CHAPTER III
MEASUREMENT TOOLS: ITS
ADAPTATION AND DEVELOPMENT
This chapter presents the development of measurement tools. There are six measuring tools, i.e., The University Employee's alienation scale (UEAS), Level of Aspiration Scale for University Employees (LASUE), Office Employees Value Scale (OEV), Brayfield and Rothe's Index of Job-satisfaction, General Mental Ability Test and Clerical Speed and Accuracy Test, related to different aspects of personality used by the researcher for the present investigation.

Many measurement tools are reviewed for the Selection of appropriate tool. Some adaptations are also done where it was found necessary.

THE UNIVERSITY EMPLOYEES ALIENATION SCALE

Alienation is a hypothetical human trait and shares a behaviouristic orientation. For the measurement of alienation there are so many tools available. Scrole (1951) developed a five point scale for measuring alienation but it is based on Durkheim's conception of anomie. Nettler (1951) developed a tool containing 17 items to measure feeling of estrangement from society. Middleton (1963) formulated an alienation Scale along the
lines of powerlessness model. The Scale consists of six items with one item devoted respectively to powerlessness, cultural estrangement and Social management and estrangement. Dean's (1961) Scale having 24 items measures feelings of general alienation is based on three components-powerlessness, normlessness and social isolation. Finifter (1970) developed a scale for the measurement of political alienation and utilized the concept of political powerlessness and political normlessness. Rudolf and Paled (1975) constructed A A A I (Allen Adolescent Alienation Inventory) and S.E.I. (Student Alienation Inventory) respectively to measure the alienation of students.

In India many tools have been constructed for this purpose. Gupta (1975) used a 22 items scale to measure political alienation. Hallen (1977) has developed a 16 items alienation scale named as 'Organizational Alienation Scale'. Singh (1976) in his study constructed a tool for factory employees. Bhatnager (1980) constructed a tool 'Teachers Academic Alienation Scale' for measuring teachers alienation on the basis of Seeman's five dimensions of alienation.
Thus on the basis of review of tools constructed abroad and in India, the alienation Scale, based on Seeman's five dimensions of powerlessness, meaninglessness, normlessness, isolation and self estrangement, developed by Joshi and Bhatnagar (1984), UEAS (The University Employees Alienation Scale) was selected for adaptation. (Appendix - A)

This scale was found appropriate because the researcher wanted to know about the work alienation of non-teaching employees of Bundelkhand University. Here Work alienation means negative attitude towards Office works, isolation, estrangement from self and from colleagues and from society. Carelessness and non-cooperativeness are the best predictors of alienation. Joshi's Scale has all these merits. It is a Likert type five point scale. The Scoring is so easy and accurate based on strongly agree (5), agree (4), neither agree nor disagree, (3) disagree (2), strongly disagree (1). The theoretical range was 46 to 230. 46 represents the lowest level of alienation while 230, the highest level of alienation. The reliability of the test was found to be .89 which may be considered reliable and as possessing
sufficient predictability. In this test criterion and concurrent validity were found that show a strong relationship between work and alienation as measured by the questionnaire.

The University Employees Alienation Scale (UEAS) was constructed by Joshi and Bhatnagar (1984) and adapted by Singh (1990). In this tool there are 46 items, related to different dimensions of work alienation. One item (item No.11) is related to society based on social isolation, another two items (item Nos. 24,32) are related to work alienation based on normlessness and last item (item No.40) is related to dependency in occupation based on powerlessness. Social isolation, normlessness and powerlessness are the major and most important characteristics of alienation. The main reason for the adaptation of this scale was to reveal the more sound picture of work alienation. Joshi and Bhatnagar's UEAS work tool has 46 items related to five dimensions (powerlessness, normlessness, meaninglessness, isolation and Self-estrangement) of alienation but equal number of items were not selected by the investigator to each of five dimensions. By adding 4 naive items the scale became more balanced.
For the selection of these four naive alienation items in the UEAS, twenty items were selected for the first pre-try out. These items were then, discussed with the supervisor and other experts, selected from different magazines, books and journals, at different intervals to determine the relevance of items in a particular Office situation of the employees. During this discussion, the investigator made best efforts to improve the language and to remove ambiguity, vagueness and subjectivity found in the items. The overlapping of items were critically examined.

