indian children.

The difficulty value of a test in one environment cannot be the same in another and therefore such an adaptated test must pass through the whole process of standardization which involves a lot of statistical work, fixation of norms and establishing reliability and validity. It is therefore necessary to make suitable changes for cultural differences and restandardize it instead of mere translation using foreign norms.

**Basic Principles for Test Adaptation**

While adapting a foreign test, the following points need to be kept in mind.

1. The successful taking of each test involves some specific mental functions and processes. The sub-items of the test usually require the same mental function and processes to some extent. The underlying mental functions of newly coined items should correspond to the original as far as possible.
2. The unfamiliar content of the test should be replaced by a familiar one based on testees' environment and experiences.

3. Proper names, names of the animals, things, fruits, coins, vegetables, units of measurement which are not within testees' experiences are to be replaced by the familiar ones.

4. The sentence patterns have to be changed in such a way that underlying meaning remains unchanged. During this process some of the words which do not find exact equivalents may be replaced by a longer expression and some of the phrases may be expressed through a single word.

5. Unfamiliar words may be replaced by familiar ones.

6. Tests like 'Vocabulary,' 'Proverbs,' 'sentence-completion' etc. to be framed a new.

7. Verbal tests need to be changed in such a way that they suit the testees' development and experiences.

8. The scoring scheme and scoring standards are to be modified in the light of data collected through an adapted scale.
9. At the initial stage an item is to be replaced by two or three newly coined items so that the experimenter later on gets chances for comparative evaluation and proper selection.

10. As far as possible the difficulty level of original items and replaced one should be similar, yet the difficulty value of all the items should be established on the data collected through preliminary runs.

11. On the basis of the results derived through the first preliminary run, the reliability and validity of the newly coined items should be established tentatively. These should be rechecked during the second preliminary run.

12. The wording of the tests also needs to be checked during these preliminary runs.

13. Specific time-limit for each item should be established on the analysis of data obtained through the adapted test during the preliminary runs.

**Need for The Adaptation**

In Gujarat and also in the whole of India, there have been very few tests available for younger children. It is also advisable to use individual tests of intelligence for these children because they lack adequate reading
ability and are highly distractable. To construct an individual scale is not an easy task. It requires joint efforts of experts of the field. It is also a time consuming process as well as it requires a huge amount of money. Considering all these points, the idea of the adaptation of a well-known scale like the WPPSI is justifiable.

The WPPSI consists of six verbal and five performance tests. Performance tests naturally require few changes as compared with those required in verbal tests. The preparation of suitable, refined, reliable and valid material for the performance test, is itself a big and hard task. Moreover, in the light of six age groups 4 years through 6½ years covered and the wide scope for the display of many-sided personality given by the WPPSI, its adaptation is desirable than preparing a new test.

Description of Tests and The Changes made therein

Inclusion of particular tests of intelligence in a battery depends upon the author's defined or implied view as to the nature of intelligence. Wechsler's concepts regarding the nature of intelligence is already discussed in chapter III. The choice of tests also depends upon the special requirements of the various types of the scale—age scale, point scale etc., and the age groups covered by them. As this is the adaptation of a scale, the problem
of selection of tests does not arise. While discussing the selection of tests for the Adult Intelligence Scale, Wechsler states four procedures that were adopted in the final choice of tests. (Wechsler, 2, p. 63)

1. Careful analysis was made of the various standardized tests of intelligence that were already in use. Special attention was paid to the type of mental functions measured, population sample selected and procedures of reliability adopted.

2. Each test claims to validity on the basis of correlation with other recognized tests and empirical rating of intelligence, was evaluated.

3. Tests were rated on the basis of clinical experiences.

4. Preliminary experimental work was done by trying out tests on several groups of known intelligence level. The WPPSI contains 11 tests having different content. Eight of the tests provide the same measures as the WISC, and may be seen as continuous with the WISC. Three tests are new and replace four WISC tests. The eleven tests of the WPPSI are as follows:
### English Names

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<td>Block Design</td>
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In the beginning, the WPPSI manual was studied carefully with a view to making necessary changes suitable to Gujarati children and their environment. During the preliminary studies the broad field and specific points where changes were found necessary were decided upon and fixed up. For the purpose of discussion each of the above eleven tests can be divided into three parts.

