CHAPTER 3

A REVIEW OF SOME RELATED INVENTORIES

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A REVIEW OF SOME RELATED INVENTORIES

Since the process of adjustment is a continuous one, since it is related to a complicated environmental background, and since it may occur at any level of a complex personality pattern, the inherent difficulties of its measurement are obvious. Despite these difficulties, techniques of measuring adjustment have been developed in a large number and are widely used. Tindall classifies them in five major types: (1) questionnaires and inventories; (2) Ratings by adult judges; (3) Ratings by peers using sociometric techniques; (4) adjustment indices secured by means of projective techniques; and (5) systematized direct observation.\(^1\)

As the present work is concerned with the development of an inventory, a brief description of the meaning, origin and appraisal of this technique

is discussed in this chapter. A general survey of some related inventories is, then, reported along with some attempts made in India. At the end, certain observations, useful in developing a valid and reliable inventory, are pointed out.

INVENTORY TECHNIQUE

Origin and meaning

Shaffer indicates that the measurement of personality and its adjustment use the same three methods that have been used since early times. They are: (1) Observing the individual, (2) asking others questions about him, and (3) questioning him concerning his attitudes and beliefs. What is new today, is a gradual refinement of these procedures leading to the development of new techniques. Refinement of the method of observation resulted in a number of tests of character and personality, various types of rating scales are a refinement of asking others about an individual, while the refinement of questioning people about themselves, has resulted in the questionnaires and inventories.

Freeman writes that the questionnaires deal ' with the person's own feelings about himself, other persons,

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and his environment, resulting from introspection.\(^3\) Questions, which a good interviewer would ask about all aspects, are selected and presented in written form. This is, what is known as an inventory. In other words, an inventory is a substitute for an interview. Since it is a standardized tool, it is comparable to a standardized interview. Thorpe and others describe the instrument as a controlled objective group interview. The term controlled implies that all students responding to the inventory are answering a uniform set of questions under reasonably uniform conditions. The term objective refers to the procedure. The questions are presented in printed form rather than in a person to person situation. Moreover, there is consistency in scoring.

In short, the inventories are the scientific form of asking people about themselves or interviewing them. They elicit responses from the individuals objectively to many items probing his behaviour, his likes and dislikes, his environment, and many other aspects of his life.

**Uses and values**

The greatest value of inventories lies in the fact that an inventory is a quick method of knowing about an individual's behaviour, feelings and problems. Observant

teachers try to infer problems from the behaviour of the student. A counsellor elicits an expression of counselee's problems over a period of interviews. By means of the inventory these slower methods of analysing the student's problems can be accelerated.

The inventories are mostly used to identify those who need attention and who should be offered counseling. Children and adults who are withdrawn and insecure may not attract the attention of observers. An adjustment inventory brings to light many of these cases. The value of inventories for guiding and counseling the individuals cannot be over emphasised. Cronbach points out:

'Simple though the inventory may be, it can play a valuable role in large guidance programmes. Some indications of the demand for such aids is the fact that one modest inventory reported, after ten years of distribution with no special advertising, that half a million copies had been sold.'

The scores on various aspects covered by inventories or responses to individual items usually assist a counsellor in identifying areas of actual or potential maladjustment and areas of wholesome adjustment. Thus, they are useful for locating cues to maladjustment or potential difficulties to be pursued more intensively later on. They may serve as the starting points of subsequent psychological and

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counselling interviews.

The inventories are also useful in the study of group trends; that is, in differentiating between groups of adjusted and maladjusted individuals and in placing the individual relative to a group in respect to some specified area of behaviour.

Briefly speaking, the inventories may reveal significant patterns of a person's behaviour, attitudes and feelings as compared to others in the shortest possible time, which may be useful to a psychologist, counsellor and others for many purposes. It is because of these values that the inventories have become so popular. Fiske and Butler stated, 'probably more subjects have taken questionnaire or inventories than any other type of personality test.'

Limitations

In spite of the tremendous amount of work and use of the inventories, they are criticised by some psychologists vehemently. Most of the psychologists, however, occupy

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   (ii) John W. M. Rothney and Others, Measurement for Guidance (New York: Harper and Brothers, 1959), Chap. VIII
   (iii) Albert Ellis, 'The Validity of Personality Questionnaires,' Psychological Bulletin, Vol. 43 (Sept. 1946), p. 426
   (iv) A. Ellis, 'Recent Research with Personality Inventories.' Journal of Applied Psychology, 1953, 37, 90-93.
the intermediate position and are in favour of making use of them with the full awareness of their limitations. The major points of criticism in view of their limitations are observed as under:

1. The Problem of reliability:

Nunnally observes -

'Self-description inventories are usually less reliable than tests of aptitude, achievement, interests, and attitude... self-description inventories tend to have lower reliability than most other psychological measures.'


The problem of reliability of the inventories becomes complex because the behaviour of an individual is changeable. When the behaviour itself is subject to change, the inconsistency of responses cannot be solely attributed to the method of assessment. Hence, this does not disqualify inventories in particular. This is one of the unavoidable obstacles in the personality measurement, whatever be the method used.

