

## **Chapter Three**

### **METHODOLOGY**

This chapter on methodology focuses on the aims and objectives of the study, the research design including the variables into consideration, hypotheses and the instrument used for the study. It describes the various phases under which the research was carried out including the construction and standardisation of the instruments to measure personality types. The chapter has been divided into ten sections.

#### **AIMS OF THE STUDY :**

The aim of the study was to develop a personality test to measure nine (9) dimensions of Sufi's personality typology known as 'Enneagram' and to relate them with different dimensions of Myers-Briggs Type Indicator (MBTI) and four Leadership styles, namely, (1) Task-Orientation, (2) Authoritative (3) Participative (4) A,  $p + N$ , a combination of Authoritative, Assertive, Participative and Nurturant styles of leadership.

#### **OBJECTIVES OF THE STUDY :**

The study had the following basic objectives :

- (1) To develop a personality test to measure personality typology Enneagram for use on the Indian population;
- (2) To develop behavioural profiles of managers belonging to the nine types of Enneagram (large parts of these profiles have already given in the introduction chapter);
- (3) To relate Enneagram scores with Myers-Briggs Type Indicator (MBTI) scores;
- (4) To investigate the relationships, if any, of Enneagram typology with four leadership styles; and

- (5) To test any possible relationship between nine types of Enneagram to sixteen (16) MBT types.

#### **VARIABLES :**

The following twenty nine variables belonging to three dimensions were identified for the present study. All these variables have been separately defined. Here they are simply listed for brevity.

##### **1. Leadership Styles :**

In this dimension, following four variables have been included :

- a. Authoritative Style,
- b. Participative Style,
- c. Task-Oriented Style, and
- d. A, p + N style

##### **2. Nine personality types as given in Enneagram have been included. They have been named as :**

1. Perfectionists,
2. Helpers,
3. Achievers,
4. Romantics,
5. Observers,
6. Questioners,
7. Adventurers,
8. Asserters, and
9. Peacemakers

Different authors in the West have used different names for these nine types.

For the present study, the names (terms) of the personality types are borrowed from Earon and Wagele (1994). Some prefers to call them simply by points, for example, 1, 2, 3, 4, 5, 6, 7, 8, and 9.

3. Sixteen (16) personality types of Myers Briggs type indicators are :

1. Introverted, Sensing, Thinking, Judging (ISTJ) type,
2. Introverted, Sensing, Thinking, Perceiving (ISTP) type,
3. Introverted, Sensing, Feeling, Judging (ISFJ) type,
4. Introverted, Sensing, Feeling, Perceiving (ISFP) type,
5. Introverted, Intuitive, Thinking, Judging (INTJ) type,
6. Introverted, Intuitive, Thinking, Perceiving (INTP) type,
7. Introverted, Intuitive, Feeling, Judging (INFJ) type,
8. Introverted, Intuitive, Feeling, Perceiving (INFP) type,
9. Extraverted, Sensing, Thinking, Judging (ESTJ) type,
10. Extraverted, Sensing, Thinking, Perceiving (ESTP) type,
11. Extraverted, Sensing, Feeling, Judging (ESFJ) type,
12. Extraverted, Sensing, Feeling, Perceiving (ESFP) type,
13. Extraverted, Intuitive, Thinking, Judging (ENTJ) type,
14. Extraverted, Intuitive, Thinking, Perceiving (ENTP) type,
15. Extraverted, Intuitive, Feeling, Judging (ENFJ) type, and
16. Extraverted, Intuitive, Feeling, Perceiving (ENFP) type,

All the MBTI typologies have combinations of 8 qualities. MBTI types are included only at the exploratory level to check the validity of the Enneagram typology.

To check these relationships, 18 hypotheses (though at the exploratory level) were formulated for this study.

#### **HYPOTHESES :**

In the following paragraphs the various hypotheses formulated for the present study

have been given. Various sources including the available literature, logic and hunches were used in the formulation of these hypotheses. Because of the newness of the concept, the present researcher had to take recourse to her logic and hunches in formulation of certain hypotheses.

Hypotheses related to the prediction of relationships between the nine types of Enneagram and sixteen types of Myers Briggs Type Indicator, are based on the assumption made by Baron and Wagele (1994).

Baron and Wagele (1994) are a group of researchers who have tried to speculate about the possible interaction between Enneagram's types (9) and those of MBTI's types (16) of personality. The hypotheses given below, related to prediction of each of Enneagram's types with various MBTI's types have been formulated by and large following their line of assumptions (Baron and Wagele, 1994).

1. Perfectionists are the First type in the Enneagram's typology (Ones). Following Baron and Wagele (1994) suggestion, it was hypothesized that the Perfectionists dimension of the Enneagram scale would be positively and significantly correlated with INTJ, ISFJ, ENTJ, ESFP, ENTP types of the MBTI preferences.

The hypotheses also holds good in view of the fact that some of the features of these types (MBTI) are similar to several features of the Perfectionists' type. For example, Perfectionists and the above mentioned five (5) MBTI types have characteristics like organizing plans and situations related to projects and making single minded systematic efforts to reach their objectives. All these types are hard working, painstaking and patient with details and procedures, they try to put facts together and strive to live upto their high ideals.

2. Radiating sympathy and fellowship, concerning themselves with people around and placing a high value on harmonious human contacts are some of the common characteristics of Helpers alongwith ESFJ and ESTP of MBTI types. Some of the other common features are getting fun out of life, which make them a good company. They all are strong in the art of living. Much of their pleasure and satisfaction comes from the warmth of people around them. So it was hypothesized that helpers of Enneagram (Point two) on the one hand and ESFJ and ESTP of MBTI preferences would be correlated.
3. Achievers (Threes) were expected to be related to ISTP, ENTJ and ESTP of MBTI types due to some of their common qualities of being energetic, self assured and goal oriented people. As they are goal oriented and confident, efficiency, and industriousness are but natural features of all the four types. They all do not very easily rely on anything but reasoning is based on solid facts. All of them are motivated by the need to achieve success and avoid failures.
4. INFJ, INTJ and ESTJ are hypothesized to be related to Romantics (Fours).
5. Observers are hypothesized to be correlated to ENFP, ISTP and ENTP of MBTI Types. Some of their common feature are their being quiet and reserved, objective; becoming deeply absorbed with one of their interests and losing track of external circumstances. All of them have a lot of imagination and initiative for starting new projects and lot of impulsive energy for carrying them out.
6. Questioners are hypothesized to be related with ISTJ, INFP, ENTP and ESTP of MBTI types. Some of the personality features of the above preferences are common, like they all are responsible, trustworthy, loyal, extremely dependable

and have a complete realistic and practical respect for the facts. All the five have a great deal of warmth but may not show it until they know a person well. With their focus on the current situation and realistic acceptance of what exists; they could be gifted problem solvers.