For the purpose of pre-try out twenty post-graduate bank employees were selected as the subjects. Their age range was 25 to 35 years. A questionnaire of twenty items was administered to every subject individually. For this scale following instructions were given—

"I am doing research. I want to apply a test on you which is related to the present investigation. In this test, there are twenty items related to five dimensions of alienation, i.e., normlessness, powerlessness, meaninglessness, isolation and self-estrangement. Every statement contains five response alternatives, i.e., strongly agree, agree, neither agree nor disagree, disagree, strongly disagree. Put a tick mark (✓) on any one of these five statements. For every statement, you must give a separate answer."

These items were based on likert type five point scale. Each item, therefore, contains five response alternatives, i.e., strongly agree, agree, neither agree nor disagree, disagree, strongly disagree. The scoring of these items was 1 to 5, i.e., 1 number for strongly disagree and 5 for strongly agree.

After the data collection scoring of each item of every subject was done and the mean of every item was calculated. Now those items were selected which have moderate mean or nearest to moderate mean \((M=3)\). The moderate mean item was selected because this type of item has discrimination power to avoid biasness. In this way ten items were selected which have either moderate mean or mean nearest to moderate level.

Now the try - out was done and ten selected items were administered again on the same \(Ss\). After the scoring and calculation of mean only four items were found which have moderate mean. It means that these four items have discrimination power.
LEVEL OF ASPIRATION SCALE FOR UNIVERSITY EMPLOYEES

The another variable involved in this study was employee's level of aspiration. Mathur (1970) has constructed a test for measuring the level of aspiration of adolescents. Singh (1976) constructed a verbal test for measuring level of aspiration of factory workers. Haller's (1957) occupational aspiration scale measures the aspiration of the subjects. This scale consists of 80 questions, each with 10 occupational alternatives to choose from. The 10 alternatives are scored from 0 to 9; 0 being assigned to the least prestigious job and 9 to the most. Caplin (1966) constructed a self-report instrument measuring level of aspiration of children. It represents the relationship between self-concept and academic achievement and between level of aspiration and academic achievement. Gaur and Mathur (1974) constructed a scale, measuring the level of occupational aspiration. It is an eight item multiple choice instrument. A semi-projective test for farmers was constructed by Pareek and Chattopadhyaya (1975). An Occupational Aspiration Scale developed by Grewal (1975) has 8 multiple choice type items consists of 10 occupations nearly of all occupational status level arranged in a mixed order. The
investigator made her best efforts to find out a suitable tool for measuring employees aspiration. But the aspiration scale developed by Joshi and Bhatnager (1984) LASUE (Level of Aspiration Scale for University Employees) was found suitable and selected for adaptation (Appendix-B).

Joshi and Bhatnager's LASUE scale has all those points as desired by the investigator. Aspiration means to attain or achieve power or some gain in different aspects of life. This scale measures the general level of aspiration of employees such as, social recognition, economic status, family environment, family achievement, occupational recognition and academic achievement etc. It is a Likert type scale which contains only 32 items. Each item has five alternative responses. The scoring system is based on five point Likert type scale (strongly disagree (1), disagree (2) and so on). By adding all the scores of each items the total level of aspiration is estimated. The reliability coefficient of the whole test was found to be .90 which may be considered sufficiently high. In case of the present scale, content validity was measured on its contents. The items in this scale were truely measuring the characteristics indicated by the respective aspects.
Level of Aspiration scale for University Employees (LASUE) was constructed by Joshi and Bhatnager (1984) and adapted by Singh (1990). In this tool there were 32 items, related to different dimensions of aspiration, i.e., social recognition, economic status, family environment, family achievement, occupational recognition and academic achievement etc. In the adaptation of the test, i.e., LASUE Singh (1990) added eight items more, related to different dimensions of aspiration. Four items (Item Nos. 33, 35, 38, 40) are related to social recognition, one item (item No. 34) is related to academic achievement and two items (item No. 37 & 39) are related to occupational achievement. One item (item No. 36) is related to family achievement.

The argument of the investigator for the adaptation of this scale is that if a person wants to measure the aspiration level of an employee, the social recognition, academic achievement, occupational achievement and family achievement are the main aspects of measurement in relation to aspiration. These eight items related to four areas will be helpful in measuring aspiration.
For the selection of eight aspiration items in the LASUE for the first pre-try out fifty items were selected. These items were then discussed with the supervisor and a few other experts from Universities with a view to make some improvements upon them. Analysis of these comments revealed certain clues for constructing the better items.

