

3

M E T H O D O L O G Y

CHAPTER - III

METHODOLOGY

For the present study a descriptive research design was chosen with a survey technique. The chapter precisely describes the methodological procedures adopted in conducting the present investigation under the following heads :

1. Conceptual Framework of the study.
2. Variables.
3. Operational Definitions.
4. Sampling Procedure.
5. Procedure for Data Collection:
 - a) Development of the tool. b) Method of data collection.
7. Analysis of Data.

1. CONCEPTUAL FRAMEWORK OF THE STUDY

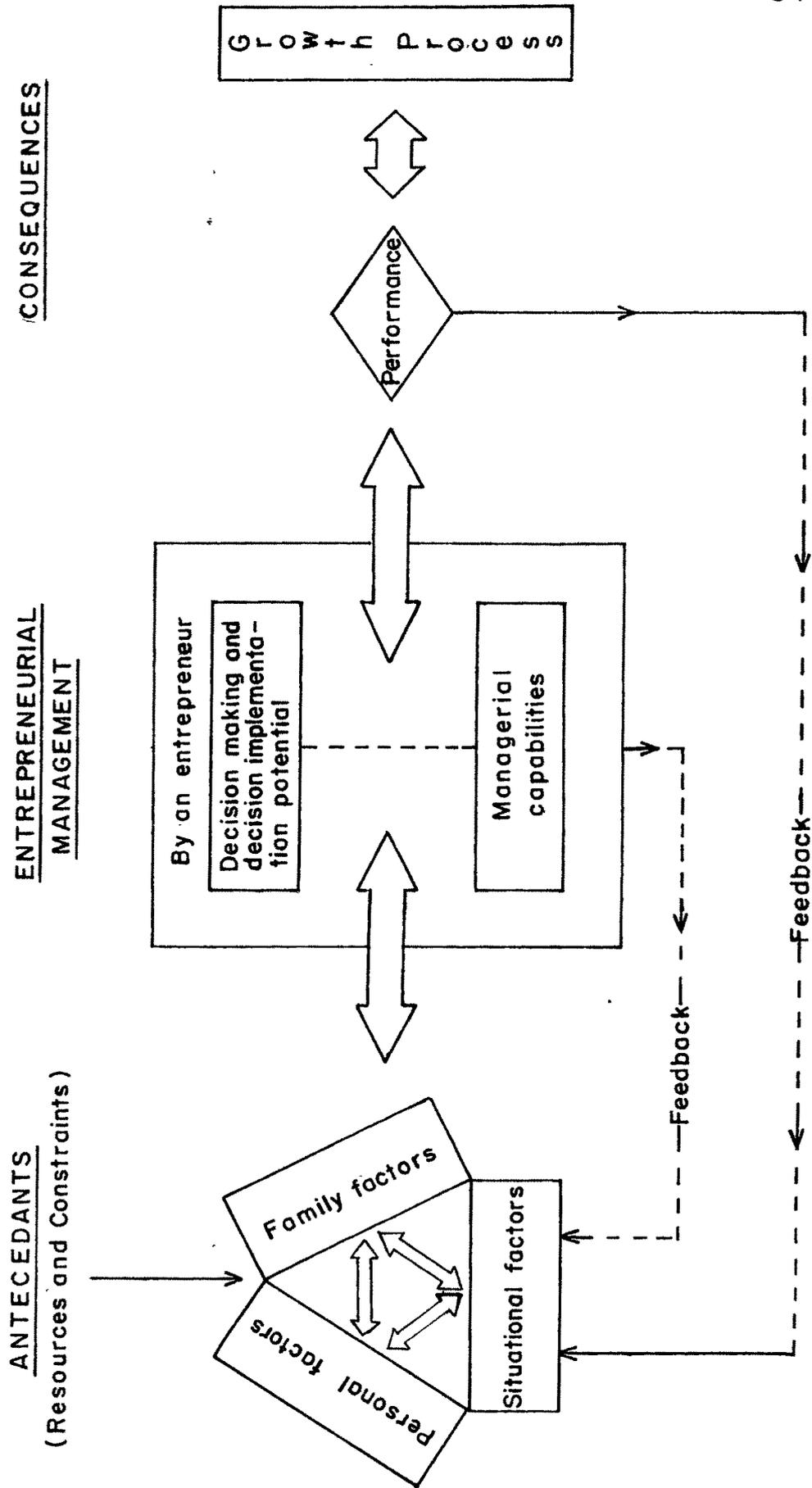
The Entrepreneurial Growth Process for the present study is conceptualised in the form of three interacting components : a) Antecedants, b) Entrepreneurial management, c) Consequences, and each with sub-components.