7. Great innovators in the field of ideas, having high imagination and initiative for starting projects and a lot of impulsive energy for carrying them out, often able to see ways of achieving goal by using existing rules, systems or circumstances in new ways and getting fun out of life are some of the common features of Sevens (i.e. Adventurers) of Enneagram and INFJ, ENTP and ESFP of MBTI types. So these four types were hypothesized to be correlated.
8. Asserters (Eights) are expected to be related to INTP and ISTP of MBTI types. Some of the common features of the three on the basis of which hypothesis was formulated are their direct approach, self reliance, confidence in themselves, strongly practical, etc. They are logically analytical and objectively critical. They all like to organize facts and data, they also prefer not to organize situations or people unless it is very important for their work. In relationships, all of them are loyal, caring, truthful and generous.
9. Some of the common features, on the basis of which Peacemakers (Nines) are hypothesized to be correlated with ESTP, ISFP, ESFP and ESFJ MBTI types are detailed below.

All the five types radiate sympathy and fellowship. They all concern themselves chiefly with the people around them and place a high value on harmonious human contacts. They all are friendly, tactful and sympathetic. They all solve problems

by being adaptable and often can get others to adapt too. They have a gift of finding value in other people's opinion.

Apart from the above expectations regarding Enneagram types and MBTI types the present researcher also wondered about the possibility of relationship between personality factors under study and their leadership styles. That means, in keeping with some of the recent researches and also classical researches in leadership the researcher expected that personality types may have bearings on the types of leadership behaviour a person displays.

The various hypotheses related to the relationship between personality types and leadership styles are stated below.

10. Perfectionist (Ones) are supposed to be self-disciplined and goal oriented. So, it was expected that the Perfectionists will generally be Task-oriented leaders. Hence, it was hypothesized that there will be positive correlation between these two factors.
11. Helpers (Twos) are hypothesized to have participative and A, p + N leadership qualities. Such a hypothesis is based on the basic temperament of these three dimensions. All three - Helpers, A, p + N and participative are warm, concerned, nurturing and sensitive to other's needs. Helpers are tuned to people's feelings but, at the same time, they can be assertive also if the time so demands.
12. Achievers were expected to be task-oriented leaders. Both achievers and task-oriented leaders have high need to achieve success and avoid failures. They are energetic, self-assured and goal oriented people. That is the reason it was expected that these qualities would go together and yield mutually correlated

values.

13. Romantics are expected to have participative style of leadership because they are generally warm and sensitive and have ability to be empathic, supportive and gentle in their relationship.
14. Observers are insightful, wise, self-sufficient and view life objectively. They are calm, even in crisis. They come to a thorough understanding and do what they think is right keeping in mind the cause-effect relationship. These qualities of observers go along with the Task-oriented style of leaders. So it was hypothesized that Observers will have Task-oriented style of leadership.
15. Questioners, Authoritative and Task-oriented style of leadership are expected to be correlated as all the three are responsible, trust worthy and value loyalty. They are judgemental, rigid and testy and are also clear and direct in their approach.
16. Adventurers are expected to display Task-oriented leadership qualities as they are supposed to be energetic, lively and optimistic. They are spontaneous, quick and productive in their approach. They are hard working and do things that require risk.
17. Assistants are supposed to be self-reliant, self-confident, direct and strong, they are authoritative, energetic and get impatient with other people's incompetence. They are supportive and protective in relationships. So, they are hypothesized to be correlated with authoritative, task oriented and A, p+N style of leadership.
18. Peacemakers and participative style of leaders have the similar qualities of seeking union with others, merging with others, avoid conflict, being generous,



diplomatic and receptive in approach. So, it was hypothesized that Peacemakers will display participative style of leadership, i.e., the two sets of score (Peacemakers and Participative style of leadership) will be correlated.

Hypotheses related to eight preferences of MBTI and nine Enneagram types are given below :

19. Perfectionists are hypothesised to be positively correlated to Extroversion, Sensing, Thinking and Judging of MBTI types. Perfectionists generally want to make world a better place. They are fair, honest and orderly and very responsible.
20. Helpers are warm, nurturing and soft-hearted people and want to help others even at their own cost. So, they are expected to be positively inclined towards Extroversion, Intuition, Feeling and Perceiving dimensions.
21. Achievers are goal-oriented, energetic and productive. Their focus of attention is on achievement, productiveness, performance, goals and tasks. So, it is hypothesised that they will be correlated with Extroversion, Sensing, Thinking and Judging of MBTI type.
22. Romantics of Enneagram experience their feelings and search for the meaning in life and avoid being ordinary. They feel different from other people which makes them feel unique so, it was hypothesized that they might positively correlate with Introversion, Intuitive, Feeling and Perceiving dimensions of MBTI.
23. Observers are preoccupied with privacy and non-involvement. They value structured events, known agenda and time. They are calm even in the worst crisis. They do what they think is right and don't get influenced by social pressure. Given these characteristics, it was hypothesised that Observers will show positive

inclination towards Introverts, Sensing, Thinking and Judging of MBTI typology.

24. Questioners are responsible, value loyalty to family ties. Their personality range broadly from reserved and timid to outspoken and conformative. They turn to their intimate relations or friends for reassurance. So, Questioners are hypothesized to be positively correlated with Introversion-Extroversion, Intuitive, Feeling and Perceiving dimensions of MBTI types.
25. Adventurers need to be happy, and plan enjoyable activities. Their world is full of options, ideas and adventures. They are optimistic, outspoken and have various interests. So they would be positively correlated to Extroversion, Sensing, Judging and Thinking of MBTI types.
26. Asserters are direct, self-reliant, self-confident and strong. They express love, protection and power and set rules in their lives. They find it difficult to take into others' points of views to their own views. They present themselves excessively and loudly. So, Asserters types are hypothesized to be positively correlated to Extroversion, Sensing, Thinking and Judging preferences.
27. Peacemakers are basically peace loving people. They maintain the comfort of being natural. They are kind and gentle and have the ability to see many different sides of the issues. They can mediate and facilitate well. So, Peacemakers would be inclined to be Introverts, Sensing, Feeling and Judging types.

The above are fairly large number of hypotheses, but they are quite reasonable in view of the number of variables into consideration. The present research was designed to test the above hypotheses.

### **TOOLS (Instrument) :**

Three tools were used for the main study. Two available instruments were used and one instrument was developed by the present researcher.

