3.Ø.Ø. CHAPTER THREE

METHODS AND PROCEDURE

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3.1.Ø. INTRODUCTION

This chapter presents the major objectives and hypotheses of the present study, the measuring tools employed, the statistical analysis carried out and the computer programme used for carrying out various statistical analysis.

3.2.Ø. STATEMENT OF THE PROBLEM AND HYPOTHESES

The present investigation aimed to study Personality, Motivational and Perceptual variables as Predictors of Product Purchase behaviour.

The listing of the variables used in the present investigation under Predictor and Criterion variables are given below.

I. PREDICTOR VARIABLES

A. Personality variables

(a) Compliant Orientation
(b) Aggressive Orientation
(c) Detached Orientation
(d) Sociability
(e) Relaxed Vs Tense
(f) Internal Control

B. Motivational variables: (MAO - B)

(a) Achievement

(b) Influence (Power)

(c) Control

(d) Dependency

(e) Extension

(f) Affiliation

C. Perceptual variables: (Attribution)

(a) Ability

(b) Effort

(c) Task Difficulty

(d) Luck

D. Demographic variables

(a) Tenure in Hostel

(b) Sex

II. CRITERION VARIABLES

This study has made an attempt to quantify two separate measures of purchase behaviour namely:

(a) Frequency of purchase

(b) Likelihood of purchase

Detailed descriptions about the variables under investigation are presented under the section on Tools employed. Since most of the criticism has been aimed at the kind of Personality Tests employed in the Consumer research, the present study has made all the efforts to select only those instruments having some direct relevance in understanding and predicting consumer profiles. Similarly, since most of the instruments used in measuring Motivation had more of Personality bias, attempt has been made to employ a test which primarily measures only Motivation and not other dimensions. The present study has also made an attempt to utilize the Attributional approach to study Perceptual variables. A special tool was prepared to quantify these Perceptual variables. A detailed description about each of the tools employed is presented in this chapter latter.

Based on the relationship of Personality, Perception and Motivational variables mentioned above, with the criterion measures the following hypotheses were formulated.

H1. Frequency of purchase and Likelihood of purchase of Personal Care/Grooming products are expected to be more strongly influenced positively by individuals with high Internal Control and Aggression oriented Personality.

H2. Frequency of purchase and Likelihood of purchase of Medicinal/Health oriented products would be considerably high in case of those individuals who are Tense (less Relaxed), less Sociable and Detached oriented Personality.

H3. Individuals with Personality orientations of high Sociability, high Compliance and Relaxed temperament would tend to purchase more Frequently and also would be the most Likely purchasers of Socially oriented products.

H4. Persons with dominant Motivational dimensions characterised by high Achievement, Influence (Power) and Control would tend to purchase more Frequently and also would be more Likely to purchase Personal Grooming/Care products.

H5. Individuals characterised by Control and Influence (Power) as the least dominant Motivational patterns would be the most Likely and the most Frequent purchasers of Medicinal/Health products.

H6. Product purchase in terms of frequency and Likelihood of purchase of Socially oriented products would be greatly determined by individuals with dominant Affiliation, Dependence and Extension motivational patterns.

H7. Persons attributing their success or failure experiences more to Luck would tend to purchase most Frequently and also would be the most Likely purchasers of Personal Grooming/Care products.

H8. Frequency of purchase and Likelihood of purchase of Medicinal/Health products would be influenced positively by those individuals attributing more to Effort and Task Difficulty for their success and failure experiences.

H9. Individuals attributing more to Ability for their success or failure experiences would tend to be the most Likely purchasers and also the most Frequent purchasers of Socially oriented products.

H1Ø. Disregarding both the separate and joint impact of Personality, Perceptual and Motivational influences, Females would tend to buy more of Personal Grooming/Care and Socially oriented products.

H11. The respondents with relatively low Tenure in Hostel living would be more strongly inclined positively towards purchasing Socially oriented products in comparison with those having high Tenure in the Hostel, the latter being more seasoned and therefore, might be inclined to purchase more of Personal Grooming/Care products.

H12. The Criterion measure of the Likelihood of purchase in general would be better predicted from among the Personality, Perceptual and Motivational variables than the criterion of frequency of purchase.

3.3.Ø. MEASURING TOOLS

A brief description on each measuring instrument employed for measuring the Predictor as well as Criterion variables are presented below.

3.3.1 Personality Instruments

(a) Cohen's CAD

Cohen's CAD has been much quoted recently among the researches in the area of Consumer behaviour. His instrument has been described as one specifically developed for consumer research. Consumer decision making and market behaviour seem in part to be a response to significant others, who are either physically or referentially present at the time. To the extent that consumers use other people as a frame of reference, a sufficiently inclusive interpersonal framework may well be an essential part of a broader theoretical paradigm in which to study consumer behaviour.