1.a. Antecedants to management

It includes all the resources and constraints which are basic or pre-requisites to the management of an enterprise. These may be personal family or situational:

- i) Personal factors comprise personal characteris-

Fig. 1: CONCEPTUAL FRAMEWORK TO STUDY THE ENTREPRENEURIAL GROWTH PROCESS AMONG WOMEN ENTREPRENEURS



tics of an entrepreneur.

ii) **Family factors** are the family characteristics of an entrepreneur.

iii) **Situational factors** include support system profile from household, institution and government.

1.b. Entrepreneurial Management:

Entrepreneurial Management directs the use of resources into action towards the desired ends. It is made up of two components:

i) **Decision making and implementation potential:** It involves all the decisions related to enterprise initiation, operation and its future plans. The way decisions are made and implemented will determine the growth of the enterprise which will be based on the nature of the performance of the enterprise.

ii) **Managerial capabilities:** This sub-component includes business planning, establishment procedures and operational management. The extent to which entrepreneurs utilize their managerial capabilities determines the performance of an enterprise leading to its growth process.

1.c. Consequences

i) **Entrepreneurial performance:** It leads to the

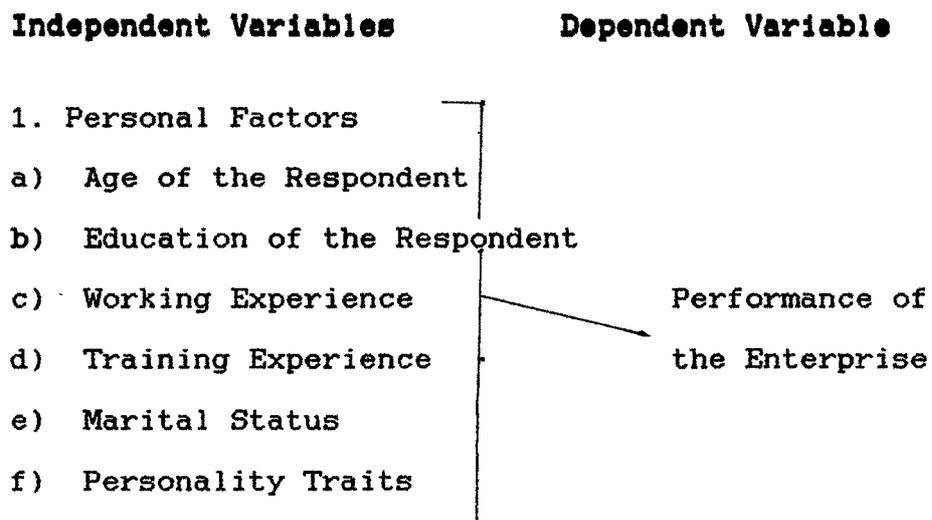
growth of the enterprise.