1. **Directions for administrating the test.**
2. **Test items or problems to be presented to the testee and**
3. **Scoring system, scoring standards and essentials of acceptable answers.**
Changes Made in Directions For Administering The Tests

1. **Language**

   According to basic principles of test adaptation first of all the names of all the eleven sub-tests were translated into Gujarati. The Gujarati names are mentioned earlier in this chapter. Then the directions for test administration were translated into Gujarati. As far as possible word to word translation was tried but following basic and common-sense principles of translation, the niceties of language or underlying meanings for structural pattern were not sacrificed. Moreover, the specific verbal instructions to be given to testees were translated in colloquial Gujarati, at the same time the stress, emphasis and feelings attached to them in the original battery were maintained. This process was carried out for all the tests of the Scale.

2. **Item-limit for 6 + children**

   In the WISC most of the tests specific item-limit from where the subject of 8 years or more who are not suspected mental defective are to be tested. If they pass the prescribed items successfully they are credited for former test-items. If the subject fails in any of the prescribed item, he is to be tested on former items and credited for only those on which he succeeds.
In the WPPSI, this method is maintained only in the Arithmetic test. For the children of 6+ age group, the examiner has to start with Problem 7. If the child passes Problem 7 successfully, he is credited for Problems 1 to 6. If he fails on Problem 7, the examiner has to administer Problems 1 to 6. In the supplementary tests 'sentences' for all age groups the test is to be started from sentence 1. If the child passes sentence 1 successfully, he is credited for the sentences A, B and C. But if he fails on sentence 1, he should be given sentence A, B and C.

In the light of the changed test items and sample of standardisation these item-limits must be adapted so as to suit Gujarati children. They must be fixed on the analysis of the data collected through the responses of Gujarati children and therefore during the preliminary runs the subjects were tested from the beginning item.

3. Consecutive Failures

Like WAIS and WISC a unique feature of WPPSI is discontinuation of a test after the specific consecutive failures on its items. Thus the Information, Vocabulary, Similarities and Picture Completion tests are to be discontinued after five consecutive failures. Arithmetic and Comprehension are to be discontinued after four consecutive failures. The test of Sentences is to be discontinued
after three consecutive failures and the tests of Mazes, Geometric Design and Block Design are to be discontinued after two consecutive failures. Animal House is a speed test, hence it has no such limit.

It is understandable that such a complicated procedure adopted by Wechsler for American population cannot be directly used with Indian children without preliminary try-outs. Thus during the preliminary runs such limits were also dropped out, and the testees were tested on all the items of all the tests.

4. Time-limit Prescript

Most of the intelligence tests, though considered power tests, are allotted specific time-limit with a view to discriminating between the subjects of various intelligence levels. The logic behind the process, is more intelligent children get quicker insight and thus work more speedily. Thus time-limit increases the discriminative value of an item.

In the WISC, time-limit is imposed on all the items of six performance tests together with the Arithmetic test but in WPPSI, the time-limit is imposed on all the items of four tests viz. Arithmetic, Mazes, Block Design and Animal House. For the remaining tests no time-limit is fixed but if the child does not respond after an appropriate
interval, or after repetition of the question (where-permitted), the score should be given zero and the experimenter should proceed to the next item. Wechsler has avoided an over-all time limit for any test except Animal House. Thus the time-limit prescribed for each problem in Arithmetic is 30 seconds. The time-limit in Mazes varies from 45 seconds to 135 seconds and in Block Design from 30 seconds to 75 seconds. The time-limit fixed for Animal House is 5 minutes. Considering the distractable nature of younger children the idea of giving bonus scores like the WISC, is wisely dropped by Wechsler in the WPPSI.

Considering the changes made in the test-items and changed sample of standardization a complicated process of time allotment as in the original WPPSI cannot be copied. It must be experimentally decided on the data collected from Gujarati children. So during the preliminary runs no time-limit was imposed and all the testees were allowed to take as much time as they wanted to work on any item.