For the purpose of pre-try out fifty post-graduate bank employees were selected as the subjects. Their age range was 25 to 35 years. A questionnaire of fifty items was administered to every subject individually. These items were based on Likert type five point scale. Each item, therefore, contains five response alternatives, i.e., strongly disagree, disagree, neither agree, nor disagree, agree, strongly agree. The scoring of these items was 1 to 5. 1 score for strongly disagree and 5 for strongly agree.

After the data collection scoring of each item of every subject was done and the mean of every item was calculated. Only those items were selected which have moderate mean score or the mean nearest to moderate mean score. Only the moderate mean items were selected because this type of items have discrimination power. In this way
25 items were selected only those have eigher moderate mean score or mean nearest to moderate level.

Now the try out was done and 25 selected items were administered again to the same Ss. After the scoring and calculation of mean only eight items were found to have moderate mean. It means these eight items have discrimination power.

**BRAYFIELD AND ROLFE'S INDEX OF JOB-SATISFACTION**

The another variable of the study related to alienation was employee's job-satisfaction.

Indiresan (1975) developed a job-satisfaction inventory. It consists of three parts, each containing 30 items of Likert type, presenting the factors-pay, opportunity for advancement, supervision, co-workers organisational policy, working conditions, recognition, achievement and independence. Pestonjeees (1973) developed a 'S.D. Employees Inventory' to assess the level of job-satisfaction. The inventory comprises of 80 items relating to job-management, job relations and personal adjustment. Mukherjee (1969) developed a job Attitude Inventory (JAI) consisting of 57 true/false type items. The purpose of
this inventory was to assess the satisfaction with the following jobs namely, (a) Rapport with the supervisor (b) Personal satisfaction with the work (c) Attitude towards management and (d) salary. Friedlander (1963) made a job-satisfaction questionnaire, consists of 17 items which pertain to source of satisfaction. These items were classified for measuring three different aspects of job-satisfaction: (a) attitude towards social and technical environment, (b) satisfaction with the intrinsic self-actualising aspect of job and (c) satisfaction in terms of recognition through advancement. Wernimont (1966) constructed a job-satisfaction scale. This scale measures the subject's present satisfaction on job. But it is based on Herzberg's two-factor theory - motivators and hygienes. Herzberg (1959) developed a scale, consisted of two factors-motivators and higienes. Herzberg pointed out that job-satisfaction results from an interplay between extrinsic and intrinsic elements. Lawler and Hall (1970) developed a scale and have shown that the job attitudes of satisfaction, involvement and intrinsic motivation are in fact conceptually distance and empirically independent variables. Ganguli (1954) constructed and standardised a scale to measure job-satisfaction. Scale consists of 24 items and measure five dimensions, 'The job-involvement
scale' designed by Ladahl and Kejner (1965) consisted of 40 items. This is a four point scale. Prasad (1965) developed a scale on job-satisfaction to know the different aspects of job such as monthly payment, working hours, security, advancement, opportunities, interpersonal relations, interest in work, social status and feelings of accomplishment and self-esteem.

No tool is considered comprehensive except the tool developed by Brayfield and Rothe's Index (1967) of job-satisfaction adopted by Rathor (1983) (Appendix – C). This tool presents that job-satisfaction can be showed from individual's attitudes towards his work. This was actually the situation involved in this study. This tool is applicable to a wide variety of jobs. This tool also has easy and accurate scoring and no time limit. This scale has 18 items in which 9 negative and 9 positive items.

This scale has the reliability coefficient of .82, considered reliable. This test is validated on its contents, has perfect content validity. The experts and the judges reported that the items were truely measured the job-satisfaction of the employees. This scale also has concurrent and criterion validity. All the particulars of
reliability and validity of the adopted version of the Brayfield and Rothe's Index of job-satisfaction, convinced the investigator to adopt this suitable tool for her study.