Cohen's attempt in developing a tailor made tool had a basis because, marketing is diverse and complex phenomenon. Hence, behavioural applications seem to demand more than an exhaustive listing of traits. It may be far more useful to organize traits into meaningful categories that are descriptive, not only to a single interpersonal act, but of a person's relatively consistent means of relating to and coping with others" (Cohen, 1967).

The development of the Personality instrument was based on the theory of Karen Horney. Karen Horney (1937, 1939, 1945, 195Ø) had constructed a tripartite interpersonal model that fits the stated goals. Horney attempted to provide a rationale for thinking in terms of three basic interpersonal configurations. These configurations help to explain a person's Perception of his social environment and his action tendencies toward the objects in his life space.

According to Horney (1945), people can be placed into three groups, which reflect their predominant mode of response to others:(1)those who moved toward people (Compliant), (2) those who move against people (Aggressive), and (3) those who move away from people (Detached).Each mode of response involves a different strategic method of coping with other people.

A brief description about each of the orientation measured by the instrument is given below:

(A)Compliant Orientation

Compliant-oriented people want to be part of the activities of others. They wish to be loved, wanted, appreciated, and needed. They see in other people a solution for many problems of life and wish to be protected, helped, and guided. Because of the importance given to the companionship and love of other, Compliant people become oversensitive to others' needs, overgenerous, overgrateful, and overconsiderate. Such people tend to avoid conflict and subordinate themselves to the wishes of others. They are inhibited in criticism, and apologetic and willing to blame themselves rather than others if things go wrong.

Among the most important attributes associated with a Compliant tendency are: goodness, sympathy, love, unselfishnes, and humility. The Compliant person dislikes egotism, aggression, assertiveness, and power-seeking. The Compliant type seeks to manipulate others by being weak and dependent and relying on others to help him achieve his goals. Since many of his goals are tied to finding an accepted place in society, he will go out of his way to conform to what he believes are accepted forms of behavior.

(B)Aggressive Orientation

Aggressive oriented people want to excel, to achieve success, prestige, and admiration. Other people are seen as competitors. Aggressive people strive to be superior strategists, to control their emotions, and to bring their fears under control. Strength, power, and unemotional realism are seen as necessary qualities, People are valued if useful to one's goals. Everyone is thought to be motivated by self-interest, with feelings simply a cover for hidden objectives. The aggressive person seeks to manipulate others by achieving power over them. Yet he needs people to confirm his self-image, to bolster what may well be uncertain confidence in his competitive talents. He will go out of his way to be noticed, if such notice brings admiration.

(C)Detached Orientation

Detached oriented people want to put emotional "distance" between themselves and others. Freedom from obligations, independence, and self-sufficiency are highly valued. Such people do not want to be influenced or to share experiences. Conformity is repellent; intelligence and reasoning are valued instead of feelings.

Detached people consider themselves more or less unique, possessing certain gifts and abilities that should be recognized without having any need to go out of their way to show them to others. The Detached type is distrustful of others, but does not wish to "stay and fight". Horney suggested that people frustrated in their Compliant or Aggressive tendencies, or both, may well adopt this response trait. If one is uncertain as to how to deal effectively with people, and receives negative reinforcement from early social interaction, this latter mode may be a solution. Goals and values that support this individualistic orientation will acquire positive reinforcement character.

The instrument

The Personality Test (Cohen's CAD) comprised of a 35-items, Likert-type instrument was designed to measure Compliant, Aggressive, and Detached interpersonal orientations. The compliance orientation was measured by 1Ø items, while the Aggressive orientation by 15 items and the Detached orientation was measured by 1Ø items. The instrument was shown to have adequate test-retest reliability and internal consistency reliability. Several studies were undertaken to determine the instrument's validity. (Cohen, 1967).

The validity and reliability findings are presented below.

The 35 items were judged by rators who were familiar with Horney's theory. High inter-judge agreement among qualified people familiar with Horney's typology indicated that each of the items did measure the desired trait. Of the 10-item Compliant scale, all seven judges agreed on the Compliant designation for nine items; the other items received six out of seven Compliant responses. On a 15-item Aggressive scale, two items received six out of seven Aggressive responses, and the other 13 received prefect scores. A 10-item Detached scale received prefect agreement on seven items and six out of seven agreement on three items.

Another study for determining validity was done with FIRO-B. Schutz (1958) developed an instrument, FIRO-B (Fundamental Interpersonal Relations Orientation, 2nd ed.) designed to measure three interpersonal needs: Inclusion, Control, and Affection, each dichotomized into expressed behavior and wanted behavior. This instrument received considerable use and validation in studies of group interaction. Consistent predicted similarities were found between CAD and FIRO-B when the scores of 50 students on both measures were correlated.