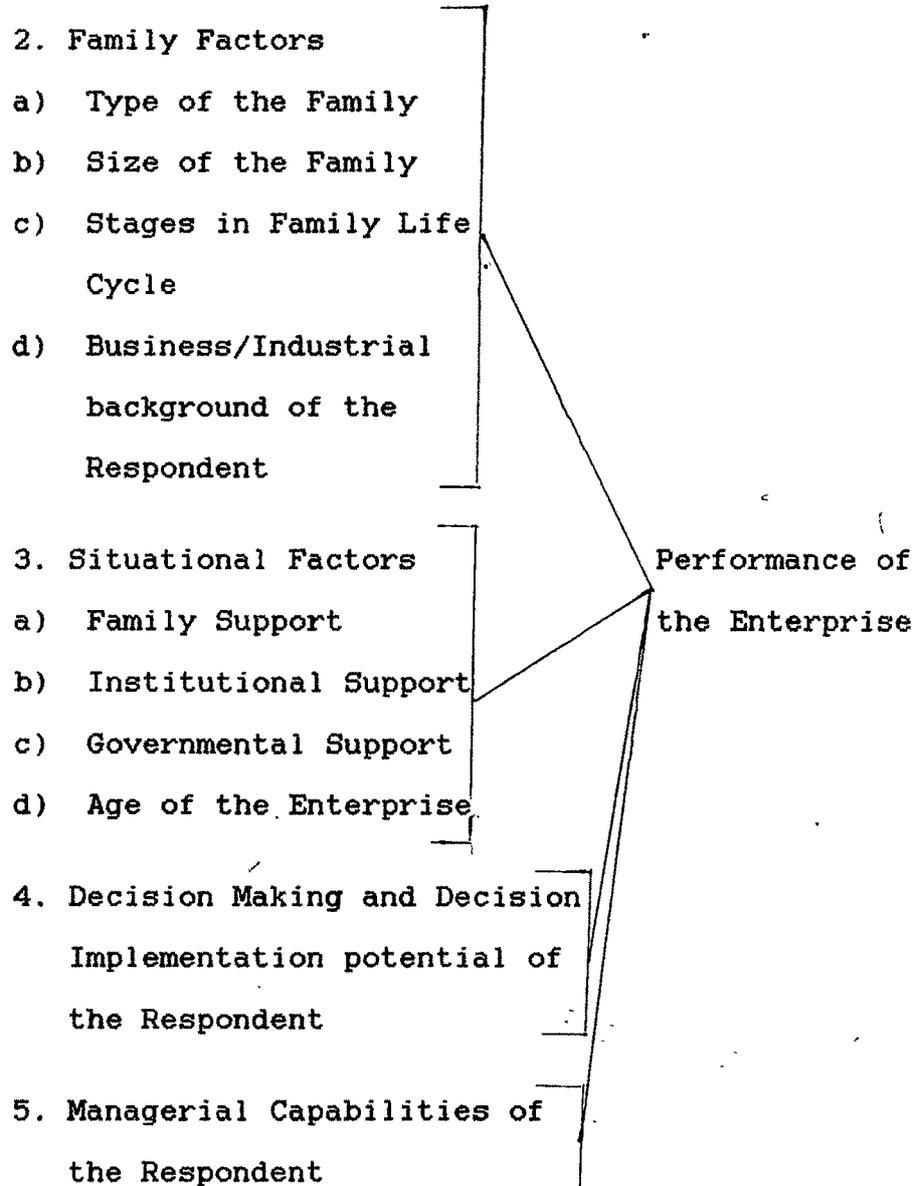
The two way arrows represent the inter-relatedness and inter-dependence between and within each component and sub-components. The broken lines indicate the information feedback.

On the basis of the above components it is theorised that entrepreneurial management in totality is the function of entrepreneur's personal, family and situational factors. The manner in which an entrepreneur exercises her decision making and implementation potential and manages the available resources along with constraints will determine the entrepreneurial performance and consequently the growth process of the enterprise.

2. VARIABLES

The variables identified in the present research along with relationship is shown schematically:





In the following discussion the dependent variable and the rationale for selecting the independent variables is highlighted:

2.a. Dependent Variable

Performance of the enterprise was the dependent variable of the study. Many researches have been con-

ducted on "men entrepreneurs" wherein performance/success/quality of entrepreneurship were selected as a variable (Berna, 1960; Nafziger and Rao, 1971; Singh, 1971; SIET, Hyderabad, 1974; Deshpande, 1982; Bhanushalli, 1987; and Ansari and Jain, 1988). Singh (1992) in her study on women entrepreneurs reported that entrepreneurial performance was dependent on number of variables. Since not many studies were found related to performance on women entrepreneurs, it was considered essential to incorporate it in the present investigation.

2.b. Independent Variables

These were classified into five types:

2.b.(1). Personal Variables

Results of the studies (Singh, 1992 and SIET, Hyderabad, 1974) have revealed contradictory influence of "age" on entrepreneurial performance, and quality of entrepreneurship. Singh's study found that women with advanced age performed well whereas the study conducted by SIET, Hyderabad reported that in the case of men entrepreneurs younger age was positively related to the quality of entrepreneurship.

It was also found that "education" of women and men entrepreneurs affected entrepreneurial performance, successful development of modern entrepreneurship and

quality of entrepreneurship (Singh, 1992; Nafziger and Rao, 1971; SIET, Hyderabad, 1974).

Nafziger and Rao, (1971) opined that "training" and "work experience" were among the key variables for successful development of modern entrepreneurship among men entrepreneurs.

Singh (1992) observed that "personality traits" among women entrepreneurs influenced the performance of their enterprise.

However there are inconsistent evidences in the literature as regards the influence of the above discussed variables namely age, education, training and work experience and personality traits on entrepreneurial performance in general and women entrepreneurs in particular, they were thought to be important variables to be included in the present study.

Marital status in the case of most of the men entrepreneur does not come in the way of business. But in the case of women entrepreneurs, due to certain family responsibilities and cultural norms, it discourages them and hinders their entrepreneurship career. Though a considerable change is discernible in their role today, it is a recent phenomenon. Whether marital status affects the performance of the enterprise or not, thus becomes an important concern.