Another reason for the lower reliability coefficients of personality inventories, in the words of Adams, is that -

'many responses in the area of personal-social adjustment tend to be specific to the situation. A person who might show extrovertive behaviour on a job
in which he had high competence might be introvertive in social situations. Even within the realm of social situations, there will be inconsistencies as the person is in small or large groups, with persons of the same or opposite sex, or with his peers as compared with those in a position of authority. 8

2. The Problem of Validity:

Freeman writes, 'It is in respect to validity, however, that personality inventories as a class present the greatest difficulties and are most vulnerable to criticism. 9 The problem of validity is of considerable importance in view of the following difficulties inherent in the inventory approach of assessment:

(i) Language difficulties.- The validity of an inventory depends to a considerable extent on the clarity with which the items are phrased. If the vocabulary or concepts are beyond the respondent's comprehension, he may respond in a superficial or random fashion, making the scores invalid. The items of inventories, many a times, lack in language clarity. Even the items which seem simple and straightforward to the sophisticated constructor may appear ambiguous for the responding individuals. This is well illustrated by Cronbach.'

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you make friends easily?" appears simple, but it is hard to say just what behaviour the question refers to, and what the tester means by 'easily.' The subject will recall some cases where he formed the friendship quickly and other cases where an acquaintance remained somewhat distant over many months. What does 'friend' mean - close and intimate companionship, pleasant interaction without emotional involvement, or something in between?\footnote{10}

Many inventories provide such response scale as 'often', 'usually', 'frequently', 'seldom,' etc. The interpretation of these words also lead to the same difficulty. On such a scale, two subjects with identical behaviour may respond in a different way. They may choose entirely different adverbs to describe their behaviour due to different interpretation of the terms.

(ii) Lack of self-insight.- Answering the questions of an inventory implies a certain ability to stand back and view oneself objectively. This may be difficult for many people especially those who are maladjusted in many ways. As Vernon observed that the maladjusted individuals are the ones who are most likely to distort their responses on personality inventories.\footnote{11} One of the reasons of the

\footnote{10}Cronback, Op.Cit. p.444.\
distortion may be lack of self-insight on their part. A maladjusted individual may not know himself well enough and hence may not be aware of his deficiencies. As Thorndike and Hagen remark, '... the ill-tempered girl is likely not to recognize her own irascibility; the overbearing boy may be unaware of his boorishness.' Maladjusted people may have built up defence mechanisms that obscure their insight into their own problems. All these possibilities may make their responses invalid. However, this problem may not arise in case of very simple questions based on concrete situations.

(iii) Faking. - One of the major problems with inventories is obtaining frank responses. The subject answering the questions of an inventory may sometimes judge the desirable answers. Hence, if somebody desires, he may fake his replies in such a way as to conceal the undesirable symptoms. The possibility of this happening is well pointed out by Nunnally. He writes that 'people in general tend to describe themselves in rosy terms, to an extent that lowers the diagnostic value of self-description inventories.' Similarly Remmers and Gage write -

'Adjustment is an emotional matter, something at which people cannot look in the light of pure reason

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alone. In contemplating their own adjustment, they are more likely to become biased, prejudiced, secretive, and deceitful of others and of self, than when contemplating their achievement in geometry, their physical health, or even their mental ability.14

Hence, the validity of an individual's score on an inventory would depend on his willingness to give truthful responses.

Despite all the above limitations, the inventories have a definite value in understanding the personality and adjustment of human beings. Nunnally remarks that, 'the great need to measure personality characteristics and the paucity of adequate measures should make us cautious about disparaging any well-intentioned efforts.'15

There are, however, methods for meeting the problems discussed above. Efforts have been made to overcome these limitations to some extent. The review of some inventories would illustrate how the above mentioned difficulties are handled.

* ADJUSTMENT INVENTORIES

Personality is a multi-dimensional complex concept. There are various types of inventories for the measurement of many non-intellectual aspects of personality. They are

Known by a variety of names e.g., test, schedule, index, data sheet, check list, blank, scale etc. They are classified by Freeman into five types: Those that  
(1) assess specified traits (for example, ascendance, conservation, self-confidence); (2) evaluate adjustment to several aspects of the environment (home, school, community); (3) Classify into clinical groups (paranoiac, psychopathic personality); (4) screen persons into two or three groups (psychosomatic disorders versus normal); (5) evaluate interests, values, and attitudes (vocational interests, scientific and economic values, attitudes toward religion).  

The examples of these five types of inventories are (1) The Barnreuter Personality Inventory; (2) The Bell Adjustment Inventory; (3) The Minnesota Multiphasic Personality Inventory; (4) The Cornell Index; and (5) The Strong Vocational Interest Blank.

An inventory which is proposed to be developed for measuring the school-adjustment would obviously belong to the second category in the above classification. Hence focus of survey was centred round this category. Although there is some overlapping in the content of inventories of various types, adjustment inventories can be distinguished from other inventories on the grounds that they assess

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the individual from the viewpoint of his relationship with his environment as being satisfactory or unsatisfactory as compared to others. Cronbach writes that, '. . . adjustment inventory consists of items that differentiate subjects known to be maladjusted from subjects judged normal... They are not definitive measures of any clearly defined traits.'

Some prominent adjustment inventories developed in the United States, which have been used widely, and which are types by themselves, were studied in details. The related studies concerning the same, which have been reported by some writers, were also referred to. As illustrations, a few are described hereafter.

18 The Woodworth Personal Data Sheet

The Personal Data Sheet, an inventory to assess the level of maladjustment, was constructed by R.S. Woodworth. It was 'the first inventory primarily concerned with assessing the individual...'. The circumstances under which this first inventory was constructed, are quite interesting. During the First World War a number of persons from the American Defence Forces broke down due to tension and strain. A need was felt to screen out such individuals.