Attempt also was made to establish concurrent validity using Rosenberg's work (1957) with the Horney classification scheme in gauging occupational value as an adequate concurrent criterion measure. Two studies were undertaken using different measures of occupational preference. The first used the preference-report technique, and the second was a study of vocational preparation. The findings are presented in Table 3.3.1.

Table 3.3.1 showing the Correlations of CAD scales with Occupational Scales.

	Occupational scale		
CAD scale	Compliant	Aggressive	Detached
Compliant (n = 78)	.48[b]	.1Ø	.21
Aggressive (n = 78)	-.2Ø	.24[a]	-.29[b]
Detached (n = 78)	-.28[a]	-.4Ø[b]	.34[b]

a=significant at .Ø5 level; b=significant at .Ø1 level.

Table 3.3.1 shows that the intercorrelations among the Compliant and Detached CAD scores and corresponding Occupational Scales are significant at the .Ø1 level. The correlation between the CAD Aggressive scale and the scale of Aggressive occupations is significant at the .Ø5 scales, as indicated by internal consistency analysis, have relations between the two sets of variables.

Vocational preparation was used as the criterion measure in a second study for concurrent validation. Using Rosenberg's evidence that the occupational choice of Social Work carried with it Compliant values; Business Administration, Aggressive values; and Natural Science, Detached values, these groups were selected for comparative purposes. Each group was given CAD. It was assumed that Social welfare students will score higher on the Compliance, Business administration students will score higher on the Aggressive scale and Geology students will score higher on the Detached scale, Mean CAD scores for each group are presented in Table 3.3.2. The tests confirmed the proposed hypothesis.

Table 3.3.2. Showing the CAD Scores for the Three Fields of Study.

CAD scale	Social welfare n=32	Business administration n=35	Geology n=25
Compliant	39.41	35.7Ø	36.67
Aggressive	41.88	5Ø.87	44.96
Detached	23.88	25.Ø3	28.6Ø

As a final measure of validity the criterion variable "susceptibility to personal influence" was studied experimentally. Campbell (1966).

The present study has used the 35 items (Compliant 1Ø items, Aggression 15 items and Detached 1Ø items) Lickert-type instrument designed on a five point scale. Thus, the scores ranged from 1Ø (minimum) to 5Ø (Maximum) for both Compliant and Detached individuals while the scores for Aggression ranged from 15 to 75. Scores for Compliance, Aggression and Detached characteristics were computed for each respondent and the same were used for further analysis.

(B) Modified Personality Scale (Villani and Wind)

Rationale for Using Modified Personality Test:

The present study has employed the Modified Personality Test developed by Villani and Wind. While searching for appropriate and relevant instrument to measure Personality variables, to suit the need especially for consumer research, indicated that the use of Modified Personality Test would yield a meaningful contribution. Though lot of criticism is leveled against this approach, one is however, cautioned to use them only if they have demonstrated adequate reliability. A brief outline on the issues relating to this approach is presented below.

In the search for relationships between Personality and consumer behavior, marketing researchers have frequently used one or the other of the many Personality instruments measuring traits of various types. Among the most popular instruments used in this area have been: Edward's Personal Preference Schedule (Koponen, 1960; Frank, Massy and Lodahl, 1969), California Psychological Inventory (Bruce and Witt, 1970; Robertson and Myers, 1969), and Thurstone Temperament Schedule (Westfall, 1962). These instruments have been used either in the same original form or after modifying them to suit one's own purposes. The principle criticism directed towards the use of the total Personality instrument in its original form in consumer behavior studies is that it is questionable whether these Personality instruments measure the appropriate Personality traits, since they were designed for other purposes.

This conceptual consideration, coupled with the increased preference for situation-specific measures of Personality and the practical consideration that the modified versions are usually shorter and easier to administer , have led to a wider use of "modified" Personality measures.

The main criticism against using modified versions of tests is that marketing researchers rarely examine the reliability or validity of the modified instrument. The original instruments have usually been tested for reliability and validity for specific uses on specific populations. It is doubtful whether such test results properly reflect the reliability and validity of the instrument when examining consumer behavior in the general population, when the original instrument has been "modified."

Villani and Wind selected three traits for the reliability study which were defined conceptually as:

1.Sociable: Outgoing, Social, Participative temperament.

2.Relaxed Versus tense: To be Sedate, relaxed, composed and satisfied versus to be tense, excitable, restless, fretful, impatient.

3.Internal control: One's generalized expectancies for internal versus external control of the events in one's life.

The measurement of 'Sociability' was based on the California Psychology Inventory measures of "Sociability" (Consulting Psychologist's Inc.,1959); The measure of "Relaxed versus Tense" was obtained from Cattell's Sixteen Personality Factor test (Institute of Personality and Ability Testing, 1969); and Rotter's test yielded a measure of "External Control versus Internal Control" (Rotter, 197Ø).

