

CHAPTER III

REVIEW OF THE APPROACHES
TO THE ASSESSMENT OF INTEREST

The study of interest was initiated in an atmosphere of applied psychology by Strong followed by others. In recent years its value as a research source in the areas of personality theory and motivation has begun to emerge. In the words of Fryer (1), "The measurement of interests, and particularly measurement by objective methods, is a field of research which is ready for rapid development."

Before attempting to measure a personality trait or a variable it is essential to have a clear concept of the term with all its implications. It is quite likely that the concept would be a multidimensional one and one should take sufficient care in seeing that all its dimensions have at least been covered by its definition.

In the past, emphasis was laid mainly on the subjective feeling accompanying interests. This is why questionnaire comprised the major tool for the study of interest at the cognitive level. The question of

1 Fryer, D.: op. cit., p. 359.

preferences in the form of likes or dislikes was to be determined. Thus, the purpose was served by preference records of blanks as attempted by Kuder or Strong. It was Woodworth who first defined interest from subjective side as similar to an emotion and from its objective side as a drive towards activity. A growing recognition for taking into account the various aspects of interests prompted various approaches. For the sake of convenience it is perhaps desirable to classify them under the following two categories:

(a) Subjective

(b) Objective

(a) Subjective Approach

Subjective approach includes those techniques where the subject has to answer direct questions after judging himself in respect of certain traits. It may also include the methods of impression like ratings or interviews. Among the subjective methods, the paper and pencil techniques like inventories and questionnaires have been widely used for the purpose. This technique has its long past and is still regarded as an indispensable tool in most of the researches in social sciences. Questionnaires are subjective in the sense that they involve certain amount of subjectivity or personal bias unavoidable in

self-rating or formulation of self-concept. It is mainly based on method of impression which can hardly be verified on a scientific basis. Thus, it has its limitations which should be overcome for its effective use. Recently, Guilford (2) in a survey of personality inventories considered some of the major criticisms of the questionnaire or the inventory, but still felt that personality inventories have much to offer. It is important to understand individuals better in terms of trait concept. The criticisms directed against the questionnaire method is around the factors like faking, social-desirability and superficiality. Among the various tests and interest inventories those of Strong, Allport-Vernon and Kuder deserve special mention.

Allport in his study of values tried to make a comprehensive approach to the study of interest on a certain basis of classification mainly guided by the fundamental values, whereas Strong emphasised the vocational aspects of interests and wanted to bring out the various expressions of interests in occupational fields.

Kelley (3) is one of the pioneer constructors of

2 Guilford, J.P.: Personality, (New York: McGraw Hill Book Co., 1959, pp. 160-169).

3 Kelley, T. L.: "Educational Guidance. An Experimental Study in the Analysis and Prediction of Ability of High School Pupils." Teachers' College, Columbia, Cont. to Educ., No. 71, 1914, pp.40-62.

the inventory in interest area, although, Thorndike (4) first attempted to deal specifically with interest in 1912. He selected 100 college students as subjects who were asked to rank order their interests as they remembered them in elementary school and in high school. Concurrently, their abilities were also then ranked according to their opinions and correlated to the various rank orders obtained in the field of interests. The result of the investigation was clearly indicative of the importance of early interests. These interests were shown to be of some permanence. They have proved as determinants of present and future attainment as well as some fundamental feature of the individual's original nature. Kelley also points out the role of interest and the interaction between one's interest and volition or effort. This is, no doubt, speculative and much of the mysteries remains to be explored by others.

So far as interest measurement is concerned Kelley's (5) contribution was more concrete even in those days. In 1914 an instrument in the form of questionnaire was developed for collecting information about preferences. His questionnaire including items such as, "If you had the opportunity, which one of the following would you

5 Kelley, T.L.: op. cit., pp. 41-43.

attend.....?" covered a wide range of topics and activities. It called for expression of interests regarding magazines, books, sports, amusements, vocations and evidence of ability with vocabulary. In short, the subjects were asked to express their opinions on each of the areas of interest. Kelley suggested various kinds of interest inventories which appeared to be promising at that time. His work has got special significance because of the variety of techniques employed by him.

The name of Bingham (6) deserves mention because of his efforts in attacking the problem of measuring interests on a scientific basis.