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18 R.S. Woodworth, Personal Data Sheet (Chicago: Stoelting Press, 1918).
at the time of recruitment. A quicker method was needed, as it was difficult to screen every individual by a psychiatric interview. R.S. Woodworth prepared an inventory containing a list of statements, which every recruit was required to check whether they applied to him or not. This method worked well as a means of weeding out persons from the U.S. Army, who were emotionally unstable and tended to be neurotics, as it could be administered in large groups at a time. It contains in all 116 questions, some of which are given below as illustrations:

- Are you troubled with dreams about your work?
- Do you often have the feeling of suffocating?
- Have you ever had fits of dizziness?
- Did you ever have convulsions?
- Did you have a happy childhood?
- Can you stand the sight of blood?

The questions for the inventory were framed on the basis of common psychoneurotic or preneurotic symptoms given by the psychiatrists and clinical psychologists such as abnormal fears, obsessions and convulsions, might mares and other sleep disturbances, excessive fatigue and other psychosomatic symptoms, feelings of unreality, motor disturbances such as twitchings, and the
like. The questions, to which more than 25 per cent of normal individuals gave the neurotic responses, were eliminated. The item was retained, firstly, if less than twenty five per cent normal persons answered it in a 'neurotic' way; and secondly, if the psychoneurotic group consisting of previously diagnosed patients replied in a 'Neurotic' fashion at least twice as frequently as the random group of normal people. The total number of 'Neurotic' answers is the score of an individual indicating neurotic tendencies which is compared with the average scores of the normals and neurotics in the standardization sample.

According to Nunnally, 'A recognised weakness of the Personal Data Sheet is that it provides only one over-all index of adjustment versus maladjustment, providing no information about the kind of maladjustment.' Hence, Travers remarks that this type of measurement is 'analogous to measuring the degree to which individuals are sick but without specifying the type of sickness from which they are suffering.'

However, most of the inventories are modeled directly after it, to the extent of using many of the same

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items. As Cronbach write that, 'The Woodworth scale was a fore-runner of a number of adjustment inventories.'

Vernon also observes that the Woodworth's Personal Data Sheet is one of those three proto-types of which most of the hundred or more tests, that have been published, are modifications or extensions.

**The Bell Adjustment Inventory**

The Bell Adjustment Inventory is designed for use in high schools and colleges, and with adults. There are two forms of the Inventory - one for students (grade 9 through college) and one for adults. The student-form provides measures of adjustment for the home, health, social and emotional areas. The adult form, in addition to these four areas, provides a measure for occupational adjustment. Thus the inventory provides separate measures of adjustment to the five important areas of life.

The four sections of the student-form consist of 140 questions intended to evaluate an individual's adjustment level in respect to: (1) Satisfaction or dissatisfaction with home-life - Individuals scoring high indicate unsatisfactory adjustment to their home surroundings, while low scores indicate satisfactory home adjustment; (2) Extent of illness - high scores indicate

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23 Cronbach, Loc.Cit.
unsatisfactory health of an individual, while low scores indicate satisfactory health; (3) Extent of shyness, submissiveness, introversion - Individuals scoring high tend to be submissive and retiring in their social contacts, while individuals scoring low tend to be aggressive in their social contacts; and (4) Extent of depression, nervousness, ease of disturbance - Individuals scoring high tend to be emotionally unstable, nervous and easily disturbed, while those scoring low tend to be emotionally stable. The questions are to be answered as 'YES', 'NO' or '? For illustration a few items dealing with the (a) home, (b) health, (c) social, and (d) emotional adjustment are given below:

1d Do you day-dream frequently?
2b Do you take cold rather easily from other people?
3c Do you enjoy social gatherings just to be with people?
4d Does it frighten you when you have to see a doctor about some illness?
5c At a reception or tea do you seek to meet the important person present?
6d Are your eyes very sensitive to light?
7a Did you ever have a strong desire to run away from home?
Bell gives procedure about the construction and use of this inventory in a separate volume. Scoring is quickly done by means of stencils. Each response is given a weightage of one mark. The score is the sum of circled responses. It yields separate scores for the different aspects referred to above as well as total scores. Kaplan points out that total score on this inventory is of doubtful use since 'unsatisfactory' adjustment in one area is not compensated for by having 'satisfactory' adjustment in the total inventory.

The Inventory was validated through an item analysis to ascertain whether each question differentiated between the upper and the lower fifteen per cent of the individuals in a distribution of scores. Only those items which clearly differentiated between these extreme groups were retained for the final forms. It was further validated through the selection of individuals who in the judgment of expert counsellors were well-adjusted or poorly adjusted. The results indicated satisfactory agreement between the judgment of the counsellors and scores on the different sections of the inventory. Clark's study, however, did not prove this. He made a study of Bell's Adjustment Inventory at the Rochester Athenaeum.

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26 Hugh M. Bell, The Theory and Practice of Student Counselling, with special reference to the Adjustment Inventory (California: Stanford University Press, 1935)

and Mechanic Arts Institute by comparing it with composite faculty ratings based on a large mass of information about each of 138 students. He found that correlations between Bell's scores and the ratings varied from .319 to .165. He concluded that this inventory was not a valid indicator of student adjustment at that school.  

The reliability of the Inventory, as reported by Bell as well as other investigators, is satisfactory. Bell found the reliability coefficients by the split-half method and the spearman-Brown formula. For the four sections and the total score of the student form, the reliability coefficients vary from .80 to .93. Turney and Fee reported retest reliabilities ranging from .74 to .85, and Traxler reported odd-even reliabilities ranging from .85 to .93.