2.b.(ii). Family Variables

Despite the common belief that joint families would be more supportive to women who want to branch off on their own and enter business, it was found that nuclear families have produced more entrepreneurs (Singh, 1986). Majority of women entrepreneurs were found emerging from nuclear families (Singh, 1986; Shah, (year not mentioned); Singh and Gupta, 1990). "Size of the family" and "the present stage of the family" exerts lot of pressure on the time and energy demands of the women entrepreneur. Whether it has an impact on the performance of the enterprise needs to be known. Dearth of information on the above variables viz. type and size of the family and the stage of the family, inspired the investigator to probe into their relationship to the performance of the enterprise.

Not much information is available on whether business background helps the entrepreneur in their enterprise, except a few studies on men entrepreneurs by Ansari and Jain (1988) and on women entrepreneurs by Singh (1986). Thus business background was included as an important variable.

2.b.(iii). Situational Variables

These include the assistance extended by the family members, training, technical, or financial insti-

tutions or by the government. A study reported that women entrepreneurs differed from men entrepreneurs in their dependency on the family support (Bali, 1992). Berna (1960) opined that if certain packages of help in techniques of production could be provided to the men entrepreneurs, their performance could be improved. In view of the absence of empirical data on situational factors with its relationship to performance, a need was felt to select the above variables for the present research.

2.b.(iv). Decision making, Decision implementation and 2.b.(v) Managerial capabilities.

Relevant data on these three variables (Decision making, Decision implementation and Managerial capabilities) is unexplored till date. Its effect on the performance of the enterprise is totally a recent phenomenon which made these variables imperative for the present study.

3. OPERATIONAL DEFINITIONS

For the purpose of the study certain concepts were operationally defined as follows:

1. **Women Enterprise** is an enterprise owned and administered by women entrepreneurs having due share in financial gains earned by the enterprise partly/fully.

2. **Decision Making and Decision Implementation**

Potential was measured by the way in which the entrepreneurial decisions were taken and implemented by the respondents themselves or by others.

3. **Managerial Capabilities** are the skills of the respondents which were exercised by them in managing their enterprise from its conceptualisation, establishment and operation. It was measured in terms of the extent to which they applied them independently.

4. **Performance** is a positive operational aspect of the enterprise which is measured in terms of:

a) Initial capital invested, b) Present networth,
c) Increase in networth, d) Rate of change of turnover,
e) Profit re-investment pattern, f) Developments made till date, g) Future development plans, and h) Increase in the number of helping hands.

5. **Entrepreneurial Growth Process** is a consequence of the performance of an enterprise. The variables which will contribute significantly to the performance will be considered as Determinants of Entrepreneurial Growth Process.

4. SAMPLING PROCEDURES

4.a. **Locale of the study:** The present descriptive study was carried out in Baroda city of Gujarat state. It is a highly industrialised city with a large number of

varied types of industries. The total land area is 108 square kilometers having a total population of 1,051,390 (1991 provisional census). The female sex ratio is 1:0.7.

4.b. Unit of Enquiry: The unit of enquiry of the study were the women entrepreneurs who were actively involved in business activity and were at least looking after one or more of the enterprise departments/sections /functions independently. They could be any one of the following types of women entrepreneurs:

Forced Entrepreneur: the one who was compelled by the circumstances such as death of the main bread earning person with responsibilities falling on her to take over the existing business.

Chanced Entrepreneur: the one who went into business without any preparations, clear goals or plans.

Trained Entrepreneur: the one who received any professional training related to her enterprise or who were developed and assisted by Entrepreneurship Training Institute.

Women engaged in manufacturing, trading or service business possessed either of the following types of industries:

Small Scale Unit: An industrial undertaking having an investment in plant and machinery ranging from Rs. 2

lakhs at the lower end and Rs. 35 lakhs at the higher end.

Cottage or Household Unit having manufacturing activity in which the investment range is upto Rs.25,000.

Tiny Unit having their upper limit upto Rs. 2 lakhs.

Medium sized industry having a capital investment in plant and machinery from Rs. 60 lakhs to Rs.5 crores.

Large sized industry with capital investment in plant and machinery above Rs. 5 crores.

Business involved in trading and service activity with no upper and lower limit of investment.