1. Myers-Briggs Type Indicator - MBTI (Anastasi, 1995).
2. Managerial Behaviour Questionnaire - MBQ (Daftuar, 1985).
3. Enneagram Personality Typology Test (Specially constructed by the present researcher for this study).

### **TEST CONSTRUCTION AND STANDARDISATION - ENNEAGRAM**

This part reports the various stages of test construction. These stages involved Item Construction, Item Analysis, and find out the Reliability and Validity of the test.

#### **Enneagram Personality Typology Test :**

The test was constructed following the procedure of test construction. It was designed to test an individual's personality on nine dimensions of Enneagram.

#### **Nine Dimensions :**

The main objective of the test construction was to identify an individual's personality on nine dimensions of Enneagram listed and discussed earlier.

#### **Item Selection and Construction :**

The original inventory of Baron and Wagele (1994) was taken as a reference format. This inventory (Baron and Wagele, 1994) had 180 items. There were nine inventories, one for each type of Enneagram Points. Each inventory had 20 items. So, in all there were 180 items. On the basis of available literature on the nine personality types, 20

items were constructed and added to the original inventory. That is the final inventory had a total of 200 items. Following Table - 5 shows the number of items in each dimension after addition of 20 items prepared by the present researcher.

*Table - 5 Showing the number of items in each dimensions of Enneagram*

<b>Sr. No.</b>	<b>Dimensions</b>	<b>No. of items</b>
1	Perfectionists	24
2	Helpers	23
3	Achievers	23
4	Romantics	22
5	Observers	24
6	Questioners	22
7	Adventurers	20
8	Asserters	22
9	Peace Makers	20
Total		200

The original inventory as given in Baron and Wagele (1994) was scored in yes/no pattern. The respondent had to tick (3) the items which were applicable to them. The total number of 'yes' response given was the score on that dimension. The personality dimension of the individual was identified on the basis of the maximum number of items checked on each of the nine dimensions which formed his score obtained by him on a particular dimension.

The draft version of the inventory having 200 items was given to eight subject experts for their opinion. These experts were academicians drawn from different fields of education like psychology, home science, social works, sociology and human resource development who had expertise in the field of personality and who could rate the items related to it.

The experts were requested to edit, select, or reject items on the basis of the description of each dimension which were given to them. The experts were instructed to rate the items on the basis of two criteria, namely,

- (a) Applicable / not applicable (i.e. applicability), and
- (b) clear / vague (i.e. clarity)

#### ITEM ANALYSIS :

Out of 200 items, 17 items were rated vague or not applicable by the experts. These items were deleted from the questionnaire. The remaining 183 items of questionnaire were further used for item analysis. Out of these 183 items, 173 items were from Baron and Wagele (1994) and the remaining 10 items were from the bunch of 20 items added by the present researcher. The figures shown in the table (Table - 6) indicate the number of items altered / deleted from the original inventory of Baron & Wagele (1994).

*Table 6 shows the number of items in nine dimensions retained after the experts' opinion.*

<b>Sr. No.</b>	<b>Dimensions</b>	<b>No. of items</b>
1	Perfectionists	22
2	Helpers	20
3	Achievers	19
4	Romantics	20
5	Observers	19
6	Questioners	23
7	Adventurers	19
8	Asserters	21
9	Peace Makers	20
<b>Total</b>		<b>183</b>

Sample for Item Analysis :

As mentioned above the researcher was left with 183 items for further item analysis. This inventory of 183 items was administered to a group of 100 postgraduate students from the Faculty of Arts of the M. S. University of Baroda. The details of sample are given in Table - 7. Both male and female students of age ranging between 20 -22 years were included.

*Table - 7 showing the particulars of subjects selected for item analysis in (frequencies)*

Sr. No.	Areas of study	No. of boys	No. of girls	Total
1.	Political science	4	4	8
2.	Psychology	6	25	31
3.	Economics	17	17	34
4.	Archeology	3	3	6
5.	Sociology	6	15	21
Total		36	64	100

To derive items for final questionnaire, item analysis was done by correlating individual item scores to the total scores on a particular dimension. The items which yielded correlation below 0.01 level of confidence were dropped. There were 45 such items out of 183 items and they were dropped. Finally, after the item-analysis, the questionnaire retained 138 items. Table - 8 below shows the correlations ( $\gamma$ ) values of 138 items retained for final questionnaire. The correlation values shown are those of item scores with total scores on a particular (relevant) dimension.

Table - 8 Showing the correlations values of 138 retained items for final questionnaire.

Item No.	Correlation ( $\gamma$ ) values	Items
1.	C.37	I like to be organised and orderly.
2.	C.33	I often feel guilty about not getting enough achieved.
3.	-0.45	I do not like when people break rules.
4.	-0.33	I am idealistic. I want to make world a better place.
5.	-0.36	I hold on my anger for a long time.
6.	-0.48	When jealous, I become fearful and competitive.
7.	C.33	I tend to see things in terms of right or wrong, good or bad.
8.	C.35	I analyse major purchases very thoroughly before I make them.
9.	C.28	Truth and justice are very important to me.
10.	C.54	I worry almost constantly.
11.	C.36	I love making every detail perfect.
12.	C.44	I keep very high expectations from others.
13.	C.32	I am very hard working and want others should appreciate my work.
14.	C.32	I think I should not relax.
15.	C.40	Relations are more important to me than almost anything.
16.	C.45	I have trouble asking for what I need.
17.	C.49	I have deep desire for but sometimes fear, intimacy.
18.	C.40	I am very sensitive to criticism.
19.	C.45	I try to be as sensitive and understanding as possible.
20.	C.48	When I am alone I know what I want but when I am with others I am not sure.
21.	C.39	I do not want that people should understand my dependence on others.
22.	C.36	Sometimes I feel a deep sense of loneliness.
23.	C.56	If I do not get the closeness I need, I feel sad, hurt and unimportant.

<i>Item No.</i>	<i>Correlation (<math>\gamma</math>) / values</i>	<i>Items</i>
24.	0.38	Sometimes I get physically ill and emotionally drained by taking care of everyone else.
25.	0.42	I often figure out what others would like in a person, then act that way.
26.	0.29	I enjoy giving compliments and telling people that they are special to me.
27.	0.56	People have said I am overly emotional.
28.	0.52	I am very bad at expressing my problems.
29.	0.38	I am almost always busy.
30.	0.37	I like to make lists, progress charts and schedules for myself.
31.	0.32	I do not mind being asked to work overtime.
32.	0.31	I have an optimistic attitude.
33.	0.40	I go full force until I get the job done.
34.	0.29	I believe in doing things as expediently as possible.
35.	0.41	It is important for people to better themselves and live upto their potential.
36.	0.37	I try not to let illness stop me from doing anything.
37.	0.42	I hate to see jobs incomplete.
38.	0.30	I tend to put work before other things.
39.	0.47	I can not understand people who are bored. I never run out of things to do.
40.	0.37	I work very hard to take care of and provide for my family.
41.	0.56	I like identifying with competent groups of important people.
42.	0.37	I generally feel pretty good about myself.
43.	0.43	People often look to me to run the show.
44.	0.57	I like to be perceived as someone important.
45.	0.33	Being understood is very important to me.
46.	0.34	My friends say they enjoy my warmth and my different way of looking at life.
47.	0.49	I become nonfunctional for hours, days or weeks when I am depressed.