Norms are provided for high school students and college students, which were obtained by administering the Student Form on both high school and college groups in the United States. By reference to a table of norms, the score is converted to a descriptive statement ranging in five steps from 'excellent' to 'very unsatisfactory.'

These have been criticised by Tyler because of the use of a five-point scale which gave undue weight to changes of a few responses.31

The inventory is criticised on the grounds that the questions and the scores for each category do not represent separate and distinct aspects of behaviour and adjustment and that these aspects are not mutually exclusive since the same personality variables influence adjustment in all situations.32 This criticism holds good, but this is exactly the case with all types of personality variables. Many of the traits also overlap and what is called one trait may contain a large measure of another trait. As Spencer said, 'Personality traits cannot be created by the psychologist.',33 and Kaplan remarked that, 'traits do not exist or come into being merely by naming them.'34

In fact, however, The Bell Adjustment Inventory is a widely used inventory, for, it has been found useful in placing the individual relative to a group in respect to the specified areas of behaviour and in identifying cases for more intensive study.

31 H.T. Tyler, Cited by Super, Loc. Cit.
The California Test of Personality was devised by Louis P. Thorpe, Ernest W. Tiegs, and Willis W. Clark in five series: Primary, elementary, intermediate, secondary and adult. It measures personal and social adjustment of an individual. It is "... organised around the concept of life adjustment as a balance between personal and social adjustment." Hence, the major purpose of the test is to reveal the extent to which the individual is adjusting to the personal and social problems and conditions which confront him and is developing a normal and socially effective personality.

The test is divided into two sections: (1) Self or Personal adjustment, and (2) Social adjustment. Section one reveals how a person feels about himself, while section two indicates how one feels toward others or gets along with others. Each of these two sections again consists of six adjustment components. The components of personal adjustment are: Self-reliance, sense of personal freedom, feeling of belonging, withdrawing tendencies, nervous symptoms. The components of social adjustment are: Social standards, social skills, anti-social tendencies,

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family relations, school relations, occupational 
relations (adult level only), community relations.

There are in all 144 items, which are divided 
equally into the twelve components mentioned above.
Some examples from the different components are :
(Self-reliance) : Do you keep on working even if the job 
is hard ?
(Sense of personal worth): Do you find that a good many 
people are mean ?
(Social skills) : Is it hard for you to say nice things to 
people when they have done well ?
(Community relations): Do you often visit at the homes 
of your boy and girl friends in your 
neighbourhood ?

The content of the test is based upon a study of 
several hundred ways in which children, youth, or adults 
respond when confronted with problems about various 
situations which test their self-reliance, sense of personal 
worth and other personality characteristics. Before a 
situation (represented by a test item ) was included in 
the test, it was evaluated in the four different ways:
(1) Judgments of teachers, principals, psychologists, 
personnel directors, or employers as to whether or not 
it was an indicator of adjustment and employability;
(2) the reactions of competent adults as to whether or 
not they judged it to be an essential characteristics of
a successful pupil or employee; (3) the extent to which the results of the test agreed with the known characteristics of particular adults; and (4) the extent to which each item was consistent with the score on the test as a whole (Bi-serial $r$).

The reliability of the California Test of Personality is sufficiently high. The correlations obtained by the split-halves method corrected by the Spearman-Brown formula for the Adult series are: (1) Total adjustment .918, (2) Sec.1. Self-adjustment .888, and (3) Sec.2, Social adjustment .898. The correlation between Section one and two was found to be .76.

Percentile ranks are furnished for each level, both sexes together. The diagnostic profile is so devised that it is possible to compare and contrast the adjustment patterns of each individual with the characteristic modes of response of large representative groups of similar individuals by the use of percentile norms. The profile reveals graphically the points at which a particular person differs from desirable patterns of adjustment. The profiles are used for remedial guidance measures or in case of adult series, for selection and adjustment in employment.

The SRA Youth Inventory

The SRA Youth Inventory is a list of problems to be checked by the school-pupils. It was developed by H.H. Remmers, Youth

$^{36}$H.H. Remmers, B. Shimberg and A.J. Drucker, SRA Inventory (Science Research Associates, 1949).
B. Shimberg and A. J. Drucker for use in grades 7-12, but with separate profiles for the junior and senior high school levels. The SRA Junior Inventory for grades 4-8 is also available.

There are in all 298 items on the list. They are subdivided into nine classes: 'my school, looking ahead, about myself, getting along with others, my home and my family, boy meets girl, health, things in general, basic difficulty.' The items are intended to be a representative sampling of problems in these different areas. The individual is required to respond on it by checking those problems which he is encountering in his adjustment to different areas of life.

Original materials for the inventory were obtained by having high school pupils write spontaneous anonymous essays on problems of greatest concern to themselves. The contents of these were analyzed; earlier investigations and inquiries regarding teen-age problems were surveyed; and on the basis of these analysis and surveys, a preliminary list of items was prepared. These items were edited by specialists in psychology and in education, thus deriving the final list of items from direct introspection by the persons concerned, from comparative studies and from professional evaluation.
The manual of this inventory provides full statistical data essential for the interpretation of scores. Item norms for different grade and sex groups are given in the manual. In addition, a Basic Difficulty Key is supplied for use by the Counsellor in indicating problems that may be caused by more serious personality difficulties.

