CHAPTER 3

METHOD OF PROCEDURE

This investigation was undertaken to study the social norms, academic achievement motivation and attitudes towards Home Science education related to academic achievements and job aspirations of under-graduate students from selected Home Science Colleges in India.

The descriptive survey method was used for the investigation.

The present chapter comprises of a brief description of :

3.1 Selection and determination of population for the study

3.2 Construction of the instrument for data collection

3.3 Pre-testing of the instrument

3.4 Collection of data and

3.5 Procedures for analysis of data

3.1 Selection and Determination of Population

The population of the investigation consisted of final year B.Sc. students of selected Home Science colleges in India who were studying in the year 1980-81. The most important reason for selecting these respondents for the investigation was that, it is the young generation who is more responsible for bringing about social change. This group, while being in

minority, is going to provide leadership to the nation, set example for others to follow, formulate social norms and goal to be adhered to, and to be achieved by others and mould the personality of its members.

Initially, it was decided that one Home Science college affiliated to an Agricultural University and one Home Science college affiliated to a general University from each state and union territory in India, if both are available, otherwise one, whichever is available will be taken for the investigation. It was found that none of the union territories have Agricultural Universities. The states which have Agricultural Universities, with Home Science colleges* and selected for the investigation are shown in the Table 1.1.

Table 1.1 States which have Agricultural Universities with Home Science Colleges and selected for the investigation

States	Home Science Colleges selected
Andhra Pradesh	College of Home Science, Hyderabad
Assam	College of Home Science, Jorhat
Haryana	College of Home Science, Hissar
Maharashtra	College of Home Science, Parbhani
Punjab	College of Home Science, Ludhiana
Uttar Pradesh	College of Home Science, Pantnagar

There were 24 Agricultural Universities in India at the time of data collection (1980-81), some states having two or more than

* University's Handbook, New Delhi : Association of Indian Universities, 1977.

two Agricultural Universities. Out of total 24 Agricultural Universities as Table 1.1 depicts, only 6 have full-fledged Home Science colleges either with specializations or with general Home Science programme. Himachal pradesh Agricultural University and Gujarat Agricultural University have just started (1980 and 1981 respectively), Home Science colleges which were not included in the investigation.

The states which do not have a full-fledged Home Science college affiliated to an Agricultural University, but have Home Science colleges affiliated to general universities are Gujarat, Kerala, Madhya Pradesh, Meghalaya, Rajasthan, Tamilnadu and West Bengal. The colleges further selected for the investigation from these states are shown in the Table 1.2.

Table 1.2 Name of the states and colleges selected for the investigation

States	Home Science colleges selected
Gujarat	Faculty of Home Science, Baroda
Kerala	Sri Avinashilingam Home Science College, Coimbatore
Madhya Pradesh	M.H. College of Home Science, Jabalpur
Meghalaya	St. Mary's College, Shillong
Rajasthan	College of Home Science, Udaipur
Tamilnadu	SIET Women's College, Madras
West Bengal	Viharilal College of Home and Social Science, Calcutta.

The Union territories which have full-fledged Home Science colleges were Chandigarh and Delhi. These colleges were also selected and are shown in the Table 1.3

Table 1.3 Name of the Union Territories and colleges selected for the investigation

Union Territories	Home Science Colleges selected
Chandigarh	Home Science College, Chandigarh
Delhi	Lady Irvin College, Delhi.

Even after the inclusion of all these above mentioned colleges the representation of the students was not thought adequate and, therefore, to make the sample more complete, and to have a fair representation, some more Home Science colleges were included basing mainly on the size of the state and number of Home Science colleges available. The states and the colleges selected are shown in the Table 1.4.

Table 1.4 Name of the states and colleges selected further for the investigation

States	Home Science Colleges selected
Gujarat	SMP College of Home Science, Vallabh Vidyanagar
Maharashtra	SVT College of Home Science, Bombay
Madhya Pradesh	Government Degree College, Ujjain
Rajasthan	Sophia Girls' College, Ajmer
Uttar Pradesh	Institute of Household Arts and Home Science, Agra

With the inclusion of these colleges the number of colleges selected for the investigation increased to twenty, representing

all the states and union territories of India having full-fledged colleges of Home Science either with specialization or with general Home Science programme. The states and union territories which do not have a full-fledged Home Science college either with specialization or with general Home Science programme could not be included in the investigation as it was decided that the respondents ~~were~~ should be from Home Science colleges only.