<i>Item No.</i>	<i>Correlation (<math>\gamma</math>) / values</i>	<i>Items</i>
48.	0.46	I am very sensitive to critical remarks and feel hurt at the tiniest slight
49.	0.45	It really affects me emotionally when I read upsetting stories in news paper.
50.	0.37	My ideals are very important to me.
51.	0.38	I cry easily - beauty, love, sorrow and pain really touch me.
52.	0.38	My pensive moods are real and important. I do not necessarily want to get out of them.
53.	0.49	I often feel that I am missing some things that others have.
54.	0.26	I try to support my friends especially when they are in crisis.
55.	0.46	I live in the past and in the future more than in present day reality.
56.	0.27	I place great importance on my intuition.
57.	0.35	I focus on what is wrong with me rather than what is right.
58.	0.43	I like to be seen as one of a kind.
59.	0.50	I am always searching for my true self.
60.	0.32	Sometimes I feel very uncomfortable and different like an isolated outsider, even when I am with my friends.
61.	0.43	I like to be complimented.
62.	0.32	I learn from observing or reading as opposed to doing.
63.	0.54	Its hard to express my feelings instantaneously.
64.	0.38	I get lost in my interests and like to be alone with them for hours.
65.	0.51	I usually experience my feelings more deeply when I am by myself.
66.	0.57	I try to hide my sensitivity to criticism and judgement.
67.	0.38	Instead of conforming, I prefer to take independent line.
68.	0.46	I like to associate with others who have expertise in my field.
69.	0.42	I have accused of being negative, cynical and suspicious.
70.	0.50	When I feel socially uncomfortable, I often wish I could disappear.

<b>Item No.</b>	<b>Correlation (<math>\gamma</math>) Values</b>	<b>Items</b>
71.	0.31	I am often reluctant to be assertive or aggressive.
72.	0.38	I dislike most social event. I'd rather be alone with a few people I know well.
73.	0.36	I sometime feel shy or awkward.
74.	0.46	I get tired when I am in the company of people for a very long time.
75.	0.32	I feel that I am different from most people.
76.	0.46	Acting calm is a defence it makes me feel stronger.
77.	0.34	I take life objectively.
78.	0.32	I like to learn about my subject in depth.
79.	0.48	I am always on the alert for any danger.
80.	0.46	I take things too seriously.
81.	0.55	I constantly question myself about what might go wrong.
82.	0.44	I often experience criticism as an attack.
83.	0.36	I can be a very hard worker.
84.	0.27	I have been told that I have good sense of humour.
85.	0.33	I follow rules closely or I often break rules.
86.	0.41	The more vulnerable I am in my intimate relationship the more anxious I become.
87.	0.50	I keep testing my relationship.
88.	0.43	I tend to either procrastinate or plunge head long even into dangerous situations.
89.	0.42	I am very aware of people trying to manipulate me with flattery.
90.	0.31	I like predictability.
91.	0.32	I have sabotaged my own success.
92.	0.35	I like people who are direct and honest.
93.	0.38	I like being responsible and hardworking.
94.	0.39	I want others not to judge me for my anxiety.
95.	0.44	I am busy and energetic. I seldom get bored; if I am left do what I want.

<i>Item No.</i>	<i>Correlation (<math>\gamma</math>) Values</i>	<i>Items</i>
96.	0.50	I often take verbal or physical risks.
97.	0.34	I am not expert in any one thing but I can do many things well.
98.	0.52	My style is to go back and forth from one task to another and I like to keep moving.
99.	0.42	I seem to let go of grievances and recover from loss faster than most people I know.
100.	0.33	I like myself and I am good to myself.
101.	0.34	I like people and they usually like me.
102.	0.59	I usually manage to get what I want.
103.	0.60	I value quick wit.
104.	0.35	I am idealistic. I want to contribute something to the world.
105.	0.34	I vacillate between feeling committed and wanting my freedom and independence.
106.	0.50	I am often at ease in groups.
107.	0.46	When people are unhappy, I usually try to get them to light up and see the bright side.
108.	0.53	I love excitement and travel.
109.	0.50	I can make great sacrifices to help people.
110.	0.52	I can be assertive and aggressive when I need to be.
111.	0.52	I can't stand being used and manipulated.
112.	0.52	I value being direct and honest; I put my cards on the table.
113.	0.34	I am an individualist and a non-conformist.
114.	0.41	I respect people who stand up for themselves.
115.	0.38	I will go to any length to protect those I love.
116.	0.51	I fight for what I consider is a right cause.
117.	0.48	Making decisions is not difficult for me.
118.	0.48	Self reliance and independence are important.
119.	0.33	Some people take offence at my bluntness.
120.	0.34	When I enter new group, I know immediately who the most powerful person is.

<i>Item No.</i>	<i>Correlation (<math>\gamma</math>) Values</i>	<i>Items</i>
121.	0.53	I like excitement and stimulation.
122.	0.46	I am sensitive and loving when I really trust someone.
123.	0.47	I do not like much those who are overly wise and flattering with me.
124.	0.48	Pretense / masking is particularly distasteful to me.
125.	0.54	Making choices can be very difficult. I can see advantages and disadvantages of every option.
126.	0.48	It is sometimes hard for me to know what I want when I'm with other people.
127.	0.50	Others see me as peaceful but inside I often feel anxious.
128.	0.47	Instead of tackling what I really need to do, I sometimes do little unimportant things.
129.	0.48	I usually prefer walking away from a disagreement to comforting someone.
130.	0.36	I tend to put things off until the last minute but I almost always get them done.
131.	0.40	I like to be calm and unhurried but sometimes I overextend myself.
132.	0.44	When people try to pressure to do certain things or try to control me, I get stubborn.
133.	0.41	Sometimes I feel shy and unsure of myself.
134.	0.34	I enjoy just hanging around with my partners or friends.
135.	0.37	I am very sensitive about being judged and take criticisms personally.
136.	0.27	I focus more on the positive than on negative.
137.	0.48	I can not get rid of things easily.
138.	0.51	I operate under the principle of inertia, if I am going its easy to keep going, but I sometimes have a hard time getting started.