Three principal modifications, similar to those commonly made in consumer research, were made to the above trait measures in the design of the modified instrument:

1. The number of items to measure each trait was reduced considerably. The CPI test for Sociability consisted of 36 items and the modified test included only 6 items. The SPF test for Relaxed versus Tense consisted of 13 items and the modified test consisted of 4 items. Finally, Rotter's test consisted of 29 items whereas, the modified measure of Internal Control contained only 5 items.

2. The response scales were changed to a five-point scale which was used uniformly throughout the new test instrument. The new scale consisted of five points labeled: "strongly agree," "agree," neither agree nor disagree," "disagree," "strongly disagree." In contrast, the CPI test for Sociability used a "true" or "false" response scale; and the SPF test for Relaxed versus Tense used a three-point scale with labels that differed for different items (e.g.,Yes, In between, No; Often, Occasionally, Never). Rotter's test for External Control versus Internal Control consisted of two forced choice alternatives and one was to be chosen to indicate one's position.

3. The wording of the items in the modified test also differed in varying degree with those measures of similarly defined traits in the other test instruments. The items in the modified test for Sociable were completely different from the items in the CPI test for Sociability, the latter being used only as a "guide" to the type of questions that would be appropriate in measuring this trait. The test items for the new measure for Relaxed consisted of two that were the same as those in the SPF test and two that were different . Finally, the new measures for Internal Control consisted of five single statements (not pairs of forced choice statements).

While modifying the scale, care was taken to see that the modified version yields the reliable and valid measures of the underlying traits.

The test-retest reliability analysis consisted of correlating the 1971 and 1973 scores for the 504 respondents who completed both modified tests for the different trait measures. Analysis of agreement between the modified and original trait measures consisted of correlating the modified trait measures and the standard test scores for the CPI test for Sociability, the SPF test for Relaxed versus Tense, and Rotter's test for External versus Internal Control for the 96 respondents who completed both the modified and original form tests.

The test-retest correlations are presented in Table 3.3.4. As one might expect, the correlations based on simple sums of the appropriate item responses were consistently higher than factor score correlations. Although the factor analyses for the two years (1971 and 1973) provided similar loading structures.

Table.3.3.4 Showing the Relevant Personality Factors Derived from Factor Analysis.(N= 5Ø4).

	Factor Loadings (1971 data)	Factor Loadings (1973 data)
Sociable		
I find it easy to mingle among people at a social gathering.	Ø.61	Ø.76
I consider myself a very Sociable, outgoing person.	Ø.72	Ø.7Ø
I am considered a very enthusiastic person.	Ø.62	Ø.59
I think I have a lot of personal Ability.	Ø.55	Ø.39
Relaxed		
I get tense as think of all the things lying ahead of me.	Ø.67	Ø.74
I have periods when it is hard to stop a mood of self-pity.	Ø.58	Ø.5Ø
I get very tense and anxious when I think other people are disapproving of me.	Ø.49	Ø.61
I wish I knew how to relax.	Ø.57	Ø.58
Quite small setbacks occasionally irritate me too much.	Ø.68	Ø.61
Internal Control		
Sometimes I feel that I don't have enough control over the direction my life is taking.	Ø.73	Ø.47
Many times I feel that I have little influence over things that happen to me.	Ø.54	Ø.49
I am very satisfied with life.	-Ø.63	-Ø.25
What happen to me is my own doing.	-Ø.12	-Ø.7Ø

The test-retest correlations for the simple sums, using the two different procedures for item selection (i.e.,a priori and factor analysis), provided no clear indication that one method is superior to the other. In all three trait cases, there were slight differences in the items used for the two measures.

In absolute terms, the test-retest reliability coefficients for Sociable and Relaxed tended to fall into an acceptable range and were consistent with those found for psychographic measures in other marketing studies (Pessemier and Bruno, 1971; Daren and Reynolds, 1972,). The acceptability of the stability of these two measures was further supported by the consistency in the factor structures for the two years. As seen in Table 3.3.4, in both years the same items had relatively high factor loadings in terms of absolute value and rank order.

The test-retest reliability correlations as shown in Table 3.3.5, indicated that simple sum trait measure tended to be more reliable than factor score trait measures. Thus supporting that the modified instrument is measuring the same traits as the ones measured by the original standard tests. The diagonal elements in the correlation matrices in Table 3.3.5 were consistently higher than the off-diagonal elements thereby achieving the agreement requirement.

The correlations between the modified measures and the standard test measure for the same conceptual trait was Ø.81 for Sociable/Sociability, and Ø.74 for Relaxed (Relaxed versus Tense). Whereas, Internal Control had Ø.44.