The Inventory helps to identify areas of problems that are worrying Junior and Senior high school pupils most. The obtained results, then in conjunction with other information about each individual, are used in Counselling and in instances where therapy is indicated. The authors emphasise upon interpreting scores in conjunction with other relevant information about each individual, for, when all relevant information about a particular adolescent is available, it is possible to estimate the significance of his responses and to differentiate between problems which are relatively superficial and those which suggest basic personality difficulties.

"The Mooney Problem Check-list"

A similar type of device is the Mooney Problem Check-list. There are separate forms for grade 7 to 9, 9 to 12,

13 to 16, and adults. All these check-lists provide a systematic coverage of problems often reported or judged significant at the different age levels. Student-problems are classified in these lists under eleven areas: Health and physical development, school work, curriculum and teaching procedures, home and family, Boy-girl relations, relations to people in general, self-centred concerns, future finances and living conditions, social and recreational activities, and moral and religion. At the end of the List, space is provided for the subject to summarize his chief problems in his own words.

It makes no provision for formal pupil scores and no norms are provided. Local norms are considered to be of greater significance. It is suggested that they be derived as desired. The use of indicated problems, simple counts, or problems by areas, and summaries of problems for groups of pupils constitute the recommended bases for interpretation of results.

The major uses of this comprehensive list of Problems is in guidance and Counselling. In the words of Thorndike and Hagen:

' The items that a child marks as matters of concern to him can serve as the starting point for more intensive inquiry in a face to face interview, while the problems that
are marked as troublesome by several in a class group

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can serve as the focal point for group guidance sessions. 38

"Bell School Inventory" 39

The purpose of the school Inventory is to enable

the school administrators or counselors to detect students

who are not well adjusted to the school they are attending.

The inventory consists of 76 items concerned with the

student's attitude toward his teachers, fellow students,

and the administration of his high school. The pupils

are told to answer by drawing a circle around 'Yes,' 0

'No,' or '?'. Some of the sample items are:

Do you think this school places too much emphasis

upon grades?

Do you think that the students in this school

are 'snobbish'?

Do you think that all of your teachers are 'Upto
date' in their ideas and actions?

Do you think that some of the women instructors

in this school show favouritism toward boys in

their classes?

Although the items embrace different aspects of

school, the inventory yields only a single over-all

38 Thorndike and Hagen, Op. Cit. p. 342

39 Hugh M. Bell, The School Inventory (California:

score. This is, perhaps, because the number of items are balanced with regard to various aspects of school. The number of items with regard to various aspects, as counted by the investigator, are: (1) Teachers - 48, (2) Academic - 8, (3) General Organisation - 14, and (4) Miscellaneous - 4.

Validity was determined by comparing the judgment of high school teachers and principals with scores on the Inventory. Two groups of students were selected by school faculties: one group whom they considered to be very well-adjusted toward the school; and one group that the faculty members felt were poorly adjusted to the school. Subsequent administration of the school inventory to these two groups revealed marked agreement between the test scores and judgments of the teachers. Traxler employed the correlation procedure in which a coefficient of .54 was obtained between scores on the school Inventory and the pooled opinions of teachers. 40

Reliability was determined by the split-half method and the Spearman-Brown formula. A coefficient of .94 was obtained by the author. Traxler found a coefficient of .92 by employing the same method.

40 Traxler, Loc.Cit.
The Inventory was standardized on 391 high school students and norms are provided for this age group. They are reproduced below:

<table>
<thead>
<tr>
<th>Description</th>
<th>Score Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>0 - 3</td>
</tr>
<tr>
<td>Good</td>
<td>4 - 12</td>
</tr>
<tr>
<td>Average</td>
<td>13 - 30</td>
</tr>
<tr>
<td>Unsatisfactory</td>
<td>31 - 39</td>
</tr>
<tr>
<td>Very unsatisfactory</td>
<td>Above 39</td>
</tr>
</tbody>
</table>

The norms obviously show that the scoring is in the direction of maladjustment. Even then the question marks are not scored. This implies that if a maladjusted student chooses to respond on question mark for a number of times, he would be considered as a well-adjusted pupil on the basis of his low scores.

The school Inventory, however, was a source of inspiration for the present work with an awareness of its limitations; which may be summarised as: (1) Its content does not adequately represent the various aspects of school life; (2) the scoring procedure is not convincing in view of ignoring question marks for mal-adjustment; and (3) the sample on which it was standardized was too small.

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The development of psychological tools is in its infancy in India. Particularly the field of adjustment as such did not attract the attention of Indian educationists for a pretty long time. The intelligence testing movement has recently gained momentum and considerable work is being done in that field for different languages. The development of adjustment inventories in India is rather a recent attempt. After all possible efforts, the investigator could come across the following work that has been done in the field.

**Problem Check-list for the University students**

The Problem Check-list was developed by the Student Counselling Centre, Faculty of Education and Psychology, M.S. University of Baroda. The details of this Inventory are given in a separate publication. The Centre felt that 'the student problems are a measure of the adjustment which the students are making to life. An estimate of this adjustment is the pre-requisite for the counselling services.' Hence the very first research project taken up by the Centre in 1960 was a study of the

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42 Problem Check-list for the University Students, Student Counselling Centre, Faculty of Education and Psychology, Baroda.
43 Prem Pasricha and Others, Adjustment Inventory for College Students (Baroda: Faculty of Education and Psychology, M.S. University of Baroda, Baroda.)
44 Ibid., p. 1.
problems of the first year students of Baroda University leading to the development of the problem check-list.