3.2 Construction of Instrument

The instrument used for the investigation consisted of four parts - a checklist for social norms, a questionnaire to judge academic achievement motivation, an attitude scale and a job aspiration inventory. The preparation of each part is discussed below :

3.2.1 CHECKLIST ON SOCIAL NORMS

After reviewing the literature available, on social norms a checklist was prepared to investigate the social norms. As norms are attached to each and every action of human being, the study is limited only to the norms governing education, occupation, marriage and social status of women. The checklist was, then, given to ten experts from different universities in India for their opinions and suggestions and at the same time to mark traditional and modern norms as the statements appear to them, to see the adequacy of the statement, clarity of language, content validity and formet. According to their advice the checklist was modified.

To establish the reliability, split-half method was selected. The modified checklist was administered to 162 second and third year students of Faculty of Home Science, M.S. University of Baroda, studying in the year 1979-80.

From the responded questionnaire reliability was calculated by using Spearman Brown prophecy formula (Garrett, 1979):

$$r_{11} = \frac{2r_{\frac{1}{2}\frac{1}{2}}}{1 + r_{\frac{1}{2}\frac{1}{2}}}$$

The formula for calculating r was Pearson's Product Moment Correlation Coefficient (McNemar, 1969) :

$$r = \frac{N\Sigma XY - \Sigma X \Sigma Y}{\sqrt{N\Sigma X^2 - (\Sigma X)^2}\sqrt{N\Sigma Y^2 - (\Sigma Y)^2}}$$

Reliability was calculated separately for each cluster and all the clusters together. The reliability found was as a whole .80 and clusters separately were .56, .96, .96 and 74 for education, occupation, marriage and social status respectively.

3.2.2 QUESTIONNAIRE ON ACADEMIC ACHIEVEMENT MOTIVATION

A questionnaire was constructed to find out the academic achievement motivation of the students as :

1. No suitable instrument was found available, and
2. Grade or performance in the classroom were found not a very reliable indicator for judging academic achievement motivation.

After discussing the matter with several psychologists (as achievement motivation is a psychological construct), and reviewing available literature a questionnaire was constructed by keeping in view all the necessary elements (Need, Instrumental activity, Anticipatory goal states, Blocks, Nurturant Press, Affective states and Achievement Thema), which McClelland (1958), prescribed essential for achievement motivation. Modifications were made on the questionnaire according to experts' suggestions.

The questionnaire was, then, administered to 62 third year students in the Faculty of Home Science, M.S. University of Baroda, studying in the year 1979-80, and re-administered to the same students with an interval of one month to establish reliability by Test-Retest method. The formula used was Pearson's Product Moment Correlation Coefficient (McNemar, 1969). The reliability found was .88.

$$r = \frac{N\Sigma xy - \Sigma x \Sigma y}{\sqrt{N\Sigma x^2 - (\Sigma x)^2}\sqrt{N\Sigma y^2 - (\Sigma y)^2}}$$

3.2.3 ATTITUDE SCALE

A Likert type attitude scale was decided to construct for the measurement of attitude of the students towards Home Science education. As Home Science covers a vast area it was decided to

restrict only to philosophy, scope, functions, teachers and students of Home Science to construct the scale. It has been suggested (@ppenhein, 1970), that the statement for an attitude scale should be collected from persons on whom the final scale is intended to be administered. Accordingly, several B.Sc. final year students of Faculty of Home Science, Baroda; College of Home Science, Jorhat; College of Home Science, Ludhiana; Lady Irwin College, New Delhi; and St.Mary's College, Shillong were interviewed. As far as possible, the exact expression of the students were accommodated while preparing the statements. In this way one hundred statements were collected. A statement was either favourable or unfavourable to the above mentioned areas of Home Science. This list of statements were given to ten judges to see content validity, clarity of language, adequacy and to mark favourable and unfavourable statements. According to experts' advice some statements were dropped and some reframed. Ninety statements were selected from this list on the basis of maximum agreement.

Item analysis

Then, this list was administered to a group of 160 second and third year students of Faculty of Home Science, M.S. University of Baroda, studying in the year 1979-80, with 5 categories of responses for each statement. They are :

SA = Strongly Agree
A = Agree
U = Undecided
D = Disagree
SD = Strongly disagree

Students had to encircle the category which they choose.

One of the item analysis methods used was Edward's (1969) methods of summated ratings, by taking 25 percent of the respondents with the highest total scores and 25 percent of the respondents with the lowest total scores* and then calculating the 't' value by using the formula (Edward, 1969)

$$t = \frac{\bar{x}_H - \bar{x}_L}{\sqrt{\frac{\Sigma(x_H - \bar{x}_H)^2 + \Sigma(x_L - \bar{x}_L)^2}{n(n-1)}}}$$

The other item analysis method used was Nunnally's (1964) discrimination index for the selection of statements and to recheck the selection calculated by methods of summated ratings. The statements which responded well to both the tests (the statements that yield 't' value greater than 1.75 which is significant at .01 level, and differences are more than 20 in discrimination index) were selected for the final scale because of their discriminative value and the statements lacking discriminative value were rejected. Altogether 60 statements were selected.