Table.3.3.5. Showing the Absolute Correlations Of Modified Test Scales measured by simple sum of a priori items With the Original Psychological Tests (N= 96)

	Modified Test Scales Measured by Simple Sum of Items		
Measures of:	Sociable	Relaxed	Internal Control
Sociability (CPI)	.81	.29	.Ø6
Relaxed vs Tense (SPF)	.1Ø	.74	.3Ø
Internal Vs External(Rotter's) (Rotter's)	.18	.24	.44

Although the results for the modified test trait of Internal Control were not as good as those mentioned above, they were in the right direction. The correlation between the modified test measure for Internal Control and Rotter's test was Ø.44.

One possible reason for the relatively low correlation between the modified Internal Control measure and Rotter's test compared with the Sociable/Sociability and Relaxed/Relaxed versus Tense correlations was that the measurement approach used to measure Internal Control was considerably different from that used in Rotter's test.

Specifically Rotter's test used a forced choice measure between pairs of items whereas the modified test used a rating scale which included an indifference point for each item. In the cases of Sociable and Relaxed, however,the modified test only lengthened and relabelled the rating scales used in the tests for Sociability and Relaxed versus Tense.

Thus the Modified Personality Scale measuring Social, Relaxed and Internal Control comprised of a five point scale ranging from Strongly Agree to Strongly Disagree. Thus Three Subscores were computed for each respondent for the Three traits, where the scores ranged from 4 (Minimum) to 2Ø (Maximum) for each of the three Personality variables.

3.3.2 Measures of Motivation

The present study has used the Motivational Aspect of Organisational Behaviour MAO-B, developed by Udai Pareek, for measuring the motivational dimensions. This instrument was based on the need Trio advocated by McClelland. The rationale behind employing this instrument was that, among the available instruments measuring motivational patterns this instrument was in the setting of organisational level.

Secondly most often Personality instruments like EPPS have been used for measuring motivation. However, the present study aimed to use only those instruments which are more pertinent and relevant to the sample under investigation. Though, originally this tool was designed for organisational purposes, it also could be used among College students. Therefore, considering the place of learning being an institution and the place of living (Hostels) is yet another institution, it was felt that this instrument would be more valid for the present study.

The six main needs or motives, measured by MAO-B for understanding the dynamics of behaviour of persons are briefly defined below:

1. Achievement motive is characterised by a concern for excellence, competition with standards of excellence set by others or by self, setting challenging goals for oneself, awareness of the hurdles in the way of achieving one's goals, and persistence in trying out alternative paths to one's goal.

2. Affiliation motive is characterized by a concern for establishing and maintaining personal close relationships, value for friendship, a tendency to express emotions.

3. Influence (Power) motive is characterized by a concern for making impact on others, a desire to make people do what one thinks is right, an urge to change matters and (develop) people.

4. Control motive is characterized by a concern for orderliness, a desire to keep informed. an urge to monitor and take corrective action when needed.

5. Extension motive is characterized by a concern for others, interest in superordinate goal, being relevant and useful to larger groups, including the society.

6. Dependency motive is characterized by a concern for self development with others' help, checking with significant others (more knowledgeable, higher status, experts, close associates ideas, proposed action etc. for approval, expectations of such an "approval" relationship.

Table 3.3.6 briefly presents the approach and avoidance dimensions of each motive, based respectively on hope of or fear of aspects. The behaviour of an employee or an individual can thus be analysed not only in terms of the various motives, but also from the angle of positive aspect (approach) or negative aspect (avoidance).

Table 3.3.6. Showing the Approach and Avoidance Dimensions of the Six Motives.

Motives	Approach (hope of)	Avoidance (fear of)
Achievement	Success	Failure
Affiliation	Inclusion	Exclusion
Extension	Relevance	Irrelevance
Influence	Impacting	Impotence
Control	Order	Chaos
Dependency	Growth	Loneliness

The Instrument

Motivational Analysis of Organisation (Behaviour) (MAO-B) Was developed to study employee behaviour in an organization, which also could be used for student population. MAO (B) contains 60 items, 5 for each dimension (approach and avoidance) of the 6 motives.

The total score a dimension of each (approach and avoidance) of the 6 motives can range from 5 to 20, giving separate scores on approach and avoidance dimensions. Operating effectiveness (OE) of each of the 6 motive-specific aspects of behaviour, defined by the net score of approach dimensions in behaviour, can be obtained by the formula [(P - V) + 15], where P and V stand for total scores on approach and avoidance dimensions respectively, of that motive-specific behaviour.

Thus the operating efficiency of each motive could have a minimum score of zero and a maximum of 3Ø. This instrument also provides the Operating Efficiency Quotient (OEQ) by using the Formula [(P-5/P)+(V-1Ø)]x1ØØ. The present study has used only the Operating Efficiency and not the Quotient.