Test Items and The Changes Made Therein

Information:

Army Alpha Examination furnished for the first time strong support for range-of-information as a good measure of intelligence. Rapaport indicated that the effort to
acquire a general fund of information is frequently an indicator of intellectual ambitiousness. (Rapaport - et al, p.48) Though the range of a man's knowledge is generally a very good indication of his intellectual capacity, the fact remains that the amount of knowledge which a person possesses depends in no small degree upon his education and cultural opportunities. In practice the value of an information test depends in a large measure on the actual items which are included in it. We cannot enumerate universal principles governing "good questions." In fact items should call for the sort of knowledge which an average individual with average opportunity may be able to acquire for himself.

In the WPPSI this test consists of 23 items, 12 from WISC and 11 are newly coined. Looking to the educational and environmental opportunities that are available to the normal Gujarati children the following changes were made.

1. Thus the item 16

   How many pennies make a nickel?" was changed to

   "उपुंस  से  कितने  पैसे  हैं  निकल?

   "How many paise make a rupee?"

   Here pennies and nickel were replaced by paise and rupee because rupee is the standard currency unit of India.
2. While changing item 20.

"What are the four seasons of the year?

The investigator was confronted with a problem as generally there are three seasons in India but each one is also divided into two, and so there are six seasons in the year. But it is very difficult for younger children to give the names of these six seasons. While adapting the WISC for Gujarati population M. C. Bhatt has coined two items to replace this item,

"What are the three seasons of the year?"
"What are the six seasons of the year?"

Finally she has selected the first item and eliminated the second. Considering this fact the present investigator decided to retain the previous item.

3. Most Gujarati children hardly know the colour of rubies and therefore item 21.

"What is the colour of rubies?" was tried out together with newly coined item viz.

"What are the three seasons of the year?"
"What is the colour of Mogra flower?"

'Mogra' flowers are very common in Gujarati and they have only one colour, viz. white. This item was also coined by M. C. Bhatt and was finally selected in her Gujarati adaptation of WISC.

4.

It was thought that item 7

"Tell me the names of two animals. Tell me another one."

Would be very easy and therefore it was tried out together with a newly coined item

"Tell me the name of two birds. Tell me another one."

Thus out of 23 items only 4 items were either modified or entirely changed due to cultural and environmental differences. During the process of modification best attempts were made to maintain the underlying mental functions and the field of content, unaltered. The niceties of language were also maintained. Moreover when ever a doubt about the worth of the newly coined item was felt, the original item was replaced by more than one item with a view to selecting the better one at a later stage. At some places original items were tried out together with the
newly coined items. The previous arrangement of test items per their difficulty values was not to be strictly adhered to as they were to be applied without time limit and responses of Gujarati children were to be utilized later.

**Vocabulary:**

The size of a man's vocabulary is not only the index of his schooling, but also an excellent measure of his general intelligence. This test correlates most highly with the total IQ. This is so primarily because it represents the breadth of concepts, ideas and experiences gained during one's life time. The acquisition of these concepts and their availability to memory is contingent both on innate ability and on an enriched early life experiences. That is why the vocabulary test is included in most of the test batteries. The number of words an individual knows is the result of his learning ability and range of ideas possessed. Both of these on their part depend on intelligence. Man's vocabulary is influenced by his educational and cultural opportunities; but the nature of a vocabulary test minimizes it. The list of the words included in a test consists of verbs, common nouns, material nouns, adverbs, adjectives, etc., and the subject is required to define, explain or describe them.

Apart from its value as a measure of intelligence the vocabulary is valuable for the qualitative aspects of verbal
responses. The verbal responses given by a subject tells us his cultural milieu and disclose many aspects of his hidden personality. The test as a whole provides much data useful for clinical purposes. Thus the present test provides sufficient data for mental diagnosis.

The quantitative evaluation of the test does not take into consideration the qualitative aspects of the subjects' responses. Once the subject shows that he knows the word he is credited with the score. Any recognized meaning is accepted irrespective of the elegance of language. General rule for acceptable meanings is to match the responses against those given in standard dictionaries.

The WPPSI Vocabulary test consists of 22 words selected from American environment. The nature of the test renders its translation and adaptation for Indian children at least undesirable and unscientific, if not impossible. Accordingly an original test was devised.