In 1921, Moore (7) attempted the measurement of mechanical and social interests of engineers, while in 1924 Ream (8) endeavoured to distinguish between successful and unsuccessful salesmen by their interests. This was followed by Freyd (9) who made a further attempt to

6 Bingham, W.V.: Aptitudes and Aptitude Testing, (New York: Harper and Brothers, 1937, pp.61-62).

7 Moore, B.V.: "Personnel Selection of Graduate Engineers", Psychol. Mono., 1921, 30, Whole Number 138, p. 85.

8 Ream, M. J.: Ability to Sell: Its Relation to Certain Aspects of Personality and Experience, (Baltimore: 1924, p.64).

9 Freyd, Max: "The Personalities of the Socially and the Mechanically Inclined," Psychol. Mono., 1924, 33, whole Number 151, p.101.

distinguish by their interests between mechanical and social groups of people. The first standardized form of inventory was constructed by Freyd and others and published in 1921. This inventory was used by Freyd to develop objective scoring key based on group interest.

Miner's (10) work upon the inventory method was a factor in this undertaking which has made the measurement of interests a feasible enterprise. His comprehensive inventory demands a student to indicate two groups of school subjects which have interested him most. Different types of working conditions are contrasted and the student is asked for each pair to mark the alternative under which he thinks he would do little work. In this way, his analysis of work interests published in 1922 proved useful for individual and educational guidance.

Strong's (11) work is an extension of the previous work by Freyd and others. He published in 1928 an inventory for measuring interests in 72 different occupations by means of three responses. His emphasis was on vocational interests as distinguished from Freyd's, whose concern was for general interests. Strong's Vocational

10 Miner, J.B.: "An Aid to the Analysis of Vocational Interests", J. of Educ. Res., 1922, V, 311-323.

11 Strong, E.K.: Jr., "An Interest Test for Personnel Managers", J. of Pers. Res., 1926-27, V. 194-203.

Interest Blank has been extensively used and revised for the sake of improvement. In constructing his vocational interest blank Strong assumed that there exist patterns of interests distinguishing between different groups. He collected a list of 100 items from various occupational areas and a further edition was published by him in 1928. Several new features were added to this inventory and 420 items were included in this version. These items included lists of occupations, amusements, subjects of study, miscellaneous activities, types of people etc. Each item is followed by L, I, D (Like, Indifferent, Dislike).

There is no time limit and the tests should not usually take more than 35 minutes. The scoring is purely empirical being derived from actual responses of very large groups of individual concerned ^{with} particular occupations. Several techniques of constructing scoring keys have been suggested.

Strong's Vocational Interest Blank has been used extensively for a number of years although the scoring method appears to be complicated. The inventory is not interested in the individual answer but in the patterns of score for some reasons or the other. Similar types of inventory were evolved by a number of people. -

Garretson (12) published an interest questionnaire for high school students in 1930. The questionnaire included 328 items selected on the basis of their ability to distinguish between academically, technically and commercially interested people. The items were divided into nine sections and the students were asked to record their interests in each item by three way response, - Like, Indifferent, Dislike.

A somewhat different analysis of interests was made by Brainard (13). He prepared an inventory containing 100 items representing major fields of activity. In each of the activities the student was asked to estimate his extent of interest in each activity like doing arithmetic problems, writing poetry, making article of furniture, setting up laboratory apparatus etc. The basic principle underlying the construction of the inventory is a sampling of the students' expressed feeling of interest towards a wide range of objects or activities. The classification of interest was based on its analysis into twenty major activity groups of which the following deserves mention:

12 Garretson, O.K.: "Relationships Between Expressed Preferences and Curriculum Abilities of Ninth Grade Boys", Teachers' College, Columbia University, Cont.to Educ., No. 396, 1930, p. 77.

13 Brainard, P.P.: "Interest Tests in Vocational Guidance", Voc. Gui. Mag., 1928, VI, 156-159.

- (a) Mechanical
- (b) Literary
- (c) Scientific
- (d) Commercial
- (e) Study
- (f) Music.

Thus, it is observed that some of the categories of Brainard are in keeping with the classification followed in the present investigation. After Strong, the widely used inventory was that of Kuder (14). The Kuder Record was designed for use with high school and college students and with adult men and women.

Kuder evolved parallel forms of inventories for covering the various areas of interest. His vocational C measures ten broad areas of educational interest, outdoor, mechanical, computational, scientific, persuasive, artistic, literary, musical, social service, and clerical.