Reliability

The test-retest reliability coefficients for the 6 dimensions of role behaviour (based on a sample of 5ØØ,Two months apart) are shown below in Table 3.3.7.

Table 3.3.7. Showing the test-retest reliability Coefficients.

Variable	Reliability * Coefficient
Achievement	.61
Affiliation	.61
Control	.68
Dependency	.15
Extension	.53
Influence	.58

* all the coefficients had p <.ØØ1

The correlation coefficient for Dependency motivation was just .15, the lowest among the six motivations studied. Though the correlation coefficient for Dependency was slightly lesser, it was statistically significant, thereby indicating a degree of consistency among all the motivations.

Validity

The relationship of effective role behaviour (as reflected in Operating Effectiveness Quotient) with some Personality variables (Role Efficiency, Locus of Control) confirmed the validity of the instrument. The study was based on a sample of 500 employees from a large multi-locational company in India.(Pareek, 1980).

The sample was administered the MAO-B, along with other personality variables such as Role Efficacy, Locus of Control, Role Stress, and Coping Strategy. As discussed before, each of the six motive was measured in terms of both Approach tendencies and Avoidance tendencies.

Based on these the Operating Efficiency for each motive was computed. The scoring was such that the higher the total score for each motive, higher the approach tendency or higher the coping strategy. Similarly, the lower total score (OE), indicated higher avoidance or withdrawal tendencies.

Coping strategy indicated by the higher total score (Operating Efficiency) was expected to be positively and significantly correlated with the other Personality variables studied. The correlational analysis indicated that individuals with high approach tendencies or high Operating Efficiencies were also high on Role Efficacy, more Internality oriented and had positive coping strategy. Thus the instrument MAO-B was considered as valid.

Table 3.3.8. Showing the Level of Significance of Correlation between Role Effectiveness Dimension and Six Motivational Variables.

	Achievement	Influence	Control	Extension	Affiliation	Dependancy
Role Efficacy	.ØØ1	.ØØ1	.ØØ1	.ØØ1	.ØØ1	.ØØ1
Internality	.ØØ1	.ØØ3	-	.Ø45	.ØØ1	.ØØ1
Externality (others)	-.ØØ1	-.ØØ1	-.ØØ5	-.Ø8Ø	-.ØØ2	-.ØØ1
Externality (chance)	-.ØØ1	-.ØØ1	-.ØØ1	-.ØØ1	-.ØØ3	-.Ø22
Externality (Total)	-.ØØ1	-.ØØ1	-.ØØ1	-.ØØ4	-.ØØ1	-.ØØ1
Role Stress	-.ØØ1	-.ØØ1	-.ØØ1	-.ØØ4	-.ØØ2	-.ØØ1
Coping Strategy (Avoidance)	-.ØØ1	-.ØØ1	-.ØØ4	-.Ø14	-.Ø36	-.Ø44
Coping Strategy (Approach)	.ØØ2	.ØØ1	.ØØ4	.Ø18	-	.Ø14

As can be seen from the table, high Approach tendencies among all the six motives were positively correlated with role efficacy. The same was the case for locus of control. The correlation values were significant in the expected direction for all dimensions.

3.3.3. PERCEPTUAL MEASURES

Measurement of Perceptual variables was based on the attribution process. Although a wide variety of attribution measures have been used, they can be placed into four broad categories:

1. Measures of Confidence either in terms of the attribution(s) made or in the cognitive output proposed to be a result of the attribution process. (e.g.beliefs. affect. intention)

2. Measures of "internal" attributions i.e. attributions to the actor if used in person-perception or "stimulus" attributions if applied in object-perception.

3. Measures of "external"attributions i.e. causal attributions to environmental or nonstimulus factors and

4. Measures of both internal and external causal attributions. elicited either with scales for each or by eliciting the total causal array.

The present study made an attempt to construct a scale based on the categories of measures of "internal" attributions. i.e. attributions to the actor applied to Person perception and the measures of "external" attributions i.e. causal attribution to environmental or non stimulus factors. Based on Weiner's model of causal attributions of Ability, as many as 5Ø items (Stems) having four alternatives relating to Effort, Ability, Luck and Task Difficulty were constructed. According to Weiner, while determining responsibility for success or failure, an individual could attribute to anyone of the following where:

Ability : When performance is due to stable and internal causes.

Effort : When performance due to unstable and internal causes.

Task Difficulty: When performance due to stable and external causes and

Luck: When performance is due to unstable and external causes.

As everybody knows that attributing a person's success or failure is not always a detached undertaking. Sometimes one wants or expects a person to do well. In other instances, one hopes for and anticipates someone's failure. Such motivational states and expectancies can influence the way in which a person explains another person's success or failure. In this case, the scale developed has a base on the measures of confidence, both in terms of the attribution made and in the cognitive output (beliefs, affect and intentions).