*Table - 9 Shows the (dimensionwise) numbers of items selected after the item analysis.*

<b>Sr. No.</b>	<b>Dimensions</b>	<b>No. of items</b>
1	Perfectionists	14
2	Helpers	14
3	Achievers	16
4	Romantics	17
5	Observers	17
6	Questioners	16
7	Adventurers	15
8	Asserters	15
9	Peace Makers	14
<b>Total</b>		<b>138</b>

The above Table - 9 shows the items selected for finding reliability.

**RELIABILITY - Sample :**

To work out reliability, the data were collected on a sample of 175 postgraduate students from science stream of S. P. University of Vallabh Vidyanagar. The age range of the sample

*Table - 10 Showing the particulars of respondents used to find reliability*

<b>Sr. No.</b>	<b>Areas of study</b>	<b>No. of boys</b>	<b>No. of girls</b>	<b>Total</b>
1.	Home science	0	26	26
2.	Biochemistry	14	20	34
3.	Microbiology	15	26	41
4.	Botany	21	19	40
5.	Mathematics	10	24	34
<b>Total</b>		<b>60</b>	<b>115</b>	<b>175</b>

was between 20 to 22 years. Table 10 shows the particulars of respondents used for finding reliability.

#### RELIABILITY - Procedure :

The data were collected in the classroom like situation. Though the instructions were printed on the questionnaire, it was read out by the investigator so that instructions were clearly conveyed. All doubts raised by the respondents were clarified. The respondents were instructed to check the statements on a four point scale ranging from "Never behaved that way" to "Always behaved that way". Blank spaces were provided on the left side of the margin for recording the responses.

#### RELIABILITY - Coefficients :

Data thus collected, were subjected to split-half (odd-even) reliability following the formula of Rational Equivalence (Garrett, 1981, p.341), given below :

$$r_{tt} = \frac{n \sigma^2_t - M (n - M)}{t (n - 1)}$$

where  $r_{tt}$  = reliability of the whole test  
 $n$  = number of items in the test  
 $\sigma^2_t$  = standard deviation of the test scores  
 $M$  = Mean of the test scores

The scores were split in odd/even items for each dimension of personality questionnaire individually. That means, reliability values for each dimension were separately worked out. The reliability values thus obtained have been given below in Table - 11.

*Table - 11 : The reliability values of 9 dimensions*

<b>Sr. No.</b>	<b>Dimensions</b>	<b>Reliability Coefficient</b>
1	Perfectionists	0.56
2	Helpers	0.61
3	Achievers	0.56
4	Romantics	0.62
5	Observers	0.48
6	Questioners	0.52
7	Adventurers	0.65
8	Asserters	0.53
9	Peace Makers	0.62
<b>Total</b>		<b>0.86</b>

The reliability value obtained for the total scale was 0.86 which was sufficiently high and reliability for 9 dimensions were as follows : for Perfectionists - 0.56, for Helpers, the reliability was 0.61; for Achievers, 0.56; for Romantics, 0.62; for Observers 0.48 (lowest of all the dimensions) for Questioners, 0.52; for Adventurers, 0.65; for Asserters, 0.53; and lastly for Peace makers, it was 0.62 (Refer Table - 11 below).

Apart from the reliability found for the scale by split-half method following the formula of rational equivalence, reliability values were also found by other methods like Guttman split half, by Spearman-Brown's formula and by Cronbach's Alpha coefficient methods. The data collected for final study (n = 150) were used for these analysis. The details of the sample have been given in the later section of this chapter (see, sample section for the main study).

Table - 12

Table - 12 showing reliability values obtained by four different methods on the sample of the main study (n = 150) and that of the sample for finding reliability (n = 175)

Enreagram Points	Reliability Values			
	Guttman Split-half (n = 150)	Spearman Brown (n =150)	Alpha (n = 150)	Rational Equivalence (n = 175)
1	0.47	0.47	0.47	0.56
2	0.58	0.59	0.49	0.61
3	0.53	0.53	0.61	0.56
4	0.63	0.63	0.52	0.62
5	0.73	0.73	0.57	0.48
6	0.62	0.62	0.49	0.52
7	0.66	0.66	0.54	0.65
8	0.73	0.74	0.66	0.53
9	0.75	0.76	0.68	0.62

The above Table - 12 shows the high degree of consistency in reliability values obtained by various methods.

#### VALIDITY :

Guilford's validity formula was applied to find the score validity of the test. According to Guilford, square-root of the reliability coefficient can be taken as validity of a test (Guilford, 1954). The validity score are given below in Table 13.

The full scale and its dimensions have been found sufficiently valid on several earlier occasions also in differentiating the personality types of the individuals. The questionnaire has been used frequently by Prof. C. N. Daftuar in several of his training programmes for managers and executives and it was found to work excellently well in



differentiating various personality types of managers. Above all, when description of the characteristics are given to managers, they invariably reacted by saying that 95% of description actually corresponded with the self-perception of their own personality characteristics. This indicates that the questionnaire has high face validity.

Table - 13

*Shows Guilford's validity values for 9 dimensions*

Sr. No.	Dimensions	Validity Coefficient
1	Perfectionists	0.75
2	Helpers	0.78
3	Achievers	0.76
4	Romantics	0.79
5	Observers	0.69
6	Questioners	0.72
7	Adventurers	0.81
8	Asserters	0.73
9	Peace Makers	0.79
Validity for entire scale		0.93

The validity values given here (Table - 13) were calculated on the basis of the reliability values shown in (Table - 12) above.

SCORING

The scoring system of the test was devised on the basis of Likert's summated rating method is done as 1,2,3 and 4 on a 4 point scale ranging from "Never behaved or thought this way" (1) to "Always behaved or thought this way" (4). The respondents had to score the items as 1,2,3 and 4. The total scores of the dimension-wise scores of each

dimension were calculated. The total scores were again divided by the number of items to get the average score of individual on a particular dimension. This also makes it easier to compare scores across dimensions. Highest average score on a dimension identified the personality type of a respondent.

This method has an advantage over original scale of Baron and Wagele (1994) where respondents had to say yes/no each item. In that system, very frequently, researcher was stuck with several ties in a group of respondents. In the present scoring system no tie was ever observed across nine dimensions.