4.c. Selection of the Sample: At the time of conception of the study it was planned that multistage purposive sampling design will be utilised for selecting the sample as below:

4.c.i. At the first stage to obtain a list of women entrepreneurs from:

a) Financial institutes that extend loans and training programmes,

b) Entrepreneurial government and private training institutes that organise short period training programmes for women entrepreneurs,

c) Licensing and registration bodies that issue them the legal sanctions and approvals,

d) Chambers of Commerce, Federation of Gujarat Mills and Industries who keep the relevant industrial records,

4.c.ii. In the second stage each of the listed entrepreneurs was planned to be approached either personally or through mail with a request to send data regarding the details of their enterprise,

4.c.iii. In the third stage a short list of women entrepreneurs was planned to be prepared, based on the criteria of sample selection, and

4.c.iv. In the last stage a final list of selected entrepreneurs from the above list was to be prepared.

Unfortunately, the schedule of sample selection as planned earlier did not prove to be successful because of the following reasons:

i) Financial institutions despite of continuous request were not keen on revealing the names of women entrepreneurs to whom loans were sanctioned by them as they treated such cases as confidential matter. After persuing the matter with their regional head offices, the fact came to light that there existed no such list of women entrepreneurs and it was quite hectic effort and almost impossible to trace the names of women entre-

preneurs.

ii) Authoritative bodies for legal formalities like registration and licencing, after persuasive efforts gave the list which was quite outdated having old addresses and thus was of no use to the researcher. The updated list was not available with them.

iii) The training institute from where the list of women trainees was obtained was also quite outdated bearing old addresses. Among the listed women trainees many had not yet initiated the enterprise, some were on the verge of starting, few had started but were not operating it because of migration, failure, ditch by the partner and family problems, and some did not fulfill the criteria to be selected as the respondent of the present investigation.

iv) A list was obtained from the Chamber of Commerce and from Federation of Gujarat Mills and Industries, Baroda district, but hardly 1-2 percentage of the listed women entrepreneurs were actively involved in entrepreneurial activity.

On account of the above difficulties a modified procedural method of sample selection, in four stages was adopted:

Stage I: The information to identify and locate the women entrepreneurs was gathered through snow ball

method of investigation i.e. starting with a few known persons and respondents only to surface more names. Some names were gathered from the hoardings at various places of public interest. Others were collected from the name boards of prestigious multi-storeyed commercial complexes. The names were also obtained from the list of participants who attended conferences on related research theme organised by different organizations.

Stage II: An areawise list was prepared on the basis of the above information. Each of the listed women was approached personally at the available address in absence of telephonic facility or on telephone. Those who could not be located because of changed addresses and phone numbers were contacted at the new addresses and new phone numbers, the information of which was rendered in a few cases by their neighbours and friends. The details about their enterprises were noted assuring confidence in them by explaining the purpose of personal contact and the research undertaken. Finally a chart was prepared with the detailed descriptions of their enterprises.

Stage III: The above list was shortlisted through the purposive screening of the entrepreneurs meeting the following criteria:-

1. Those whose enterprise was running at the time of interview.

2. Those owning and managing one or more departments of their enterprise independently.

3. Those having atleast one or more than one worker.

4. Those whose enterprise has been in operation for 3 or more than 3 years.

Stage IV: Deciding on the sample size. Out of the total 245 women approached, 113 were found to be eligible for the present study. Others were not eligible because some of them were self-employed, some of them had shut down their enterprise at the time of the interview, some could not be located due to wrong addresses, some entrepreneurs could not spare time to give interviews, some were only passive partners and were not actively involved in the running of the enterprise.

5. PROCEDURE FOR DATA COLLECTION

5.a. Development of the tool

The questionnaire was selected as a tool for collecting the data. An exhaustive review of literature and expertise sought from the professionals and experts assisted in the construction of the schedule. The objectives formulated for the study also guided the development of an interview schedule eliciting the authentic and needed information.

The questionnaire formulated included closed ended and open ended questions with the motive to allow the

respondents to participate in a more elaborate and independent manner. The tool utilized for data collection comprised of the following sections:

Section I of the interview schedule highlighted information on the type of entrepreneurs and their personal and family characteristics.

Section II emphasized the detailed information related to the enterprise setup viz. age, nature, type of the enterprise, motivating profile, support system profile and constraints encountered. The capital oriented information of the enterprise regarding its initial investment, networth, turnover and profit re-investment were also obtained in this section. An enquiry was also made in the same on the growth aspects of the enterprise, and the perception of the respondents on the success of their enterprise, its strength and weaknesses, their personality refinement and satisfaction. Information relating to optimum resource utilisation and respondent's contribution in enterprise initiation and running were also gathered in the present section.

Section III focusses on inquiry on the decision making and implementation pattern of the respondents from enterprise initiation to its operation till date.

Section IV dealt with the managerial behaviour of the respondents at planning, establishment, and opera-

tional level of enterprise functioning.