As part of the pilot scale construction,the initial scale contained 5Ø Stems and each having the four alternatives relating to four causal attribution. Stems/statements represented equally the instances of success and failure covering different activities and professional areas such as Sports, Career, Medicine, Study, Business, Examination etc. where the students could opine, indicate their feelings and intent having a high cognitive component.

Validity

The 5Ø item scale was rated by experts regarding its clarity, relevance, meaning,. objectivity, timeliness and the applicability of each of the four causal attributions to each stem. The modified version of the attribution scale was judged by five judges for the validity of each item and four attributions. Based on the agreement among the rator those items/stems having atleast 8Ø% agreement and above were retained to form the "Attribution Scale" to measure the Perceptual variables.

Thus the scale yielded an over all score ranging from 1 to 16 as the total attribution score. These scores would definitely be distributed across the four causal attribution. However, all the four scores were used for the analysis. No attempt was made to identify the dominant attributional process nor the individuals were classified on the hierarchy of the perceptual variables. Hence all the four attributional scores were entered into the analysis.

3.3.4. Purchase Behaviour

The purchase behaviour was measured using two different procedures namely a) the Frequency of purchase behaviour and b) the Likelihood of purchase behaviour.

a) The Frequency of purchase behaviour

The Frequency of purchase was measured on a five point scale ranging from Never to always for each of the 18 products. Thus the score ranging from 1 (Never) to 5 (Always) was obtained for each product. Each product score was individually entered into the various statistical analyses.

b) Likelihood of product purchase

The Likelihood of product purchase behaviour was based on the modified model proposed by Warshaw (198Ø). A new model predicting behavioural intentions. An alternative to Fishbein. According to Warshaw,

The likelihood of Product purchase = {(Purchasability of product type Y)+ (Felt need [desire] to purchase product type Y)}.

Where purchasability of product type Y = [(Affordability of product type Y) + (accessibility of product type Y)]

Felt need (desire) = [(Own desire to purchase product to purchase product type Y) + (Felt pressure from type Y)]

The modified model used in the present study has included besides the Purchasability and Felt need, the individual's Extent of Liking the product and to what extent he considered it as Important to him. The assumption for adding the other two more variables were, based on the assumption that the Purchasability might not necessarily lead to the Likelihood of purchase but possibly the extent of emotional involvement expressed in terms of liking (attracted to) the product and value-wise how much he considered each product type important to him. could yield a better measure of Likelihood of purchase behaiour.

Thus the final measures of Likelihood to purchase a product is = [(purchasability of product type Y) + (Felt need Pressure to purchase product type Y) + (Own Desire to purchase product type Y) + (extent of liking the product type Y) X (degree of importance of product type Y)]

Hence five scales were designed to measure the Likelihood of purchase, namely,

a) Purchasability of product type Y
b) Own desire to purchase product type Y
c) Felt pressure from others to buy product type Y
d) Extent of liking the product type Y
e) Degree of importance felt for product type Y

Purchasability of each product type Y was measured on a 5 point scale ranging from difficult to purchase to easy to purchase presuming that you can 'afford' and that the products are available.

Own desire to purchase each product was measured on a five point scale ranging from "will feel absolutely no desire to buy" to "will feel a strong desire to buy" based on 'actual needs and longings' and/or 'pressure' felt from circumstances.

Felt pressure from others to buy each product was measured on a five point scale ranging from "my decision to buy will not at all be affected" to "my decision to buy will be definitely affected by the overall pressure/influence exerted by others" (friends, family, society at large).

The extent of liking each product was measured on a 5 point scale ranging from 'Extremely will not like to purchase to extremely will like to purchase' and finally, the degree of importance of each product was measured on a 5 point scale 'How much important it is for you to purchase each of the products', when the degree ranging from 'extremely not important' to 'extremely important.

Thus the scores from each of the five scales measuring the Likelihood of purchase yielded 1 as the minimum and 20 as the maximum possible score for each of the 18 products and thus a single score of Likelihood of purchase was arrived at from the five sub scales, where the scores ranged from 20 to 100 for each individual for each of the 18 products.

Since two separate measures of product purchase behaviour were obtained (Frequency and Likelihood) both the measures were used independently for the various statistical analysis.

3.4.Ø. PROCEDURE

The printed questionnaire containing various scales measuring Personality, Perceptual, Motivational, Product Purchase Behaviour and Demographic variables were personally distributed to the initial sample size of 6ØØ boys and girls residing in the university hostels. Each respondent was explained about the purpose and objective of the study and the methods to indicate their responses. They were assured of the confidentiality of their responses as the analyses would be carried out on the aggregate basis. The respondents were them allowed to complete the questionnaire alone at their own speed but not taking more than 2 days, considering the large size of the questionnaire.