The check-list contains 232 problems. The students are instructed to read them carefully and put a tick mark against those which apply to them. These problems cover eleven categories. The categories, and the number of problems included in each, are shown below:

1. Health and Physical 11 items
2. Sensitivity and Confidence 11 items
3. Economic and lack of facilities 16 items
4. Self schedule and Independence 11 items
5. Mild neurosis (Nervousness, anxiety and phobias etc.) 13 items
6. Self and Self Image 12 items
7. Sex and Marriage 19 items
8. Social 37 items
9. Family 49 items
10. Studies, school and teachers 38 items
11. Work, Career and Future 15 items

Total number of items 232

The authors state that 'the number of items in each category could not be kept constant due to the different nature of the areas covered by these categories.' The
examples from each of the categories are given below:

1. I often suffer from headaches.
2. I have no self-confidence.
3. I cannot get newspaper to read.
4. I feel helpless when in trouble.
5. I cannot stop worrying.
6. I feel I am not intelligent.
7. I am too afraid of love, romance and marriage.
8. I dislike fat people.
9. My parents often find faults with my appearance.
10. I need guidance for the choice of a college.
11. I have difficulty in finding a job.

The problems were collected by the free response of students to the request to list five problems which bothered them the most. These responses gave the authors a list of about 600 problems. After proper sorting and adding other problems listed in the literature, an inventory of 234 items was framed. This list was again revised and refined and was finally reduced to 232 items.

With the help of this check-list, a study was undertaken to survey the problems faced by the normal college-going students in eleven adjustment areas. Scores of first and third year students were calculated in each one of these areas. The scoring consisted of one point for each problem marked. For comparison purposes and for the profiles
these scores were converted into standard scores. On the basis of these scores, the profiles of the first and third year samples were drawn. Within these two groups, the profiles of boys and girls as well as of different sub-groups were calculated. The sub-groups were: Science, Commerce, Arts, Fine Arts, Home Science, Engineering and polytechnic. The profiles of all these subgroups are provided for comparison.

Nothing can be said about the validity and reliability of these profiles as no information has been given with regard to these qualities. The authors suggest that the inventory needs to be tried with other samples to establish the value of this inventory as well as give more reliable profiles.  

The Youth Inventory, in the form of a problem check-list, was constructed by Pravin T. Raval in Gujarati for high school students. The Inventory consists of 140 problems covering 8 areas: (1) Health and Physical development, (2) I and my school (3) I and my family, (4) I and my future, (5) He and she, (6) I and others, (7) I myself, and (8) things in general. The areas are of equal strength containing 20 problems each. The score in each area is

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47 Ibid., p. 85.
the total number of problems marked by a pupil. Total score is the total number of problems of a pupil.

The items were selected from essays about the problems of 800 adolescents in schools. The selection further depended upon the experts' checking of items as indicative of deeper emotional problems. 24 teachers and six experts in the field of psychology, psychiatry and mental health were asked to check the items of deeper emotional problems. The preliminary form of the Inventory was administered to a group of 515 students for item-analysis. The items having highest frequencies were chosen for the final form. The items having low frequencies were also chosen if they were selected by experts. The idea was to select 20 items in each area.

The reliability of this Inventory was studied by test-retest method readministering the form on a group of 70 students after an interval of 3 weeks. The reliability coefficient is reported to be .65 which is not satisfactory looking to the period of interval.

Validity of the Inventory was not determined adequately. The biserial coefficients of correlations were computed between each item with the total score on the criterion of internal consistency. No item was found to have lesser correlation than .31. No other efforts
were made to study its validity.

Vyaktitva Parakh Prashnavali
(Personality Questionnaire)

The Questionnaire was developed by M.S.L. Saxena for use with school and college students to assess their adjustment in five different areas: home, health, social, emotional and school. It is composed of 90 items spread over these five areas of adjustment. The questions are answered by 'YES', 'NO' or 'doubtful' form of responses. Only 'YES' and 'NO' responses are counted for scoring, each with a weight of +1.

The reliability of the Inventory was studied by test-retest, split-half and rational equivalence methods. The coefficients have been reported by the author as .87, .89 and .90 respectively, which are satisfactory.

The validity coefficient against the teachers' estimates of the pupils' adjustment was found to be .63 (boys) and .71 (girls). These results also appear satisfactory provided the teachers' concept of adjustment was the same as that on which the items of the Inventory are based.

The standardization of the Inventory was done on a sample of 2529 students of class IX to postgraduate level of the age ranges from 11 to 20 and upwards. Different kinds of norms such as C-scale and Stanine norms, norms

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M.S.L. Saxena, Vyaktitva Parakh Prashnavali (Banaras: Department of Psychology, Banaras Hindu University.)
based on probable error units and sigma units are provided. This is, perhaps, the first adjustment inventory in Hindi which has a published manual giving information about its standardization and the essential requisites like validity and reliability. However, the manual is inadequate in many respects. For example, nowhere has the author said what is meant by adjustment in different areas and what the items contained in each scale are purported to measure in terms of operational purposes. Item-analysis procedures are also not mentioned in the manual. Again, no information is available about the technique of sampling for the standardization data. Nevertheless, the Inventory can be quite useful as a guidance tool and for many other purposes.

The Aligarh Adjustment Inventory

The Aligarh Adjustment Inventory was prepared and standardized in Hindi and Urdu by the Guidance and Counselling centre of the Department of Psychology, A.M.U. Aligarh. On the front page of the Inventory, it is stated that the purpose of the Inventory is to know the personality and problems of the students.