Generally the words for the Vocabulary test are selected randomly from a standard dictionary. The same method was adopted by M. C. Bhatt and J. H. Shah while adapting the scales WISC and Stanford-Binet (1960 revision) respectively. They have selected the words from a standard Gujarati dictionary " શુભ મુદ્રણ સિદ્ધાંત બેંગલુરુ "
But looking to the lower age group of the present experiment
it was not advisable to select words from a dictionary because the rigorous word selection method may give many unfamiliar words which may not be known to adults. Therefore it was decided to select words from the Gujarati textbook prescribed for the students of grade I. From each lesson, the third word of the seventh line was selected. Whenever this word was very easy or very difficult, it was given up in favour of another selected from the same line. The selection was left to the common sense discretion and was based on pronunciation, abstractness, difficulty value, cultural content etc. Thus a list of 31 words was prepared in the beginning. No modification was needed at the outset as to the directions for test administration.

**Arithmetic**

Tests of Arithmetical reasoning have long been considered a good measure of intelligence and most of the intelligence tests include them in one or other form. Moreover arithmetical problems can be easily devised and objectively evaluated. The scores on Arithmetic highly correlate with those on other academic subjects and IQs, and thus furnish accurate estimate of one's scholastic achievement. Arithmetic being one of the school subjects, the testee's performance is likely to be affected by his education.
Complex arithmetical reasoning requires extensive concentration and attention. Concentration is foremost in this task, since the subject has to actively focus his attention in order to acquire the information within the problem and to manipulate its complex dimensions. The tasks on the Arithmetic problems require the subject to utilize skills that have been attained comparatively early in development and during educational process. The test also introduces time pressure and the subject is forced to apply himself actively to the problem while reducing various distracting elements from within or from the total environment. Like Vocabulary and Information this test depends upon memory and prior learning and active application of select skills to cope with a new and unique situation.

The WPPSI Arithmetic test includes 20 problems out of which 1 through 8 require materials. For the first four problems cards in the bound booklets are to be used and problems 5 through 8 coloured blocks are to be used. The remaining 12 problems are to be read out to the child. Most of the changes made in the test pertain to American proper nouns and names of American currency. Thus pennies and cents were changed into paise, and dollars into rupees. While making these changes the prices of commodities in
Gujarat were also taken into consideration. The changes made in the items are as follows:

1. Item 10

"Harry had 2 pennies and his daddy gave him 1 more. How many did he have altogether?"

was changed to

"Harish had 2 paise and his father gave him 1 more. How many did he have altogether?"

Here the proper noun Harry was replaced by Harish and pennies were replaced by paise. There is no need of mentioning other such items where only the proper nouns and currency were changed.

2. Item 15

"Bob ate 1 piece of candy, Sue ate 2 pieces, and Jack ate 2 pieces. Altogether, how many pieces of candy did they eat?" was modified as

"Bob ate 1 kand, Sue ate 2 kand, and Jack ate 2 kand. Altogether, how many kands did they eat?"
"Baku ate 1 biscuit, Saroj ate 2 biscuits, and Jayanti ate 2 biscuits. Altogether how many biscuits did they eat?"

In this item the word candy has been replaced by the word biscuit because Gujarati children are more familiar with biscuit than candy.

3. Looking to the prices of apples in Gujarat the item 18

"If 1 apple costs 2 cents, how much will 2 apples cost?" was replaced by

"Ek e kaat kari re paisa dahi, do r kaat kari aaka paisa dahi?"

"If 1 pen costs 2 paise, how much will 2 pens cost?"

Here the word pen is used for 'pen for writing on slate' which is familiar to young children.

4. In the same way item 18

"If 1 orange costs 4 cents, how much will 2 oranges cost?" was replaced by

"Ek e raat gati ne 4 paisa dahi, do r raat gati ne aaka paisa dahi?"

"If 1 toffee costs 4 paise, how much will 2 toffees cost?"

In this item orange is replaced by toffee and cents are replaced by paise.
In this test, all the calculations are to be carried out mentally and therefore neither pen nor pencil nor any other writing material is allowed. The investigator followed this procedure strictly from the very beginning and tried to see its inadequacy, if any, during test administration.