Vocational B measures all these except outdoor. The Personal 'A' measures five different kinds of personal preferences referred to as sociable, practical, theoretical agreeable and dominant. These inventories call for choices among a wide range of activities as does the

14 Kuder, G.F.: Preference Record: Vocational, (Chicago, 1939. Examiner Manual for the Kuder Preference Record, Chicago, Science Research Associates, 1949).

Strong's, but the choices are not grouped into categories such as occupational, subjects etc. The alternatives are presented in groups of three. In each group the subject selects the one alternative which he would prefer most and the one which he would like least. The usefulness of the Kuder Preference Record is acknowledged because of its comprehensive nature and simplicity in scoring principle.

Thus, the movement of interest testing made its headway in America and found acceleration as a result of the efforts made particularly by Fryer, Allport, Strong and Kuder. Similarly, parallel movement was launched in Europe for interest assessment.

Interest Assessment in Great Britain

In countries like England, Germany and Holland approaches have also been made to interest assessments in recent years. In Great Britain, one of the first large scale inquiries was reported by Pritchard (15) in 1935. In this investigation 8,273 boys and girls at the secondary schools were asked to rank in order of preference a given list of school subjects. In a subsequent investigation, Pritchard attempted to determine how far the

15 Pritchard, R.A.: "The Relative Popularity of Secondary School Subjects at Various Ages", British Journal of Educational Psychology, 1935, 5, pp. 157-179, 229-241.

expressions of opinion obtained in his questionnaire gave a reliable indication of the feelings of the pupils towards the subjects themselves and how far they were influenced by other factors. It appeared from the results, that according to the group tested, the nature of the subject was the dominating factor in affecting their choice. In 1936, Shakespeare (16) reported an investigation carried out in Worcestershire. He obtained the opinions of 4,555 girls and 4,572 boys drawn from the country and town schools. The age range of the subjects was 7-14 years, and the procedure was similar to that adopted by Pritchard. It was inferred by him from the data that the change in attitude was due to psychological development rather than to a fluctuation in the pupils' attitude towards the subject matter.

Comber (17) in 1938 carried out an inquiry into the scientific interest of children, 2263 boys and girls of the age range 11-17, attending senior and secondary schools were asked to express their interest on 117 items of the questionnaire which was validated against ratings. Comber found that younger children are more uniform in

16 Shakespeare, J.L.: "An Enquiry into the Relative Popularity of School Subjects in Elementary Schools", British J. of Educational Psychology, 1936, 6, pp.147-153.

17 Comber, L.C.: "The Scientific Interests of Children in Relation to Teaching of Science", M.A.Thesis, 1938, University of London.

their interests than older children and there is hardly any difference in the scientific interest of children living in different areas.

Another important inquiry was that of Mc Clelland (18) in 1942. He made an investigation into the preferences of school subjects of a group of 227 pupils at the qualifying stage in a Scottish Industrial Centre. A five point scale was used while the pupils were given a list of 16 school subjects and asked to express their interest in each. The aim of Mc Clelland's investigation was to explore the possible use of interest tests in selection for secondary education. It was found that the correlation between the gradings of interest and attainment given by the pupils was as high as .95 but it was reduced to .40 when the teachers' estimates of their ability were taken as the criterion.

Stacey (19) in 1945 enquired into the stability of attitudes and interests of urban adolescent grammar school girls of 11-16 years in London. She used four tests measuring attitude towards school, language, and

18 Mc Clelland, W.: Selection for Secondary Education, Scottish High Council for Research in Education, (University of London Press, 1942).

19 Stacey, M.W.: "An Enquiry into the Stability of Attitudes and Interests of a Group of Adolescent Girls", M.A. Thesis, London University, 1948.

science and retested the sample at six-monthly intervals. She found remarkable stability of interest at all age levels, and concluded that attitude and interests were fairly definite before the pupils entered secondary schools at eleven years of age.

Flood and Crossland (20) enquired into the origins of the interests and motives of 626 students in W.E.A. classes in England and Wales in 1948. The instrument used was a printed questionnaire listing possible reasons for attending voluntary science course and asking the students to rate them on a four point scale.