#### **MYERS BRIGGS TYPE INDICATOR :**

An inventory called Myers-Briggs Type Indicator (MBTI), was developed by Katherine Briggs and Isabel Myers in 1940s. This measures the four basic Jungian preferences of individual personality one for each of the four scales of Extraversion - Introversion (E-I), Sensing - Intuitive (S - N), Thinking - Feeling (T - F), and Judging - Perceiving (J - P) types (Details have already been given in Chapter 1).

Apart from the original inventory, several other versions of MBTI are also available. One of them was developed by Tom Anastasi (1995). But, as the author (Tom Anastasi) has himself said, it was an unstandardised and non-validated test which was used only in his training programmes or sales - seminars. This particular scale was used by the present researcher to validate it and to work out its reliability.

#### **SAMPLE :**

A mixed sample of 240 respondents was used for working out the reliability of the scale. 100 students and 140 middle level managers and supervisors (96 + 44) filled the inventory for the present purpose. The respondents were selected on the basis of their

availability. That is, the respondents who were readily available were approached for filling the questionnaire. Students who belonged to post-graduate classes of different subjects in the Faculty of Arts of M. S. University of Baroda, were requested to complete the questionnaire in class-room situation. 140 managers and supervisors belonging to different public and private sector industrial organisations situated in and around the city of Vadodara were approached individually to fill the questionnaire at their convenience.

#### THE SCALE :

The questionnaire has 44 items, 11 for each sub-scale of MBTI. They are spread randomly in the questionnaire. Each item has A and B alternative responses. The respondents were instructed to encircle one of the two alternatives (A or B) whichever was true to them.

#### SCORING :

Scoring for different sub-scales were done in the following ways.

##### Introvert - Extravert (I - E Scale)

All the 'A' responses for item numbers 1, 5, 9, 13, 17, 37 and 41 were added with all the 'B' responses for item numbers 21, 25, 29 and 33 to get the total. If the total of the above addition was 6 or more, the respondent would be rated as (likely to be) an Introvert otherwise (i.e. if his score was less than 5) was more likely to be an Extravert.

##### Sensing - Intuitive (S - N) scale :

All the 'A' responses for item numbers 2, 6, 10, 14, 18, 32 and 42 are to be added alongwith the 'B' responses for item numbers 22, 26, 30 and 34.

If the total of the above was 6 or more he was more likely to be sensing type

otherwise (i.e. 5 or less) he was more likely to be intuitive type.

Thinking - Feeling (T - F) Scale :

All the 'A' responses for item numbers 3, 7, 15, 19, 39 and 43 are to be added along with the 'B' responses for item numbers 11, 23, 27, 31 and 35.

If the total of the above is 6 or more, he was more likely to be thinking type, otherwise (i.e. 5 or less) he was more likely to be feeling type.

Judging - Perceiving (J - P) Scale :

All the 'A' responses for item numbers 4, 6, 16 and 20 are to be added along with the 'B' responses for item numbers 24, 28, 32, 36, 40 and 44.

If the total of the above was 6 or more he was more likely to be judging type otherwise (i.e. 5 or less) it is more likely to be perceiving type.

RELIABILITY :

Reliability of the test was worked out by calculating for Cronbach's Alpha ( $\alpha$ ) coefficient.

$$\alpha = \frac{n}{n-1} \left( 1 - \frac{\sum V_i}{V_t} \right)$$

where  $n$  = number of parts of the test

$V_i$  = summation of variances of the parts of the test

$V_t$  = variances of the total test

The  $\alpha$  (alpha) reliability values of the test obtained are given in Table 14.

Table 14 shows the serial number of items and  $\alpha$  values for all four scales

Scales	Serial number of items	$\alpha$ (alpha values)
1. Introvert vs. Extravert scale	1, 5, 9, 13, 17, 37, 41, 21, 25, 29 and 33	0.79
2. Sensing vs. Intuitive scale	2, 6, 10, 14, 18, 38, 42, 22, 26, 30 and 34	0.76
3. Thinking vs. Feeling scale	3, 7, 15, 19, 39, 43, 11, 23, 27, 31 and 35	0.77
4. Judging vs. Perceiving scale	4, 8, 12, 16, 20, 24, 28, 32, 36, 40 and 44	0.85

All the  $\alpha$  - values can be considered fairly high and can be concluded that inspite of Anastasi's reluctance, his scale can be safely used as a reliable tool for identifying the above mentioned eight of 16 MBTI dimensions. All four sub-scales yielded fairly high reliability values.

#### MANAGERIAL BEHAVIOUR QUESTIONNAIRE (MBQ) :

The original version of the MBQ was developed by Daftuar (1985). It had 24 items spread over six (6) dimensions. There are 4 items for each dimension.

Revised version of MBQ has eight dimensions of leadership styles, namely, Task Oriented (TO), Bureaucratic Orientation (BU), Personalised Relation orientation (PR), Nurturant (N), Participative (P), and a combination of Authoritative / Assertive (A), low level of participation (p) and Nurturant (N) called A, p + N styles, Nurturant - Task (N-T), and Authoritative (A). The total scale has 32 items where each dimension has 4 items.

In the present research, only four (4) sub-scales (styles) of the MBQ, i.e., four leadership styles were used. They are :

1. Task oriented (TO)
2. Authoritative (A)
3. Participative (P)
4. A, p + N

Since each dimension was found individually sufficiently reliable () by Daftuar (1985) it is possible to pick any dimension for study from the total scale. 4 styles of leadership included in this study has 16 items taken out of the original scale (see Appendix - III) . The responcents are asked to write their responses in blank spaces provided in the scale. The items were to be judged on a five-point scale as follows :

- 5 - If item is quite true
- 4 - If item is true
- 3 - If item is doubtful
- 2 - If item is false
- 1 - If item is quite false

Reliability of MBQ was measured by Daftuar using Cronbach's alpha statistics. Alpha for each of the four sub-scales is given in the Table 15.

*Table - 15 shows the item numbers, serial number of items in the scale, and ( $\alpha$ ) alpha values for the 4 dimensions of MBQ*

Sr.	Leadership styles	no. of items	serial no. of items	$\alpha$ values
1.	Task-oriented (TO)	4	1, 4, 7, 9	0.89
2.	Authoritative (A)	4	2, 5, 10, 15	0.93
3.	Participative (P)	4	3, 6, 8, 12	0.89
4.	A, p + N	4	11, 13, 14, 16	0.97

### **EXPLORING RELATIONSHIPS (THE MAIN STUDY) :**

This phase consisted of the main study to explore the relationship between the three variables, namely, nine Enneagram types, 16 MBTI types and 4 Leadership styles. All the measures have been given in Appendix I, II, and III.

#### **Sample :**

The sample respondents of this part of the study were drawn from middle level managers and lower level executives' class from four different organisations. The high level management level was avoided because, in most organisations under study, they formed small segments.