The Inventory yields scores on five different areas and also a total score for an individual. The 90 items
selected through item analysis are distributed in the five areas as under:

1. Social area 20 questions
2. Emotional area " "
3. Health area " "
4. Home area " "
5. Financial area 10 "

Items are, however, randomised in the actual form of the Inventory. The individual is instructed to respond on either of the three responses. 'Yes', 'No' and '?'.

Only 'Yes' and 'No' responses are scored. Maladjustment score is counted through separate scoring keys for each area. The information about its standardization, validity and reliability could not be gathered, for, according to an enquiry made from the centre, the manual was not yet printed. The inventory, however, appears to be on the pattern of Bell Adjustment Inventory, except that a new section that of 'Financial area' has been added.

Masani's Problem Check-list

It was developed by the psychiatrist K.R. Masani and his collaborators. Like all other check-lists, it is meant to screen individuals with problems. It consists of fifty self-referent statements. Some of the examples are:

7. Are you touchy in various subjects?
13. Do you get stage fright?
18. Are you easily moved to tears?
24. If you are spending an evening in the company of other people, do you usually let someone else decide upon the entertainment?
36. Do you often get a headache?

The items appear to have been selected from the old inventories. Three responses — Yes, No and ? are given of which a respondent is to choose only one. Yes responses are supposed to be representative of some form of maladjustment. The number of Yes responses, therefore, indicate the strength of maladjustment. This provides an over all measure of maladjustment. It appears to be on the pattern of Woodworth's Personal Data Sheet. Hence the same comments are applicable to this List also.

To study its validity, the scores on it were correlated with the personal adjustment scale of the California Personality Test, which was described above. Correlation coefficient of .65 was obtained, which appears quite satisfactory. J.M.Fuster analysed its items by administering the list on groups of men and women. He found that 191 items in men, and 10 items in women obtained below the 25 per cent Yes responses. From this
he concluded that only those items were representative of some form of maladjustment. On the basis of these findings, he suggested that emphasis should be given to only such representative statements according to sexes. This shows that the check-list is useful only in part. It will be difficult to draw a general picture of one's adjustment-maladjustment from these few useful items. Hence, the main value of the list is to suggest certain areas for further exploration rather than to get a score for knowing the strength of maladjustment.

In addition to some of the inventories described above, some foreign adjustment inventories have been adapted and translated from English into Hindi and other regional languages. For example, The Bell Adjustment Inventory (Student Form) has been adapted in Hindi by Educational and Vocational Guidance Bureau, Bihar. The Inventory consists of the same 140 items of the four areas viz. Home, Health, Social and Emotional. Separate local norms on five point scale have been calculated for high school and college students in the five areas. However, no information about the validity or reliability of scores is provided.

52 Ibid., p. 66.
53 Ibid., p. 71.
54 Adjustment Inventory - Abhiyojan Aavishkarika, Adopted from the Adjustment Inventory (Student Form) by Hugh M. Bell. (Patna: Educational and Vocational Guidance Bureau, Bihar).
Looking at all the above efforts, the following points may be observed with regard to the work done in India:

1. There has not been much work in the field of measuring adjustment. It is sporadic.

2. Adequate evidence is not available about validity and reliability of most of the inventories. In many cases almost no effort has been made to investigate validity.

3. Most of the inventories have been developed to measure adjustment in different areas or situations together rather than in a single area.

4. No attempt has been made to develop an inventory for measuring adjustment of pupils entirely in school-situation.

The last point is of worth consideration in more details from the viewpoint of the present study. Freeman points out that inventories are more valuable in some kinds of situations than in others.\(^{55}\) This statement appears convincing in view of the fact that an individual may not be equally adjusted to all the situations. Strang aptly remarks:

' There can be no one 'good' personality that would be equally appropriate in every situation. For example, one student found that the kind of

personality approved in her small home town led to maladjustment in the school dormitory.\(^{56}\)

This implies that the inventories, which have been developed for measuring one's adjustment in other areas or situations, are not useful for knowing pupils' school adjustment. Those may have some value in the schools for the location of pupils, who are maladjusted in various other ways, but they will not give any information about the pupils' adjustment to school-situation and the problems which are directly related to school. Clark's study of the Bell Adjustment Inventory, referred above, clearly showed that this inventory was not a valid indicator of student adjustment at school selected by him. This may be true for all other inventories of this type, which have been developed for measuring individual's adjustment in the areas other than the school or even for measuring one's over all adjustment.

Again, the inventories, in which the school section is included along with so many other sections, cannot be as useful as an inventory entirely meant for knowing the pupils' adjustment in school situation. The 20 items or so will not tell everything about one's adjustment to various aspects of the school. The sampling

of items should be adequate and should include all the aspects of school-life in order to get sufficiently reliable information about pupils' school-adjustment.

It was because of these considerations that the investigator felt an utmost need of an inventory for measuring school-adjustment of pupils in our country. It was not considered enough to translate or adapt some foreign tool, like the School Inventory by Bell, for this purpose. There are little changes of required validity and reliability, if a tool is simply translated by making a few changes here and there. The socio-cultural differences render the foreign adjustment inventories inadequate for our country. Our school-system, teaching procedures, codes of behaviour and administrative organization vary greatly from that of America.