Lambert's (21) investigation of the interest of 348 pupils in school subjects was mainly concerned with identifying certain factors associated with liking and disliking a subject. She used an interest inventory, which demanded information about one's interest in various subjects. It was reported that the interest test mainly in the form of an inventory used by her was a valuable aid in differentiating the more able boys at 11+, suitable for

20 Flood, W.E. and Crossland, R.W.: "The Origins of Interest and Motives for Study of Natural Sciences and Psychology among Adult Students in Voluntary Classes", British Journal of Educational Psychology, 1948, 18, pp. 105-117.

21 Lambert, C.M.: "A Study of Interest in School Subjects among Secondary School Pupils at Different Ages", M.A. Thesis, London University, 1944.

technical education from those suitable for an academic education.

Very recently Meyer (22) had made an exhaustive study of interest, concerning mainly science interest in 1959. He tried to measure three aspects of interest viz. leisure interests, interests in school science topics and interest in scientific methods by means of subjective interest tests - scored by absolute summation without reference to norms outside the group. These took the form of presenting the testees with statement and instructions such as, "Give four votes to those which are most like what you would have said, three for the next likely ones and so on."

Sandall (23) in 1960 attempted an analysis of the interest of secondary school pupils. He compiled 28 categories of juvenile interest and constructed an inventory of 378 items. Forced choice technique with paired comparison was employed by him and the test was administered to 429 boys and girls of age range 11-16. Another form was also constructed on the basis of 8 categories and administered on 1400 boys and 1000 girls for obtaining

22 Meyer, G.R.: "An Enquiry into Factors Accompanying Science Secondary School Pupils Interest in Science", Unpublished Ph.D. (Education) Thesis, London University, 1959.

23 Sandall, P.M.: "An Analysis of the Interests of Secondary School Pupils", Ph.D. Thesis, London University, 1960.

norms. The test was validated against the boy's own estimates and the coefficients obtained in two groups were .73 and .70.

Fleming (24) has also developed a test designed to assess the preference of school children for objects and ideas of people and used the same to guide children to courses with technical and other types of bias. The items are presented in the form of statements which are grouped under the following headings:

- (a) Knowing your own mind,
- (b) Talking about wishes,
- (c) Judging other people,
- (d) Choosing work, spending money,
- (e) Using one's hands,
- (f) Being with other people,
- (g) Talking about school.

The children were asked to mark four statements which vary from the one considered to be most sensible to the one with which there is no agreement. The last section is entitled, "Keeping a record", and enlists forty activities on which children have been found to spend time.

24 Fleming, C.M.: P.A.L. (A Study of Preferences) Wiegersona, Sand Barr F. — Interest Testing in Educational Research and Vocational Guidance, Vol.2, 1959, p. 59.

Another frequently used test in U.K. is the 'Devon Interest Test' by Wiseman and Fitzpatrick (25). This test has been developed for boys and girls for obtaining their practical and academic course. Various groups of six activities mainly related to everyday life are presented and the respondents were asked to indicate whether these activities are liked, disliked, not undertaken or unknown. In addition to the first and second, strongest likes are recorded. In each panel of six activities there is a strong distractor like playing a foot-ball or going to see an exciting film. This was found to be highly discriminating and especially indicated pupils with a practical bias strong enough to take precedents over the \times distracting activities.

On an analysis of various attempts to assess interest by means of inventories, it appears that they differ in their use. According to Levy (26) they may be classified under: (a) Preference system, (b) Rating system, (c) Trait system and (d) Empirical system. In a review of educational research on the current position of interest test it was held that most of them were variations of two

25 Fitzpatrick, T.F. and Wiseman, S.: "An Interest Test for Use in Selection for Technical Education", British Journal of Educational Psychology, 24, 1954, pp.99-105.

26 Levy, P.M.: "A Study of Interests", Ph.D. Thesis, University of Birmingham, 1960.

methods of approach viz. empirical and logical. Strong's Blank may be taken as an example of the "empirical" approach, whereas Kuder Preference Record falls under "logical". Much attention has, of course, been given to the paper and pencil test, although it suffers from a number of limitations. It is clear that a person's response to written questions about his interests may be misleading not only because they may be faked but also because they may distort the picture of his interest presented by his actual day to day behaviour. It may be said in this connection that the subjective approach to assessment of interest has been preferred by those who have looked at interest from the 'Gestalt' stand-point. As such they are ready to sacrifice scientific precision for the sake of qualitative analysis of interest. There are others who in the hope to build up a true science of personality are favourable to objective methods relying on xpsychometric testing. It appears, however, that there has been recently a shift of emphasis from the cognitive and affective aspects of interest to its conative aspect. This is because objective approaches to the interest measurement, are quite feasible if interests are measured through responses at the conative level.