The respondents for the study were randomly selected from each organisation and the number of respondents varied from organisation to organisation depending on the size of the universe - available in each organisation. For example, if the total number of middle level managers was higher in Organisation - A than in organisation - B greater number of respondents were selected from Organisation - A and lesser number from Organisation - B where total population itself was low. However, no attempt was made to cover representative sample from different organisations. In any case, the representative nature of the sample from any organisation chosen was not the issue as far as present research is concerned. The main objective of this research was not to compare various organisations for any of their characteristics but to develop a scale based on the concept of Enneagram for use in Indian situations, particularly with managers and with executives. Table-16 shows the sample distribution of 4 organisations as used for the study.

Table - '6 : Showing sample distribution from 4 organisations used in the study

Sr. No.	Types of Organisations	nos. of middle level managers	nos. of lower level managers/ officers	Total
O1	Private - Chemical Manufacturing Company	15	17	32
O2	Private - Machinery Manufacturing Company	4	11	15
O3	Public - Chemical Manufacturing Company	27	19	46
O4	Public - Service Organisation	57	0	57
	Total	103	47	150

#### RESEARCH SITES :

As mentioned above, four different organisations were used for data collection of the main study. Details of each organisation are given below :

#### ORGANISATION 1 (O1):

The O<sub>1</sub> is a chemical company belonging to private sector. It is a leading, nationally known, pharmaceutical company in India. The data were collected from its corporate office located in Vadodara City.

The company was established in 1907, by an important personality who held scientific temper, vision and single belief that the medicine must be related to man in his environment. It aimed at self-reliance. The organisation has infrastructure spread over different parts of India. The manufacturing practices conform to the norms of World Health Organisation (WHO). The product development and innovation is for domestic and international market.



The distribution network is also spread all over country with 18 offices. There are four regional offices in the East, West, North and the South India. The organisation has some offices overseas too.

The hierarchical structure of the officers and managerial cadre of the organisation is like the following:

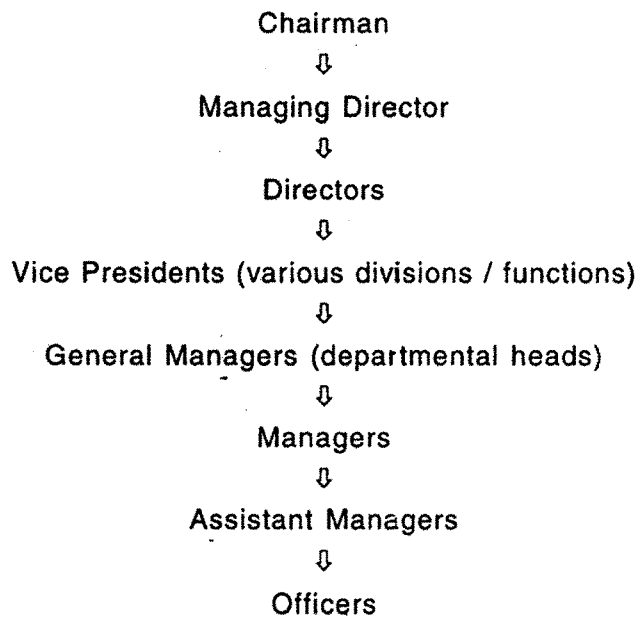


Figure 24 : Hierarchical structure of O1

Incidentally, the Chairman is a the owner's son, the Managing Director is owner's grandson and another Director is owner's daughter-in-law. Though it looks like family regime but it is a Public Limited Company which has its shares holders among the public. The Vice-Presidents are for various decisions and functions. In each division, there are various departments and each department is headed by a General Manager followed by Managers, Assistant Managers and Officers.

#### ORGANISATION 2 (O2):

The C2 is a multinational organisation. It is a joint venture between an American

and an Indian Company each partner having 50% equity with them. The data were collected from their registered and corporate offices located in the state of Gujarat. It (O2) was a joint venture at the time of data collection. However, soon afterwards the Indian partner has separated and now the company is entirely an American multi-national unit located near Vadodara.

The company produces passenger vehicles for high premium luxury segment. It was established in India in April, 1994, but the commercial production started on July 1st, 1996. The company aims to establish itself as the ".....leading automobile manufacturer by satisfying their customers with high quality products of superior value and providing India with positive economic and social benefits", (company's Mission Statement).

The headquarters of the company are at Detroit (USA.) and the corporate office is in Gujarat (India). The marketing offices are at Delhi, Mumbai, Chennai and Bangalore. The company has genuine spare parts distribution centre at Mumbai.

The managerial and officers' hierarchy of the organisation is like the following :

President and the Managing Director



Vice Presidents



General Managers



Senior Managers



Managers



Assistant Managers



Senior Executives



Executives



Junior Executives

Figure 25 : Hierarchical structure of O2

The management control lies with the American Company. It has five Vice Presidents and one Managing Director who comes from overseas parent corporation. They are on deputation for Indian operations. The five Vice Presidents are for Finance, Marketing, Manufacturing, Purchase and Material, respectively. Managing Director is an American and the Chairman of the Board of Directors is an Indian. The Board of Directors are 50% from the Indian partner where as 50% from U. S. partner (at the time of data collection).

### ORGANISATION 3 (O3) :

The Organisation 3 is a pioneering petrochemical company and one of the leading public sector undertakings in India. It was incorporated in 1969 and located in Western India. It was conceived as a unitary petrochemical business organisation. Today, it is on a threshold of taking the form of a multi-business, multi-location, multi-ownership structure reaching out beyond the shores of India. Its business comprises of polymers, synthetic fibres, fibre intermediate, surfactants, industrial chemicals catalysts, and absorbents. Backed by strong research and development facilities and product application centres, the company is continuously upgrading its processes and products. The company owns and operates two petrochemical complexes - a Naptha based complex and a gas based complex in two different locations in the Western India.

A new gas based petrochemical and Chlor - alkali complex is coming up in Western Gujarat. The company also owns a catalyst manufacturing facility near Mumbai. The organisation is one of the Navratnas among public sector enterprises which conveys its level of excellence. The turnover of this company represents approximately 75 per cent of the profit made by all public sector enterprises in this country.

The company's aim is to be on a forefront of petrochemical sector. It's constant

search for new opportunities to meet the country's petrochemical requirements make it a major contributor to the vital economic and strategic sectors. While it continues to run on efficient lines, ensuring sound return on investment made, it has also discharged its obligations to the society by promoting number of social causes.