**Similarities**

This test is essentially a measure of verbal concept formation. It appears in different forms in many group and individual scales. The correlation studies have proved its worth as one of the most reliable measures of intellectual ability. Conceptual abstraction can be carried out on one of the three general levels of cognitive development. The concrete similarity between two objects, a specific common feature of the objects represents the lowest level of cognitive development. This type of concept formation, which is correct in a limited sense, acknowledges a most direct and obvious feature of the objects without attempting to reach for broader and more abstract generalization. The thinking is unusually specific, direct, limited in focus and generally constitutes a rather poorly articulated concept which at best receives only a partial score. A second type of concept formation is the functional category. This type of concept formation is more sophisticated than a concrete
conceptualization. It still falls short of a high level abstraction. The third type of concept formation is the abstract level, which captures the essential common characteristics of the objects. This is the highest level of thought and stands in marked contrast to the prior two forms of more concrete thought processes. At a first glance the similarities test seems to be a test of word knowledge influenced greatly by language; practical experiences, however, have shown that sheer word knowledge is a minor factor affecting test performance.

Considering the level of concept development Wechsler has prescribed qualitative evaluation of the responses. The responses based on superficial similarities or concrete similarity are to be credited with score 1 and the responses pointing out the essential likeness are to be credited with score 2. The test is said to be one of the best examples of the cognitive processes described by Spearman.

The test as it is presented in WPPSI consists of two types of items (1) Analogies and (2) Similarities.

Analogies have two items presented in the form of incomplete sentences to be completed by the subject. They are—

(1) You walk with your legs and throw with your ... ...

(2) Boys grow up to be men and girls to be ... ...

The test on similarities contains 14 items out of which 8 items are in the form of incomplete sentences and the
remaining 6 items are paired ones to be presented one at a time. Thus the subject is asked

"In what way are a coat and a sweater alike?"

It will be seen from the items that some items ask for similarities while some items (item 6 and 8) ask for opposities. Here the question arises that can it be psychologically fair to ask about two opposite mental functions in a single continuous test? Thus though the reliability and validity of the test especially for Gujarati children who are not conversant with such types of items was suspected, the changes were adjourned till the second run with a view to seeing their adequacy for the sample.

The cultural and environmental differences compelled the changes in the following items.

(1) The item 5

"Bread and meat are both good to....." was replaced by

"पन्चकेक और पूंजी दोनों वर्जित नापसे....."

"Pancake and pudding are both good to....."

As most of the Gujarati families are vegetarian, meat is replaced by pudding.
As Gujarati children are not familiar with Western musical instruments, Item 12 "In what way are a Piano and a Violin alike?" was changed to "ભાવ અને સ્વાદિષ્ટમાં જે રીતે સરળ છે?"
"In what way tabla and Harmonium are alike?"

As Gujarati children are not familiar with American fruits, the names were replaced by those of the well known Indian fruits. Thus Item 13 'Plum-Peach' was replaced by " ફૂલ - પીચ "
'Grape-Rose apple'

In the item 14, the names of American currency were replaced by the names of Indian currency. Thus the item 'Penny-Nickel' was changed to " પ૆ની - નિકલ "
'Rupee-Ten paise'

As drinking wine is strictly prohibited in Gujarat and Gujarati children are totally unfamiliar with various types of wine, Item 15
' Beer-Wine ' was replaced by familiar hot drinks

" जल देखि "

' Tea-Coffee '

The direction for the administration of this test asks the examiner to complete the sentence of the first item for the subject in case he fails to answer or understands it correctly. For the item 11 if the child fails the same procedure is to be done but no further help is to be given on the remaining items. With a view to looking towards its adequacy or otherwise the same procedure without any change was adopted during the first preliminary run.

Comprehension :

Tests of general comprehension have long been favourite with authors of intelligence scales. They are found in Binet Scales, Army Alpha Tests, National Intelligence Tests and many other Scales. Questions included in Comprehension Tests depend on certain amount of practical information and general ability of children to evaluate their past experiences. It measures the subject's grasp of social conventionality and social judgement. Frequently comprehension, because it deals with social situations and
judgements, may yield material related to issues of morality and superego organization. The inclusion of this test in group tests and in individual tests is quite different. In a group test, the subject is furnished with four to five possible answers from which he is required to select the correct one, i.e. it is a test of recognition, while in an individual test the question is put to the subject to which he gives his own answer i.e. it is a recall test. Naturally the test furnishes rich data about the subject's social and cultural background.