While discussing the basic differences between

subjective and objective methods of measuring interest, Fryer (27) concluded that a person's interest in an object or in an activity is expressed subjectively by a verbal statement of like, dislike or indifference, while an objective expression of the interest would be shown by the person's real or operational reaction to the object or the activity. The two expressions may not necessarily coincide, but are likely to assist in arriving at a composite picture of the individual's interest.

Objective Approach

To-day interests are being defined by their measurement and they are named from objects or activities, the psychological stimuli which engage attention of individual.

The term objective is used in a limited sense. The objective assessment should be based on direct and precise observation of the subject's reaction to the actual test situation without giving any scope for the subject's opinion of himself. In other words, we have an objective assessment when the individual himself manifests his particular interest in a specific situation under the control of the investigator. In this case, the scope for

27 Fryer, D.: op. cit., p. 352.

subjective errors or the personal equation is controlled by the investigator through creation of a number of actual test situations. The advantages of objective tests, according to Peel (28) are that they provide a genuine test situation free from dependence and subjective judgment. In the objective measurement of interests, the method has been to tryout testing devices, thought to measure other aspects of reaction than that generally referred to as abilities.

The trial of objective measures of interest has been with the various kinds of tests as follows:

- (a) Information Tests,
- (b) The Free Association Tests,
- (c) The Word Association Learning-Test,
- (d) Distraction Materials Test,
- (e) Other Objective measures.

(a) Information Tests

The information tests of interest have been developed along both general and specific lines. The first use of information test as a medium of measurement of interest was in 1895. Wissler (29) prepared an information

28 Peel, E.A.: "Assessment of Interest in Practical Topics", British Journal of Educational Psychology, 1948, 18, pp.41-47.

29 Wissler, Clark: "The Interests of Children in the Reading Work of the Elementary Schools", Ped.Sem., 1898, V, 523-541.

tests to measure things that children remember from their readings. He sent to the school superintendents of Indiana for pupils in schools to answer the question what subjects of the lessons do you remember from the Reader you used last year? An average number of pupil's recall from 33 to 55 per cent of a reading lessons which might be accepted as a standard of the childrens' reading interests. He believed that the results gained by this method are better indicators of interests than are the preferences of school children. In 1916, another information test was prepared by Robinson (30) with the purpose indicating the breadth of interests. It was a test of true-false variety designed to sample the whole range of information. The test was, however, not free from the limitations as it contained only 102 problems, which appeared to be a very limited measure for securing an indication of breadth of interest. The test showed extensive differences between individuals, although there was a scope for doubt as to whether these differences are ability differences or interest differences. Another information test of interest is O'Rourke's Mechanical Aptitude Test Junior Grade (31),

30 Robinson's "Range of Interest" Test, published in 1917 as Test V of the Bureau of Personnel Research, Cargie Institute of Technology, is on the file in the Department of Psychology, New York University.

31 O'Rourke Mechanical Aptitude Test, Junior Grade, is published by the Education and Personnel Publishing Company, Washington, D.C.

which combines a measure of mechanical information and a measure of general trade information. Post-war psychologists (1918-1921) in the Army Camps in the U.S.A. also used information test for measurement of mechanical interest. The original mechanical interest test was devised by Edger Rice (32) where a set of 60 mechanical pictures was used. This test was of the recognition variety of information test, presenting the tools, each of them numbered, the subjects were asked questions concerning these tools in the following form.....

"What tools are used to saw up railroad ties?"

Ream (33) in 1921 devised an information test to show range and type of social interest. His test was known as social relations test based upon the assumption that the man who has a fund of social information prefers to associate with people. The test is of the multiple choice variety and includes 50 questions.

Ream's Social Relations Test was administered to 200 Salesmen and the score in the test was found not to be predictive of success in selling.