It's yearly profit goes to over Rs. 2,500 crores at the time of this research. It employs around 13,000 personnel in different categories at different locations. The unit where this research was carried out comprises of seven plants in all and employs around 4,000 managers and officers. Only 16 managers and officers could be reached for the responses which is a very small sample of the universe.

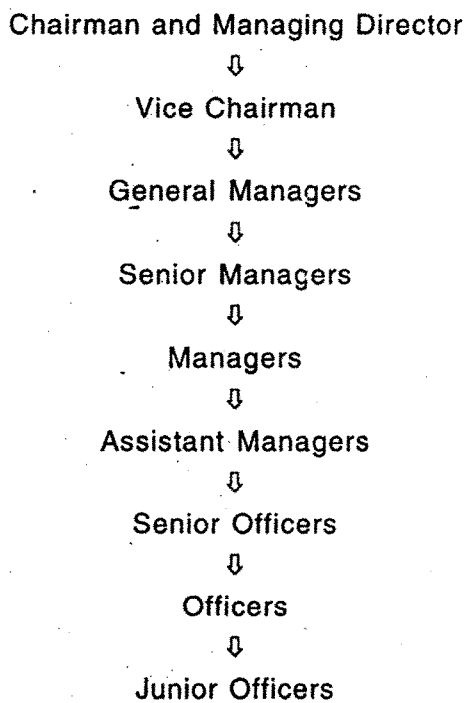


Figure 26 : Hierarchical structure of O3

#### ORGANISATION 4 (O4) :

It is one of the largest service sector, government organisation in Asia. It is owned

by the Government of India. The history of this organisation dates back to the year 1853.

The legislative power with respect to the organisations vests exclusively in the Indian Parliament. In other words, the legislative power is totally in the hands of the government of India. Thus, the concerned Ministry is responsible for the management and running of the organisation. Its decision making organisation is divided in three levels i.e. the Board, the Zones and the Divisions.

The Board mainly consists of the Directors, Joint Directors, and the Deputy Directors. The Zone consists of various departments, i.e. engineers, commercial officers, signal and telecommunication and security. The Divisions are responsible for the day-to-day functioning of the organisation. It is managed by the representative officers of all departments.

The hierarchy of the organisation is something like the following :

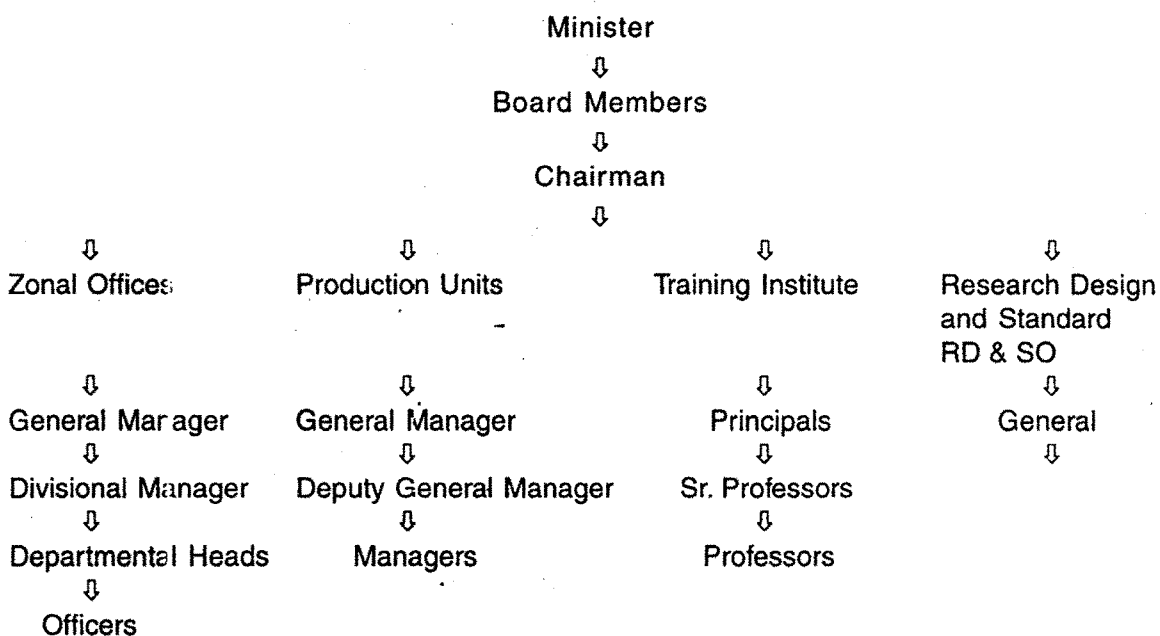


Figure 27 : Hierarchical structure of O4

The organisation has a vast organisational structure. The chart above shows only that part of the hierarchy which was found relevant for the present description. There are lots of people employed in the organisation. For the collection of data, only those people were taken as respondents who come at its Training Centre located in Vadodara City at the time of this study. The present researcher does not claim any representativeness of sample in the case of this organisation as well.

As explained earlier, no attempt was made to pick up a representative sample from any of the four organisations. The purpose was not to compare the different organisations. The chief purpose of the research has been explained earlier which was to develop the behavioural profile of managers, based on Enneagram tests developed in this research.

#### PROCEDURE :

For the construction of the test, a pilot study was undertaken. On the basis of pilot study, questionnaire was formed. This questionnaire, along with two others, was used for final data collection. The data were collected from four organisations, out of which three were manufacturing and one was service organisation. The sample was taken from middle and lower management cadres of three organisations.

The Heads of Personnel Departments in each organisation were first contacted for their permission. Then the lists of middle and lower management personnel were collected and respondents were selected basically on the basis of their availability, whoever from the list was willing to cooperate were contacted individually at their convenience. For the Organisation 4, the data were collected at their staff training college which is located locally in the city of Vadodara. Batches of personnel nominated for training programmes were contacted and, if willing, tests and questionnaire were administered to them.

In each case, respondents were allowed to fill the inventories and questionnaire in their own convenient time. Though, effort was made to establish proper rapport with each respondents, the researcher did not insist in filling the questionnaire in her presence.

Frequent efforts had to be made to collect the filled-in questionnaire from the managers. Some problems were faced at the time of data collection. Many questionnaires were misplaced, many managers declined later at the time of returning the questionnaire that they did not get time and could not fill them. That is, though initially they had all agreed to cooperate, but subsequently some of them changed their mind and refused to fill the tests and the questionnaire. Some questionnaire were returned incomplete. Several questionnaire were wasted because of the above reasons.

Only those tests and questionnaire which were filled-in and were complete in all respect were used for final data analyses. Incomplete or inaccurately filled forms were excluded from the analysis.