OFFICE EMPLOYEES VALUE SCALE

Another variable involved in the present study was values of the employees. Values are a type of norm and are closely related to attitudes. At the same time they are kinds of motives since they represent. Orientation of striving towards a given goal. Most of the psychologists believe that 'value' may refer to interests, pleasures, likes, preferences, duties, moral obligations, desires, wants, needs, aversions, attractions and many other modalities of selective orientation. Strodtbeck's (1958) achievement values Inventory consists of 8 items, derived from the theory that achievement implies individual and autonomous action, personal control of dealing and minimization dependency on parents. To subscribe to the achievement value on this inventory, therefore, means upholding specific perception of the past, present and future. Since Thurstone awared that values could be measured by means of psychometric methods with the help of
a suitable non-physical metric. Several attempts have been made to measure values. It has been found that most of the researchers have adopted Allport Vernon Lindzey's 'The study of values' either in English or in regional languages which is based on Sprangers (1968) classification of values into six basic types - theoretical, economic, aesthetic, political, social and religious. A test 'Meri Manyatayay' has also prepared by Agarwal (1970) to measure six types of values which are personal, religious, educational, materialistic, social and humanistics. A three dimensional test on value developed by Natrajjan (1979) to measure value orientation of an individual. Scale contains four items namely sincerity, honesty, trustworthiness and upholding of values. The dimensions measured are value importance, commitment, and apprehension. The test material contains 50 test cards, each containing one test item printed on it. 'Inventory Nine occupational Goal Values Dimensions' developed by Singh (1979) to discover that the intrinsic goal values do not seem to determine managerial affectiveness. This inventory is based on Rokeach's (1968) beliefs, attitudes and values. Ojha (1959) designed a value test in Hindi. This test is divided into two parts.
Value test consisting of 45 questions measuring relative importance of the following areas - theoretical, economic, aesthetic, social, political and religious. Although many tools were available but the researcher selected the tool of Joshi and Bhatnagar (1984) OEVS (Office Employees Value Scale) for adaptation. (Appendix-D).

In this tool values are defined in connection with the interests, likes, wants, moral obligations, duties and needs. Three values economic, ethical and work are closely related to the employees working in a Office. There are three different meaning of these three values. Economic value means - desire for money and material gain. Ethical value means - desire for honesty, punctuality, selfishlessness, sincerity and regularity. Work value means - desire to do maximum work and to be responsible towards their duties and a will to complete allotted work within time or as early as possible. This scale consists of 48 items. 16 items for each value. This scale has no time limit or can be administered on an individual or in a group as well. This scale is a self-scoring. Each item has three response alternatives in the form of the numbers 1, 3, and 5. 1 is for the statement not important, 3 stands
for the statement important but not so much and 5 for the statement very important. The scoring for each value can be done by adding all the scores given in the squares of that respective value column. The highest score for each value is 80 and lowest is 16. The reliability coefficients for economic value was found to be, .787, for ethical value .842 and for work value .792, which were quite satisfactory. To judge the validity, criterion validity was found. By computing coefficient of correlation economic and work values were found .52 and .51 respectively, considered quite satisfactory. Ethical value is considered highly satisfactory by experts and supervisor and other specialists because its items were considered quite satisfactory.

Office Employees value Scale (OEVS) was constructed by Joshi and Bhatnagar (1984) and adapted by Singh (1990). This scale contains 48 items. These items are related to three values - economic, ethical and work. In the adaptation of this test, i.e., OEVS, Singh (1990) added 3 items more related to three values. One item (item No.49) is related to ethical value, one item (item No.50) is related to economic value and one item (item No.51) is related to work value.
For the selection of three items in OEVS for the first pre-try out only fifteen items were selected. A questionnaire of fifteen items was administered to thirty bank employees. Their age range was 25 to 35 years and post graduation was their academic qualifications. Each item has three response alternatives in the form of number 1, 3, 5. 5 stands for very important statement, 3, for statement important but not so much and 1, for the statement not important.

After the data collection scoring of every subject was done and the mean of every item was calculated. Only those items were selected which have moderate mean score or the mean nearest to moderate mean score. Only the moderate mean items were selected because this type of item has discrimination power. In this way nine items were selected only those have either moderate mean score or mean nearest to moderate level.

Now the try-out was done and 9 selected items were administered again to the same Ss. After the scoring and calculation of mean only 3 items were found to have moderate mean score. It means these three items have discrimination power.
The adaptation of value scale is necessary because these three items give more clear picture of economic, ethical and work value.

GENERAL MENTAL ABILITY TEST OF INTELLIGENCE

The another independent variable in the study is the intelligence of employees. On reviewing the intelligence tests many tests were found. Cattell's (1970) Culture Fair Test was studied. Culture Fair test measures cognitive ability, or intelligence, independent of one's cultural background. It provides a measure of general mental ability. The culture Fair test is meant for the age group of 8 to 12. A Group Intelligence Test (GIT) was devised in 1947 by Bose & Dutta (1965) for screening to the medical and engineering institutions. Raven's (1960) Standard Progressive Matrices (SPM) was studied, consisting of 60 progressively difficult problems based on the Culture Free test of intelligence. Mehta (1962) constructed a verbal test called 'A Group Intelligence Test' (GIT). It is a timed test for 20 minutes. 60 items are in Hindi. Wechsler's Adult Intelligence Scale revised in 1981, comprises eleven subtests. Six subtests constitute the verbal scale and five the Performance
scale. Bhatt (1972) constructed and standardised a Group Test of Intelligence for Gujarati pupils of standard V to VII.