Section V included a probe into the extent to which the respondents possessed selected personality traits useful for entrepreneurship. It comprised of a standardised scale "Focussed Behavioural Event Test" developed by International Centre for Employment and Career Development, Ahmedabad.

5.a.(i). Pre-testing of the Schedule: The schedule developed was pre-tested on 10 selected women entrepreneurs. The interview schedules were distributed to 50 non sampled and sampled respondents out of which only 10 complete schedules were returned after continually persuing the matter several times .

Pre-testing was done with the motive of testing the content validity, clarity and feasibility of the tool. The feedback received while pre-testing the schedule, however, allowed certain modifications in the tool to be used for the final study.

1. The reluctance of respondents in sharing the economic status of their household, was overcome by providing various income range.

2. The additional and detailed enquiry about the demographic data of their family also resulted in a poor response. Thus the questions on the details were deleted, but general information about family was retained.

3. The schedule was shortened by deleting the additional non essential data as the respondents opined that the schedule was too long, and very time consuming.

4. A separate section on financial data of their enterprise highlighting the detailed probe on sources of funds, application of funds, current liabilities and provisions, miscellaneous expenses, income and expenditure accounts was deleted in view of the reluctant behaviour of the respondents. Hence, the changes were made with simple enquiries utilizing the percentage ranges for financial data.

5. The apprehension among a few respondents in sharing the information on the number, sex and status of their employees too stressed the need to simplify the same by asking only the number of employees.

6. The open ended questions regarding the problems faced in pre-testing helped in structuring closed end questions for the same.

7. The questionnaire method was not found to be suitable for data collection as the respondents were not able to provide reliable, correct and complete data. Thus interview method was adopted for final data collection with the help of an interview schedule.

5.b. Method of data collection

5.b.i. Interview method: The data were collected by personally interviewing the respondents on a pre-tested instrument with prior appointment with them. The appointments were taken in advance based on the convenience of the respondents, telephonically or personally. Atleast two-three contacts were made on an average for taking the appointments. In a few cases the researcher had to make more than 12 contacts for the same. Several times it happened that even with the prior appointments for interview the respondent due to some emergency work and hectic schedule could not be present for the interview. In a few cases the interviews were held at late hours of evening. Majority of the interviews were held in the evening after 5.30 p.m. either at their office or residence as per the respondent's convenience.

Data collection requires a lot of competence on the part of the interviewer. The investigator too developed lot of perseverance, patience and cool headedness in the whole process of collecting the data.

The interview time with the respondents ranged from an hour to four hours. Data were gathered from the month of August 1993 till January 1994.

The interviews with the respondents were supported by observation about their personality behaviour, work-

ing pattern if possible, economic status and their management style. A thorough discussion with them on the theme, however helped the investigator to develop an insight.

The focussed behavioural event test was administered orally with the purpose of obtaining specific information on how a respondent acted and thought in four designated situations. These situations were representative of those that everyone had encountered. Each of the four situations was presented to the respondent and she was asked to select any two to describe in some detail a specific situation from the past that exemplified it. A time limit of 10-15 minutes for each situation was set during which the investigator asked a number of questions intended to elicit as much information as possible about what the respondent did, said, thought, and felt.

Certain shortcomings were faced while collecting the data:

1. Quite a few respondents were very reluctant to give the interview as they feared that the researcher belonged to some government department and thus if any information shared could lead them into legal problems. Despite assurances and proof of identity they did not participate in the interview.

2. It was very patient and tiresome job to convince and develop faith, trustworthiness and seek co-

operation from the respondents for the interview. Building a rapport with the respondents consumed lot of time.

3. Some of the respondents who were approached through the known references were quite enthusiastic in participating in the interview and their interview session was quite long as they were interested in sharing their detailed experiences and information regarding their enterprise irrelevant to the theme of the research.

4. In a few cases the respondents wished to fill the interview schedule on their own. Thus it was left with them but while collecting the interview schedule, it was noticed that much of the information was missing. Thus a second appointment with them consumed lot of time on the part of the researcher as the missing information was completed by interviewing them.

5. It was planned to use tape recorder to record the interviews and discussions held with the respondents, but it created fear and suspicion among the respondents. Thus the idea was dropped.

6. Some respondents had balance sheets of their enterprises but refused to give the copy or the details of it.

6. ANALYSIS OF DATA

6.a. Categorization of the data.