In WPPSI, the test consists of 15 well-designed questions. Wechsler terms it a test of common sense (Wechsler, 2, p.68) and is right when he says "It is of interest to note that in the foreign adaptation of the scale the translators have not found it necessary to make any important changes either in the form or in contents of the questions" (Wechsler, 2, p.69). During the present adaptation change in the content of only one item was needed.

Thus the item

"What is the thing to do if you are sent to buy a loaf of bread and the grocer says he does not have any more?" was changed as
It will be seen from the changed item that only a phrase 'loaf of bread' is changed into 'curds.' This is because normally in Indian culture people do not go to buy a loaf of bread. Most of them prepare their bread at their homes, while to go to buy curds is very common in India.

**Sentences**

This test is introduced in WPPSI as a replacement for the Digit Span of WISC. It is difficult for younger children to recall a string of only four different numbers but they will find no difficulty with a sentence of eight to nine words. Perhaps this may be the reason to replace Digit Span by Sentences. In presenting a subject with increasing lengths of rote material for immediate memory and recall, this test generally tops massive reception of stimuli and the automatic effortless process called attention. It is similar in organization...
to tests employed in some other scale but it differs from most of these by the fact that some credit is given for partial recall. This is based on Wechsler’s concept of appraising any ability in terms of ‘moreness’ and ‘lessness,’ rather than on an all or none principle.

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 the IQ.

It consists of 13 sentences ranging from 2 words to 18 words. Keeping in mind the cultural and environmental differences the following changes were made, but the number of words in the sentence was maintained.

Following changes were made.

1. The item
   "Cows are big" was replaced by
   "cow gives milk"

2. The item
   "Mary has a red coat" was changed to
   "Mina has a red frock"
3. The item

"The bad dog ran after the cat" was replaced by
"જણારા ખૂટેરી ચાલા અમે રમી ચેટી દીંધું." "

"The black dog barked and ran after the cat"

These changes were made to avoid complicated and ridiculous situations created by mere translation. Thus all the sentences were modified using Indian proper nouns and material nouns which are familiar to Indian children. The sentences were translated or modified in such a way that the total number of words in the original sentence were retained in the changed or modified sentence in Gujarati. No need was felt for any change in procedure and hence the directions for test administration were followed rigorously.

**Animal House**

Coding of WISC is substituted by Animal House in WPPSI. This test is basically similar to Digit Symbol of WAIS and Coding Test of WISC. It is a measure of the capacity for imitative behaviour and requires the child to associate a sign with a symbol and may be considered as a measure of learning ability. Memory, attention span, goal awareness and ability to concentrate may also be involved. According to Wechsler it involves the simple use of energy for smooth and unhesitating duplication of simple pattern (Wechsler, 2, p. 94).
A key at the top of the board has pictures of dog, chicken, fish and cat each with different coloured cylinder ("its house") under it. The colour of the cylinders used for Animal House were carefully selected so that a colour-blind child will not be handicapped in performing this task. The child has to insert the correctly coloured cylinder in the hole below each animal on the board. Time, error and omissions determine the score.

It is exclusively a test based on speed and accuracy and is included in the battery because more intelligent work with more speed and accuracy is called for by it.

As all the four animals depicted on the board are familiar to Gujarati children no change was made in the test as well as in procedure.

This test was given twice to each subject during the standardization of the scale, for the purpose of establishing its reliability, but the scores obtained on first administration were used in computing IQs.

Picture Completion

The picture completion test as it is presented in the WPPSI, is very similar to that of Mutilated Pictures.
of Binet-Scales. It requires the subject to discover and name the missing part of an incompletely drawn picture. Thus e.g. the subject is shown a picture of doll without arm and asked to indicate the missing part.

It requires visual organization and the capacity to attend to and observe the inconsistencies and incongruities within a picture. One must focus attention on the details of the picture and actively examine and check the drawing either in terms of its symmetry or in terms of an internalized image of the object. In this sense the major function seems to be concentration.