Although a number of tools are available, the researcher selected General Mental Ability Test of Intelligence of Jalota (1972) revised in 1976 (Appendix E). The researcher selected this test because it measures the general mental ability of an individual with the help of the questions given in the booklet. Test elements are - Similars, Opposites, Best answers and Reasoning (10 questions for each), Classification, Number Series and Analogies (20 questions for each). Items are arranged not in a serial for each element. They are ordered in a randomly order. The scoring is easy. The general key is the key for finding out the examinee's score of 'general mental ability' or intelligence from his answers given to the items. Each key has to be cut from the line and thus it converted into a scoring stencil. We can place this stencil key on the solved answer sheets and will see the candidates's answers besides the correct answers given in the column. We can easily compare the correct answers on the key with the answers of the said items written by the candidate. When we have scored the answer columns, count
the number of the wrong and unattempted cells (or items) subtract them from 20. Then, we add up the correct score and write then on the answer sheets.

The reliability of the test scores has been calculated by the findings of correlations between the odd and even halves scored by the tested population. The reliability coefficients found in this study are uniformly high for all the classes as VIII - .879, IX - .932 and for X-.979. From our past experiences, we know that such a test is equally suitable to the assessment of the undergraduate classes in the colleges and Universities of the Hindi speaking areas. The validity of the test has been reported on the basis of a factor-analysis of the inter element scores, which gave a pattern of three centroid factors - verbal, numerical and reasoning factor. This tool is not merely as a tool for the assessment of general mental ability but also a fruitful tool for the prognosis of verbal, numerical and reasoning abilities, as well as for appropriate education counselling and guidance.

CLERICAL SPEED AND ACCURACY TEST

The last independent variable in the study is the aptitude of employees. The researcher studied the General
Aptitude Test Battery (GATB) developed by U.S. Department of Labour and Manpower Administration (1967). The GATB consists of nine aptitudes measured by twelve tests. But it considered the most useful multiple aptitude battery for vocational counselling and selection. So the researcher selected clerical speed and Accuracy Test of DAT (Differential Aptitude Test) Battery of Benett, Seashore and wesman (1972) (Appendix-F). The researcher selected this test because it measures the speed and accuracy of individuals with the help of the items given in the booklet. This test is one of the seven tests in Differential Aptitude Tests (DAT).

This test has separate booklets and economy in budget because test booklets are reusable. Each booklet has its own separate answer sheet which can be scored either by hand or by an IBM test scoring machine. The timing devices, stop watch, wall clock and wrist watch may be used. The appropriate answer sheet may be slipped under the front cover of each test booklet. All special wooden pencils should be checked to make sure that points and erasers are good. The space provided the Ss should be so large that open booklets and answer sheets can be used without inconvenience because in this test speed is the
important factor.

Try to put the students at ease by explaining briefly about the test administration. Special instructions are necessary like this:

"In this test all the questions are in special booklet which I am going to hand out in a moment. You will write nothing in the booklet. You will mark your answers on the special answersheet. You are to show your choice of answer by making a clear, heavy black mark in the proper space".

After giving instructions the examiner would tell the $S$s that the answers are easy – that speed and accuracy of marking are important. At the end of exactly three minutes for Part I, the $S$s would be advised to fill up their name in the top left - hand corner and after that at the end of exactly three minutes for Part II, close their booklets.

There is a RIGHTS key for each of the two tests for which the score is the number of Right answers. It has been found that the most efficient way to handle these multiple - marked items is to draw a horizontal red line through all of the multiple responses to the item. When the scorer places the stencil over the answer sheet, the red marks will show-through the holes and those items are
then easily eliminated from the count.

IBM Scoring Machine can be used for scoring. The maximum possible score on this test is never over 100 points, a fact which does away with the necessity for using the "over 100" switch on the test Scoring Machine. The Master Control Switch should be set at A. The A formula Switch should be set at R.

The Differential Aptitude Tests are usually reliable tests. Reliability coefficients are high and permit interpretation of interest differences with considerable confidence.