For the purpose of analysis, data on variables of the study were categorized as follows:

1. Education: Education was operationally used to mean the formal education attained by the respondents at the time of interview. It was categorised as:

Illiterate
 Primary
 Secondary
 Higher secondary/High school
 Intermediate
 Graduate
 Post Graduate

2. Working experience: Operationally it refers to the gainful employment of the respondent before taking up entrepreneurship as a career, which was categorised and scored as follows:

<u>Category</u>	<u>Scores</u>
Working	: 1
Not working	: 0

3. Training experience: It was categorised whether the respondents had undergone any additional training or not besides their formal education, which had helped them in establishing or running their enter-

prise.

<u>Category</u>	<u>Scores</u>
Received training	: 1
Did not receive training	: 0

4. Marital status: The respondents were categorised as.

Unmarried
 Married
 Widowed
 Divorced
 Separated

5. Personality traits: They were measured on the basis of presence or absence of each of the traits. Scores were given as follows.

<u>Category</u>	<u>Scores</u>
Presence of the trait	: 1
Absence of the trait	: 0

6. Family type: It refers to the nature of family the respondents belonged to and was categorised as:

Nuclear Family
 Joint Family

7. Family size refers to the number of members in the family which was categorised as follows:

Small size

Medium size

Large size

8. Stages in family life cycle operationally relates to the periods through which the family passed from its initiation to the last journey. It was categorised in the following manner:

Single women

Family without children

Beginning Stage

Expanding Stage

Contracting Stage

9. Business/industrial background refers to whether the respondent possessed any business or industrial environment in her family of origin or in her husband's family. Respondents were categorised as follows:

<u>Category</u>	<u>Scores</u>
With business/industrial background	: 1
Without business/industrial background	: 0

10. Family support was operationalised as the nature of assistance rendered by the family members viz. moral, financial, technical, liaisoning and personnel related, to the respondents while initiating or running their enterprise. It was categorised as follows:

<u>Category</u>	<u>Scores</u>
Received family support	: 1
Did not receive family support:	0

11. Institutional support referred to the help extended by technical, training, financial, marketing and consultancy institutions to the respondents for their enterprise. Categories were made in the following manner:

<u>Category</u>	<u>Scores</u>
Received institutional support	: 1
Did not receive institutional support:	0

12. Governmental support was operationalised as the governmental assistance to the entrepreneur in the form of policies, schemes, subsidies and other benefits which were categorised as follows :-

<u>Category</u>	<u>Scores</u>
Governmental support received	: 1
Governmental support not received :	0

13. Decision making and decision implementation potential: Respondents were judged on their decision making and implementation potential by the extent to which they exercised and implemented the decisions related to enterprise on a particular scale:

<u>Category</u>	<u>Scores</u>
Independently	: 4
Self but consulting others :	3

Jointly	:	2
Others alone	:	1

For further analysis the respondents were combined under the following two categories:

Independently
Others

14. Managerial capabilities of the respondents were measured by the extent to which the respondent used her managerial skills in various enterprise related functions on four point scale:

	<u>Scores</u>
Independently	: 4
Self but consulting others	: 3
Jointly	: 2
Others alone	: 1

For further analysis the respondents were combined under the following two categories:

Independently
Others

6.b. Statistical Analysis of the Data

The data collected were coded according to the code numbers assigned and were analysed employing descriptive as well as relational statistics.

6.b.1. Descriptive Statistics

The data were presented in frequencies, percentages, mean and standard deviation for analysing the following information:

i) Personal and family variables namely age, education, working experience, training experience, marital status, personality traits, family type, family size, stages in family life cycle and business/industrial background of the respondents.

ii) Data related to enterprise profile of the respondents.

iii) Motivational profile data of the respondents.

iv) Support and constraint profile of the respondents.

v) Data on decision making and implementation status of the respondents and managerial capabilities of the respondents were analysed by utilising mean scores which helped in categorising the respondents as high or low decision makers and implementors and the one's possessing high or low managerial capabilities.

6.b.2. Relational Statistics

The Statistical Package for Social Sciences (SPSS) was used for statistical analysis. Multivariate Statistical Techniques were utilised to test the hypotheses.

Hotelling's T^2 test was performed to find out whether the performance of the enterprises that belong to trained entrepreneurs is better than those belonging to chanced and forced entrepreneurs. It is a special case of multivariate analysis of variance just as the 't' test is a special case of univariate analysis of variance, in which two groups comprise the independent variables. Multivariate analysis of variance is designed to investigate differences between two or more levels of an independent variable (group) in terms of their effect on a set of dependent variables.

For example: The group difference between two independent variables (chanced and forced) and trained entrepreneurs were determined on a set of eight selected dependent performance variables.