The test is found to be a good measure of intelligence at the lower levels. The abilities measured are perceptual and conceptual ones, through visual recognition and identification of familiar objects. In order to identify the missing part, first of all the subject must recognize what the picture represents and then should identify the missing part, making himself sure that it forms essential part of that particular object. Thus the subject is also required to differentiate essential from non-essential details. Normally familiarity with the content of the picture counts in this process and therefore exclusive unfamiliar objects should be avoided as far as possible.
In the WPPSI the test consists of 23 pictures, each one having some important part missing in it.

It was felt that the contents of all the pictures are familiar to Gujarati children and therefore it was decided to make changes if necessary, after the first preliminary run.

According to the directions for the test administration if the subject fails to detect the omission in picture 1, the examiner points out the missing part. He is helped similarly in case he fails in the second picture but he is not helped in any way from picture 3 onwards.

Moreover in case of the subject mentioning an unessential missing part for the first time, the examiner is directed to ask him about the most important missing part; but he is not helped in any case.

Mazes

The test is designed on the lines of the familiar Porteus Maze Test. It consists of 3 newly coined horizontal Mazes and 6 box mazes retained from the WISC. The addition of unidirectional horizontal mazes at the beginning of the test has made the test more suitable to the young children. It was found that most young children who appear "lost" when required to work their
way out from the centre of a square or box maze show less difficulty when asked to find their way across a horizontal maze. The mazes of increasing difficulty are printed on two sides of a paper. The newly introduced mazes (first three) permit the subject two trials; the child is stopped on the first trial after one error in the case of maze 2, and after two errors in the case of maze 3. In box mazes, sample maze and mazes 4 and 5 present the match stick drawings of a boy inside it while others have crosses inside them. For the horizontal mazes the subject requires to start from the baby hen and to trace, with red pencil, the way to reach its mother on the other end. For mazes 4 to 10, the subject requires to start from figure or cross as the case may be, and to trace, with red pencil, the way outside. At the end of the horizontal mazes, the test presents a sample box maze which is to be worked out by the examiner.

As the test carries no environmental or cultural effect, there is hardly any need of changing the forms of the items. No change was made in the administration of the test.

The test is found to have good discriminative value at various levels of intelligence. Being a performance test, it presents the situations in a concrete form and holds up the subjects' attention easily.
Geometric Design

Considering the fact that the young child's ability to reproduce geometric figures correlates quite well with other measures of intelligence, this test was added to the WPPSI battery. It is relatively free of the limitations inherent in verbal tests. The ability measured by the test depends on perceptual and visual-motor organization, the development of which is closely tied to increasing chronological age. It requires the copying of 10 simple designs with a coloured pencil.

Figures selected for the test emphasize the perception of somewhat complex Gestalten as well as the more purely visual-motor factors.

As the test carries no environmental as well as cultural effects, no change was made in the test items and the procedures of the administration of the test.

Block Design

The Block Design test was originated by Kohs who offered it as a comprehensive measure of non-verbal intelligence. This test now appears in many intelligence tests either in one form or other. It is found correlating well with a variety of criteria of good measure. According to
Wechsler it is a test of visual-motor organization. The differentiation of a part of a design and the specification of its interrelationship with other parts is essentially a concept formation task involving both analysis and synthesis.

The test provides open field to qualitative analysis. The way in which different subjects work provides learning situation and insight as to the working of various personalities. Like other performance tests, this test also has diagnostic value which cannot be minimized. The test calls for the subject’s ability to organize visual-motor controls.

For the young child, Block Design is to some extent a sorting as well as perceptual motor test. The child must identify not only colors but also geometric forms before assembling the blocks into a pattern. Most young children readily grasp the idea of a surface pattern, but the competition of forms and colors on the sides of the three-dimensional WISC blocks seems to be disconcerting. To simplify the task for the younger children new types of blocks, somewhat bigger and with only two working surfaces was tried out. Thus the six-sided cubes of WISC were replaced by newly prepared two sided blocks.

The test as it is presented in the WPPSI consists of
10 designs, out of which first two are to be formed with 3 blocks. The other two i.e., design 3 and 4 are to be formed with 2 blocks and the remaining 6 are to be formed with 4 blocks. The blocks are having one side painted red and other one-half white and one-half red. Thus the use of only two colours eliminates the possible disturbances and complications that may have been created by the inclusion of other colours.