The scale was, then, administered to 62 third year students of Faculty of Home Science, M.S. University of Baroda,

* Number of respondents and their scores were not depicted in a table as 25 percent of each comes 40 respondents.

studying in the year 1979-80, and re-administered to the same students within an interval of one month to establish reliability by Test-Retest method. Same formula (Pearson's Product-Moment Correlation Coefficient) was used as other parts of the instrument. The reliability was calculated separately for each cluster and to all the clusters together.

The reliability found was as a whole .74 and clusters separately were .73, .87, .65, .78 and .72 for philosophy, scope, functions, teachers and students respectively.

3.2.4 JOB ASPIRATION INVENTORY

A job aspiration inventory was prepared after reviewing available literature which were mainly by Littig (1973). This inventory was given to experts to check adequacy, content validity, clarity of items and language and format. Modifications were made according to their advice.

The modified inventory was then administered to 62 third year students of Faculty of Home Science, M.S. University of Baroda, studying in the year, 1979-80, and re-administered to the same students within an interval of one month to establish reliability by Test-Retest method. Same formula was used as other parts of the instrument. The reliability found was .76. Table 2 summarises the procedure for establishing reliability of the instrument.

TABLE 2

SUMMARY OF THE PROCEDURE FOR ESTABLISHING RELIABILITY OF THE INSTRUMENT FOR DATA COLLECTION

Instrument	No.of Items	Tests used	Formula used	Group on whom tested	No.of respo-ndents	Reliability	
						Clusters	Whole
A. Checklist on Social norms							
Education	16	Split-half	Spearman	Second and	160	0.56	
Occupation	16	Reliability	Brown	Third year		0.96	0.80
Marriage	14		Prophecy	students		0.96	
Social Status	17		Formula			0.74	
B. Questionnaire on Academic Achievement Motivation	22	Test-Retest	Pearson's Product Moment Correlation Coefficient	Third year students	62		0.88
C. Attitude Scale Item Analysis	90	t - test discrimination index	Edward's t	Second and Third year students	160		Greater than 1.75 More than 20
Philosophy	11	Test-Retest	Pearson's	Third year	62	0.73	
Scope	10		Product	students		0.87	
Function	20		Moment Correlation			0.65	0.74
Teachers	9					0.78	
Students	10		Coefficient			0.72	
D. Job aspiration Inventory	14	Test-Retest	Pearson's Product Moment Correlation Coefficient	Third year students	62		0.76

The whole instrument was constructed on closed form, where the responses could be given in a limited way, as it is easy to administer and fill out and keeps respondents' mind fixed on the subject.

About the length of the questionnaire Parton (1950), says :

> Most recommendations for the best length for the questionnaire point to the rule, 'as short as possible to get all the information needed by the survey'. Still, there is experimental evidence which suggests that certain group of population, given proper incentives and presented with a carefully presented form, will respond to a very long questionnaire.

Every care was taken to make the whole instrument attractive to the respondents by :

1. Stating the statements and questions in a simple and clear language and were sharply focussed on meaning;
2. Placing the items in a psychologically and logically sound sequence;
3. The categories, format and directions were designed to elicit, accurate, unambiguous answers, to require minimum of the respondents' time, to facilitate the tabulation and interpretation of data.

3.3 Pre-testing of the Instrument

The whole instrument was then pretested with 160 final year B.Sc. students of the Faculty of Home Science, M.S. University of Baroda, studying in the year 1979-80. The purpose of doing so was to check the clarity of language of the instrument, the time required to respond and to find out the comprehension of the students.

Result of Pre-testing

It was found that students were able to comprehend the meaning correctly and were taking almost same amount of time to respond. They needed 25 to 30 minutes to respond to the instrument. Therefore, the instrument was considered suitable to use for data collection.

3.4 Collection of Data

The investigator went personally after proper correspondance to the colleges which responded to the investigator's queries. The investigator did not go to the colleges which did not respond, even after repeated inquiries about students strength and permission for data collection. A list of the colleges from which data were collected with the number of respondents are shown in the Table 3.

Personal visits were planned as doubt was raised about the validity of the data collected through mailed instrument, regarding the interpretation of the questions and the objectivity involved and to avoid the ambiguity in the meaning of the questions.