The Sample Diagnostic Issue revealed that a) some of the variables under study were normal or not, continuous and normal or not, continuous and appropriate normal, categorical and discrete; b) contained 4-5 multivariate outliers; c) had fourteen independent variables and seven dependent variables (non additive in nature), the problem arose as to how to study the relationship between I V's and D V's. Thus Canonical Correlation Analysis was selected because:

- i) it allows normal, appropriate normal, non-

normal, categorical data for its analysis, of course if all the variables are normal, the analysis will be enhanced;

ii) is least affected by the presence of a few multivariate outliers;

iii) studies whether there is relationship between two sets of variables highlighting the degree of relationship between them, not that it will not specify exact functional form of the relationship.

The Canonical Correlation Analysis was carried out to find out the combined correlation between the two sets of variables. The seven performance variables as dependent variables and fourteen personal, family and situational variables as independent variables comprised two sets of variables. In order to analyse the relationships between two sets of variables, this multivariate statistics generates pairs of linear combinations of variables, one linear combination from each of the two sets. Linear combinations of variables are called canonical variates. The first pair of canonical variates maximises the correlation between a linear combination of one set and a linear combination of the other. A second pair of canonical variates, if calculated, is uncorrelated with the first pair and maximises the correlation between linear combinations of variables after the variance due to the first pair of canonical variates has been removed. Discovery of pairs of canoni-

cal variates continues either until no significant linkages between sets remain in the residual correlation matrices or until as many pairs of canonical variates have been defined as there are variables in the smaller set.

For example: Suppose one set had seven variables and another set had fourteen variables measured on the same individuals. Then first seven variables were combined into a single score as follows:

$$U_1 = X_1W_1 + X_2W_2 + X_3W_3 + \dots + X_7W_7$$

Similarly the second set was combined into another score as:

$$V_1 = Y_1 W'_1 + Y_2 W'_2 + Y_3 W'_3 + \dots + Y_{14} W'_{14}$$

The correlation between U_1 and V_1 was the correlation between the two sets of variables. However, this correlation depends not only on the inter-relationships among X's and Y's, but also on what W's and W's. The first canonical correlation was defined as the largest possible correlation between U and V and the corresponding scores U and V were called the first canonical pair of variables (which summarizes the X's as a single score and Y's as a single score having the highest correlation between them). Other pairs of canonical variates were similarly defined, by defining new scores U_2V_2 , U_3V_3 etc. so that they were uncorrelated with the either of the defined variates and had under this condition the largest possible correlation.

The minimum level of significance, adopted for studying the influence of personal, family and situational variables on the performance of the enterprise was 0.001 level of probability. However, 0.09 level of probability was also incorporated to suggest some influence and therefore all the levels were described with hierarchical degrees of influence such as highly significant (.001), very significant (.01), significant (.05) and somewhat significant (.09).

Linear Model and Factorial Analysis were computed to find whether Decision making, Decision Implementation and Managerial Capabilities of the entrepreneur are the determinants of the Performance of the Enterprise.

In the above stated multivariate statistics, every response is expected to be the sum of various main effects, interaction effects and error. In a linear model, this relationship is expressed as a linear function of these effects under appropriate error model. This model is subsequently used for Factorial Analysis in which all the factors (independent variables) are initially tested at certain levels for their effects and then some/all possible combinations of these levels are considered for analysis.

For Example: Full Factorial Model (in which all the possible combinations were studied) in which A1 (Decision making), A2 (Decision implementation) and A3

(Managerial capabilities), A1A2, A1A3, A2A3, and A1A2A3 effects were considered for the analysis.

Data of the present investigation were evaluated for certain sample diagnostic issues (viz. missing data; outliers; normality; linearity; multi-collinearity and singularity; and homogeneity of variance, covariance matrices) prior to statistical analysis. Careful consideration of these issues though were quite time consuming and tedious but were fundamental to an honest analysis of data.

Further an indepth analysis of the data allowed the application of the following univariate statistics:

a) Analysis of Variance was computed to find out the "between" group and 'within' group variance for the personality traits of the women entrepreneurs. The formula applied was:

$$F = \frac{\text{Mean square for 'between' groups}}{\text{Mean square for 'within' groups}}$$

b) 't' test was used to determine the difference between (i) the performance of the enterprise by the selected independent variables and (ii) the managerial capabilities of three types of entrepreneurs in three different managerial areas of the enterprise. The formula applied was:

$$t = \frac{M1 - M2}{S \sqrt{\frac{1}{n1} + \frac{1}{n2}}}$$

where M1 and M2 = Group Means

S = Standard Deviation

The minimum level of significance utilised under investigation was 0.05 level of probability.