Considering all these views, it was planned to develop an original inventory on the basis of the situation presented by the schools in our own area. For this purpose, it is worth while to summarise the major observations about the way in which an inventory is usually constructed and standardized and the way of improving its validity and reliability.
THE MAJOR OBSERVATIONS ABOUT INVENTORIES

The brief survey, although by no means exhaustive, shows that adjustment inventories occur in various forms. They consist of large number of items about actions, feelings or problems to which the subject responds by indicating whether each is or is not characteristic of him. These items are usually culled from many sources such as literature, case studies, records, writings on adjustment problems and experts like psychologists and psychiatrists etc. The responses of the subjects on the items are objectively scored and interpreted in comparison with the norming samples. Study of the responses on individual items by a single subject or a group of subjects is considered very useful for guidance and counselling purposes.

Reliability of the inventories is studied by various methods like the test-retest, split-half, and Kuder-Richardson method. Out of these internal consistency methods like split-half etc. are most frequently used, for, the test-retest reliability coefficient is likely to be affected by the inconsistency in an individual’s responses to questions in an inventory. Their validity is studied by correlating them with other appropriate inventories, studying differences between widely-spaced groups, measuring
internal consistency, and checking against known groups of well or poorly adjusted individuals in the area.

A review of the inventories and the literature about the inventories also led to note down certain important observations regarding the manner in which the reliability and validity of an inventory may be increased. They are mentioned below:

1. **Adequate sampling of items**:

   Usually inventories employ large number of items in order to make the results reliable. As in all tests, the reliability of inventories is likely to be raised by increasing the number of items.

2. **Disguising items**:

   Anticipating the individual's tendency to rationalize his behaviour, some authors have attempted to disguise their inventory items. 'Are your tests so hard and unfair that it is right to cheat?' is an example of a disguised question taken from the California Test of Personality, which contains items to measure Personal and Social adjustment of an individual. The phrasing of questions in such a way affords the individual a degree of justification for his unfavourable responses. This is likely to encourage frankness. In other words, the questions are camouflaged or disguised to minimise the resistance on the part of a respondent.
3. Randomising the items:

In the Bell Adjustment Inventory, for example, the items dealing with the home, health, social and emotional adjustment are randomised and scattered throughout the inventory. Scattering items throughout the inventory complicates scoring but increases the validity of scores, as compared with the procedure of grouping together all questions on similar aspects. The reason is that when the items pertaining to different areas or components are arranged randomly, examinee's awareness of components being measured is considerably reduced.

4. Motivating the subjects:

The problem is of ensuring that the conditions produce the motivation of the same quality for a common orientation toward the task. The subjects are motivated to reply truthfully. This is usually accomplished by keeping giving the assurance that the results will be kept secret and that they will be used for their own interests or benefits. This increases the possibility to get the frank responses and minimise the influence of faking. Dora Damrin points out, 'If students are convinced that their replies will be kept confidential and used as a basis for helping them, they will usually give frank responses.'

The validity of inventories is also increased with subtle changes in the testing environment. Nunnally found that in military setting the responses to self-description inventories are sometimes different when they are administered by civilians rather than by officers and when the respondents are told that the results will become part of their military records than when they are told that the results are to be used strictly for research purposes.\(^5^8\)

5. **Selecting and keying items on the basis of empirical data:**

Perhaps the best approach to increase validity, used in case of some inventories, is to select and key items on the basis of findings regarding the typical responses of criterion groups. The items for the Bell adjustment Inventory as well as school Inventory were selected on the basis of the significantly different responses of the known groups of well-adjusted and poorly adjusted pupils. The Minnesota Multiphasic Personality Inventory\(^5^9\) and the Cornell Index\(^6^0\) are also examples of the inventories in


which the items were empirically selected and keyed. When inventories are built according to the pattern of empirical criterion keying i.e., the keying of an item is based not on its obvious content but on the empirical fact that it distinguishes between criterion groups, most of the problems raised in the limitations regarding Validity of inventories are likely to be solved.

All the above points appear very useful for developing a valid and reliable inventory. Bearing all these observations in mind, a plan to develop a School-adjustment inventory was prepared. The Plan is discussed in the next chapter.

SUMMARY

Inventories are self-report questionnaires. The individuals are presented with a uniform set of questions; their responses are objectively scored and the results are interpreted in comparison with norming samples. They are useful as a screening device, for identifying specific problems, and as a stimulus for initiating discussion in further psychological interviews. The inherent difficulties in construction, standardization and administration of inventories make many psychologists feel that they are less valid and reliable. In fact, their value or usefulness depends upon the individual's ability to read the questions with understanding, self-insight and self-understanding,
and willingness to reveal himself frankly. The integrity of the responses depends upon his motivation.

A perusal of the literature reveals that there are great variety of inventories and they occur in various forms. The survey of some adjustment inventories brings out their salient characteristics. It is found that each inventory has to be interpreted in terms of the situations for which it is developed and the inferences are to be drawn in terms of the approach used in its construction.

A review of the studies in India shows that much has been achieved in our country. Some inventories have been developed individually or by bureaux of Guidance and Counselling. However, schools have not yet found a tool for measuring complete school-adjustment. In view of this necessity, it was decided to develop an inventory for measuring school-adjustment.

The survey of the adjustment inventories and the literature led to observe certain useful hints for developing a valid and reliable inventory for the purpose. Some of them are: selecting the content with utmost care, disguising the items, assembling them randomly, establishing rapport and gaining confidence of the respondents, and using known or criterion groups for selecting and keying the items.