32 Rice, E.: Discussed by Fryer, D. in his book, "Measurement of Interests", pp. 265-266.

33. Ream, M.J.: "A Social Relations Test", Journal of Appl. Psychol., 1922, VI, 69-73.



Burt (34) in 1922 experimented with an information test of the multiple choice variety. The test contained items sampling field of agricultural engineering. Forty problems were included in the test which was used in this study of 43 students specialising in agricultural engineering at Ohio State University. Some of the items are as follows:

- (3) A track-laying tractor is used for: Road Rolling, Painting, Milking, Laying, Tracks; Ploughing.
- (17) The best water filters are made of: Quartz, Iron Filings, Calcium Carbide, Charcoal, Absorbent Cotton.

Another general information test was tried out in 1922 by McHale (35). This test included 247 questions of the multiple choice variety grouped into six parts and was used as a measure of the vocational interest of college women.

34 (a) Burt, H.E., and Ives, F.W.: "Vocational Tests for Agricultural Engineers, "J. of Appl. Psychol., 1923, VII, 178-187.

(b) Burt, H.E., "Measuring Interest Objectively", Sch. and Soc., 1923, XVII, 444-448.

35 McHale, Kathryn: "An Information Test of Interests", The Psychol. Clin. 1930, XIX, 53-58.

Terman (36) used an information test in the study of mental traits of gifted children. This test was specifically used for the purpose of surveying the interests of children in place, games and amusements.

Peel (37) has recently developed certain information tests as part of the study of selection methods for secondary education. The subject is asked to write the meaning of three out of six words in each group, the group consisting of three words of practical importance and three academic words. A new device introduced by Peel is that Homonyms, words like: Span, Grace, Tie, Tender and Spring which have both practical and non-practical meanings are presented as a vocabulary test and the interests are revealed by their meaning attached to the word by the subjects.

Vernon and Parry (38) in their review of personnel selection method for the British forces came to the conclusion that an information test gave a slightly greater indication of potential mastery of technical skills than the ordinary aptitude tests. In general, it is held that

36 Terman, L.M., et.al.: Mental and Physical Traits of a Thousand Gifted Children, Vol.I of Genetic Studies of Genius. (Stanford: Stanford University Press, 1925, p.648).

37 Peel, E.A.: "Symposium on the Selection of Pupils for Different Types of Secondary Schools", British Journal of Educational Psychology, 19, 1949, pp. 1-15.

38 Vernon, P.E., and Parry, J.B.: Personnel Selection in the British Forces, (London: University of London Press, 1949, p. 204).

information test presumably measures the more abiding interests of an individual.

Fryer (39) says, "If information tests are to be successful in the measurement of objective interests it would seem that they must be built upon the theory of extensity of questions".

(40)

Cattell/in his SMAT has also used information test as one of the devices for analysis of motivation and interests. Seventyfive items have been included in the form of recognition types with four choices for each item.

(b) Free Association Tests

"The purpose behind the free association method in its application to the measurement of interest is to measure the amount of information within a certain defined field of human reactions", says Fryer (41).

This method was introduced as early as 1929 by Wyman (42). An extensive investigation was carried out by

39 Fryer, D.: op. cit., p. 290.

40 Cattell, R.B., et.al.: School Motivation Analysis Test (SMAT), (Published by the Institute for Personality and Ability Testing, Champaign, Illinois, U.S.A.).

41 Fryer, D.: op. cit., p. 292.

42 Wyman, J.B.: "The Measurement of Interest", Voc., Gui., Mag., 1929, VIII, 54-60.

her on a sample of children with the discrete form of the Free Association Method as a measure of verbal interest reactions. Three special fields of interest reactions viz. social, intellectual and activity interest were taken up by her. A list of 120 stimulus words was prepared to measure interests in the above mentioned field and each stimulus word was presented visually and at the same time pronounced by the experimenter every eight seconds. The total time of the tests was kept as 16 minutes. The list of the stimulus words included items like summer, easy, diamond, tire, dog, fair, etc. The subjects were asked immediately to write down the first word that came to their mind. Over 1000 children between the ages~~es~~ of 10 and 14 were tested but individual differences were small. Validation against teacher's estimates showed correlation coefficients of .49, .67 and .22. Validation of the scoring key has been attempted and correlation coefficients with wide range were computed when the scores were compared against estimates of teachers. Cattell⁽⁴³⁾ in recent years has tried out a device based on Free Association Method. He has introduced a number of key-words to be associated with either of the alternatives provided along with each key-word. For each key-word the subject was asked to

43 Cattell, R.B.: op. cit., pp. 14-15.

choose the association words, which in his opinion would go more easily and naturally with the key-word. Following are some of the examples:

1. Super	0 Market	5. Collect	0 Stamps
	0 Man		0 Evidence
36 World	0 War	44. Enjoy	0 Science
	0 Travel		0 Shopping

(c) A Word Association Learning Test

In addition to the free association method, the word association learning test has also been employed as a measure of interests. Burt (44) in 1922 invented test for specialized interest in a field, such as medicine. The test demanded a comparison of the accuracy of the learning associations of ordinary or general words and of words in the specialized interest field. The pairs of words comprising the test were read out so that they might be associated together. The list of stimulus words was then repeated and the subject was asked to add to the first words of the pair as they were read to him, the

44 (a) Burt, H.E., and Ives, F.: "Vocational Tests for Agricultural Engineers", J. of Appl. Psychol., 1923, VII, 178-187.

(b) Burt, H.E.: "Measuring Interest Objectively", Sch. and Soc., 1923, XVII, 444-448.

words associated with them. His first experiment was carried out with 43 agricultural engineers. The test consisted of 108 word associations with alternative, general and specialized association word-stimuli. The score in the test is the ratio of the number of agricultural engineering association to the normal associations. The assumption behind the construction of the test was that students interested in agricultural engineering would more readily associate pairs of words related to that vocation because of the pleasant feeling aroused in those associations. Burt, however, concluded on the basis of results that the test is perhaps more a test of ability than of interest.

(d) Distraction Materials Test

A person is less likely to be distracted when he is interested. With this assumption a new type of interest has been evolved by Burt (45). He experimented with this idea in the measurement of strength of interest. Fortythree college students, specializing in agricultural engineering were selected as sample. Two types of stimulus were provided in the form of selection of prose, one was a normal or standard stimulus and the other an interest stimulus. Instructions were given to cross out

45 Burt, H.E., and Ives, F.: op. cit., pp. 178-187.

the irrelevant words as fast as possible without mistakes. The score was taken as the inverse ratio of number of irrelevant words crossed out in the interest stimulus to the number of words crossed out in the normal stimulus. The score, however, correlated with the teacher's estimates upto +.30. This is an innovation by birth no doubt, but it is not free from criticisms. It is possible that the test would measure ability along with interest and it is difficult to partial out the factor of ability from the combined estimate. The method is a promising one so far as its original approach is concerned. It is objective in the sense that it takes into account the actual participation of the subjects in situation provided to discriminate ^{with} between students varying degree of interests.

(e) Other Objective Measures

As pointed out by Fryer (46), "the measurement of interest and particularly measurement by objective methods is a field of research, which is ready for rapid development." Attempts are being made to have objective as well as indirect measures of interest in a number of ways. As suggested by Sandall (47), it would be worth-

46 Fryer, D.: op. cit., p. 359.

47 Sandall, P.M.: "An Analysis of the Interests of Secondary School Pupils", Ph.D.Thesis, London University, 1960.

while to innovate new methods including projective types of tests for the purpose instead of depending upon the traditional type of inventory. Cattell and others are reported to have used a number of such devices direct and indirect for attacking the various dimensions of interest. It appears that interests is a complex psychological concept and its assessment is a formidable task. It demands a thorough as well as a comparative study of both the objective and subjective measures at the first stage and ultimately a combined approach to study all the aspects of interest.

Summary

Approaches to the assessment of interests have varied from time to time. Both subjective and objective studies have been attempted with a view to exploring the nature and patterns of interest. Among the techniques employed for the purpose, inventories and questionnaires have been widely used inspite of its limitations. Quite a large number of inventories has been evolved for the purpose on the assumption that interest could be known through one's preferences to various fields of activities, courses of study or vocations. The attempt by Strong, Kuder, Allport-Vernon, are all in this direction. Certain assumptions on permanence and classifications of interest

were considered necessary for many studies conducted on an experimental basis. It was also supposed that people differ widely in terms of their interests. It is possible to use interest as a basis for academic and vocational guidance while the value of questionnaire as a technique has been recognized for long. A negative reaction to the subjective method was expressed by a number of psychologists. A new and more objective approach was taken by those advocating the need for scientific measurement of interest. It took various forms like information tests, situational tests, and some indirect measures. The present position in the field of interest measurement is not still very encouraging. The techniques employed so far can hardly cope with the various magnitudes of interest.