The designs 1, 2, 4, and 5 are to be presented by demonstrating models; these are to be followed by models without demonstration and finally by printed cards.

The culture-free character of the designs is not likely to be influenced by any social or cultural concepts and therefore needs no change either in contents or materials. No change was made in the procedure of test administration during the adaptation and the procedure was followed rigorously.

Changes Made in The Scoring System and Scoring Standards

The WPPSI manual gives various scoring systems for various items on all the tests of battery. Items of the tests viz. Information and Arithmetic, are scored either
0 or 1 depending upon the correctness or incorrectness of the answers. This type of objective scoring is possible as the nature of the items insists on only one possible correct answer. The language of answer is not taken into consideration.

The correct responses on the other three verbal tests viz. Vocabulary, Similarities and Comprehension are scored at two levels viz. 1 or 2 depending upon the generalization and quality. Clarity of thought and richness of content are taken into consideration and credited. The WPPSI manual presents the criteria for scoring and for sample answers. It gives general rules that are to be followed and the typical marginal sample responses which are to be scored 0, 1 or 2.

During the process of adaptation the tentative scoring system based on these principles was prepared. The sample answers were translated and other possible answers were thought out at the outset, so that they can be helpful in later evaluation. Specific sample answers were also thought out and listed at all the levels of scoring for the newly coined items in Information, Comprehension and Similarities. Vocabulary being a new test, no sample responses were translated but the general scoring principles given by Wechsler for 2-point Responses, 1-point Responses and
Responses were translated. A tentative list enumerating sample answers at all these three levels based on the meanings given in standard Gujarati dictionaries was prepared in the beginning with a view to achieving objectivity later on.

The scoring of the responses on the performance tests is quantitative as compared with that of the verbal tests which is qualitative to some extent.

The time, errors and omissions are considered in the scoring of Animal House. If the child cannot finish the task within the time-limit i.e. 5 minutes, scores are to be given according to the amount completed in 5 minutes. No change was made in the table for raw scores based on time, errors and omissions. The table was prepared using the formula.

\[
\text{Raw score} = \frac{350 - T}{100} \left[ 20 - (E + O) \right]
\]

Where \(T\) = time in seconds, \(E\) = number of errors and \(O\) = number of omissions. During the preliminary runs, it was found that most of the subjects were able to finish the task within 5 minutes. So it was decided to make no change in the scoring system. The table for raw scores for Animal House is given in the appendix.
The Picture Completion test items are scored either 0 or 1 for the correct or incorrect pointing out of missing part. According to the WPPSI manual, if a subject points to the correct missing part and may use a close synonym for it, the response is to be considered as correct. If a child points to the correct missing part, but either fails to name it, he is given the score. If the subject points to the right place but spoils it by making a wrong verbal response, he is penalised. This principle together with the others prescribed by Wechsler were followed rigorously.

The scoring of the items on other three performance tests viz. Mazes, Geometric Design and Block Design depends either on the time taken and errors or on errors only. In the scoring of Mazes time as well as errors are taken into consideration. If the subject cannot finish the task within the prescribed time he is scored according to the errors committed by him. Like the WISC, lifting the pencil is not counted as an error.

The scoring of the figures of Geometric Designs is done according to accuracy of the subject's reproduction of each figure. The factors to be considered while scoring the figures are given in the manual. The specific criteria
for the scoring of each design are provided in the appendix with illustrations. These illustrations should be used in conjunction with the verbal criteria, particularly when a child's drawing shows more than one fault, scoring of the reproduction of two figures may create some problems. In making decisions in such problems, the sample drawings will be the main criteria. Considering all these things no change was made in the scoring system.

In Block Design, two trials of each design are permitted. If the child succeeds on his first trial, the next item is presented but if he fails on his first trial, a second trial is allowed. Each item is scored 2, 1, or 0. If the subject reproduces the design correctly within the time-limit on the first trial, he is credited 2 points. If he does it correctly on the second trial within the time-limit he is credited 1 point. If both the trials are failed he is given 0 point. No change was made in the scoring system during the adaptation.

It will be seen from the discussion throughout this chapter, that though some changes are made in the contents of the tests to take care of cultural differences, the basic principles of test administration and scoring are not changed.