The respondents (final year B.Sc. Home Science students), filled up the instrument for themselves and on behalf of their parents and the investigator collected the marks or grades obtained by the respondents in immediate past two consecutive examinations from the college record and the evaluation system

Table 3. Number of respondents from the colleges from which data were collected

Names of the Colleges	Number of Respondents	
	F	%
College of Home Science, Hyderabad	60	6.67
College of Home Science, Jorhat	10	1.11
Home Science College, Chandigarh	85	9.44
Lady Irwin College, Delhi	30	3.33
Faculty of Home Science, Baroda	150	16.67
SMP College of Home Science, Vallabh Vidyanagar	35	3.89
College of Home Science, Hissar	52	5.78
SVT College, Bombay	115	12.78
Government Degree College, Ujjain	40	4.44
College of Home Science, Ludhiana	120	13.33
College of Home Science, Udaipur	65	7.22
Sophia Girls' College, Ajmer	33	3.67
Institute of Household Arts and Home Science, Agra	45	5.00
College of Home Science, Pantnagar	60	6.67
Total	900	100.00

adopted by the colleges to evaluate students' achievement. Thus, the factor of subjective interpretation of certain questions were effectively controlled by the personal visit of the investigator.

As there were disturbances on account of struggle for identity and existence of the people in the North-Eastern region, the investigator could not collect data from Meghalaya. Due to

political crisis in West Bengal the investigator had to drop the idea of collecting data from that state too, though, proper correspondance were made.

Though the colleges represented in the investigation were situated mainly in the North-Western part of India, they accommodate students from most of the states and union territories of the country.

3.5 Analysis of Data

Various statistical procedures were used for the analysis of data. A brief summary of these procedures is given below :

The data were coded, frequencies were tabulated and percentages were computed for the analysis of all the responses.

Means were calculated to find out the intensity of all the responses and median as a basis to categorise the respondents' degree of intensity.

The t tests were calculated for finding out the significant differences among the students according to their fourteen colleges of study. The formula used for the calculation of 't' (Steel & Torrie, 1960), was :

$$t = \frac{d}{Sd}$$

where $$Sd = \sqrt{\frac{\sum_j (x_{1j} - x_{2j})^2 - [\sum_j (x_{1j} - x_{2j})]^2 / n}{n(n-1)}}$$

The correlation among and in between the variables were done by the computer and so also the stepwise regression analysis, to

study the combined effects of all the variables on academic achievements for the whole population, separately for each cluster of colleges according to their evaluation system followed and for each level of high, medium, low and under achievers. For a clear picture, the statistics used for the analysis of data are present in the Table 4.

Table 4. Statistics used for analysis of data

Statistics used	Objectives of the statistics used
Percentages	1. To know the percentages of respondents : 1.1 governing modern and traditional norms 1.2 parents' modern and traditional norms as perceived by the respondents 1.3 academic achievement motivation 1.4 attitudes towards Home Science education 1.5 job aspirations 1.6 academic achievement levels.
Mean	2. To find out the intensity of : 2.1 perception of respondents' norms and their parents' norms 2.2 academic achievement motivation 2.3 attitudes towards Home Science education 2.4 job aspirations
Median	3. Used as basis to categorise the respondents possessing : 3.1 high, medium and low academic achievement motivation 3.2 less favourable, favourable and highly favourable attitudes towards Home Science education.

(continued...)

(Table 4 continued)

Statistics used	Objectives of the statistics used
t - test	4. To compare :
	4.1 parents' norms as perceived by the respondents and their own norms
	4.2 perception of norms according to the respondents' achievement levels.
	4.3 the respondents of 14 colleges under the investigation in their:
	4.3.1 perception of modern norms
	4.3.2 academic achievement motivation
	4.3.3 job aspirations
Correlational Matrix	5. To study the interrelationships among the variables of the investigation for the :
	5.1 whole population
	5.2 each level of high, medium, low and under achievers
Stepwise multiple regression	6. To test the combined effect of all the variables of the investigation on academic achievement of the respondents.

The responses of the checklist were deciphered on a pre-decided scheme, that is, if a respondent says 'yes' to a particular statement reflecting 'modernity' she is considered 'modern' in her view (govern by modern norm), and if, for the same statement she says 'no' she is considered 'traditional' in her view (govern by traditional norm). A respondent's view is assessed on the summated rating of the whole cluster and not on her reaction to an individual statement. A statement is

considered 'modern' or 'traditional' on a pre-determined basis of maximum agreement of the experts whom were consulted at the time of preparation of the checklist to establish content validity.

To save space and to avoid unnecessary repetitions in the thesis in many instances the colleges under investigation were represented by its location, as for example : Institute of Household Arts and Home Science, Agra was mentioned as Agra only.