After the scrutiny of the completed questionnaire in terms of missing data, incomplete information and in order to maintain an equal number between boys and girls students the number of the completed and usable questionnaires for the statistical analysis narrowed down to 400 (200 boys and 200 girls).

Scores for each of the Predictor variables and Criterion variables were computed for each individual and fed into the computer for necessary statistical analyses.

3.5.0. PRODUCTS UNDER STUDY

Since the present study aimed to investigate and test the new model proposed as a alternative to Fishbein for predicting behavioural intentions, the selection of the products and the sample were based entirely on the assumptions of the model under study.

The proposed model measures the Likelihood of purchasing a given product type would depend on the purchasability and felt need (desire) to purchase that product. Whereas purchasability depended on both affordability and accessibility hence, the products selected were based on the prerequisite that those products should be both affordable and they should be accessible. At the same time, these products should be those which are eventually purchased frequently for immediate consumption. On the other hand the felt need to purchase any given product being dependent on both own desire to purchase and felt pressure from others to buy them indicated that the selection of the products should have certain direct appeal to the individual consumer so that he has the desire to buy and the same time the reference group also influences their buying process.

Hence, the products should be such that they provide opportunity for compliance to social norms, where, both internalization and identification help to determine and modify own longing to buy a given product.

Thus this model assumed that the purchase of a specific product would depend on:

a) Affordability
b) Accessibility and
c) Compliance to social norms.

Hence the selection of products warranted that the sample under study were in a position to purchase and consume are affordable. Moreover, the products were accessible and where social norms might have a role in buying process. Hence only those products were selected which were available, accessible and consumed regularly at certain intervals ranging from a fortnight to a month except in the case of Fashion oriented products. While selecting the products, care was also taken so as that each product was applicable to both the sex; and where the product represented various categories and appeals such as Socially oriented, Medical/Health related and Personal Grooming/Care product groups.

Among the products purchased and consumed by the representative sample, 18 products were narrowed down as more pertinent and directly relevant to the resident student populations.

The products then, were classified into three categories, interms of the utility of the product, what the product stands for and what it offers. Thus, the products classified, when compared with similar studies done earlier had high similarities.

The list of products under the three different classification is listed below.

Personal grooming/ hygiene	Medical Health related	Socially oriented
Hair oil	Biscuits	Complexion aids
Perfume	Body-ache remedies	Cosmetics
Shampoo	Chocolates	Fashion adoption (dress material)
Talcum Powder	Headache remedies	Fast food
Toilet soap	Health food	Ready-made garments
Tooth paste	Vitamins	Soft drinks

3.6.Ø. SAMPLE

As stated earlier, the present study narrowed down to University students as its sample, mainly because this study focused on consumers who have the purchasing power (affordability) though limited because they have to dependent on parents or guardians, but make their own purchases. This population also formed as a unique market segment, where most of the TV commercials and advertising use the youth to promote the products.

This segment further, influences and also influenced by its own reference groups within the living (hostel) conditions. Thus the present study focused on the young students at the university level. More precisely only the residents of hostels were chosen because their purchase behaviour is not eroded or influenced by the family members or siblings. Normally in the home set up the actual buyer might be someone else. Hence the present study narrowed down to university students residing in the hostels as its sample.

The sample was drawn from among the students of the M.S.University of Baroda. The M.S.University is a Unitary, Residential University having on its roll more than 35,ØØØ students. There are about more than 15 Faculties where the students pursue their course. The university offers residential hostel facilities to more than 3ØØØ boys and 15ØØ girl students. Thus the hostel population represented a wide variation in terms of the Courses offered, Department and Faculty they were enrolled, Year of study, and length of Tenure in the hostel. Moreover the hostel population also was characterised by the diversity of States they come from,therefore representing various culture, language,and social strata. Further, they also represented varied socio-economic status.

Hence considering the variation it represented at the University Campus, the selection of the sample had to be totally randomized. Care was taken so that the selected sample represented only resident Hostel youth representing more or less all the faculties, of years of study, levels of Graduation, socio-economic status and at the same time keeping in mind all the other variables that might systematically exert any influence on the buying process.

As stated before, the sample was selected using a random sampling procedure and the sample was drawn representing from different hostels, faculties, degree courses, year of study, socio-economic status, Tenure of stay in the Hostel, states,language,culture etc.. Of the initial sample contacted and questionnaire distributed numbering about 600, the final sample size reduced to 200 boys and 200 girls. Thus the data generated from 400 respondents were used for further statistical analysis.

3.7.Ø. STATISTICAL ANALYSIS

Statistical analyses of the data were carried out in terms of Cluster Analysis, Canonical Analysis and Stepwise Discriminant Function Analysis. A brief note on each analysis is given below.

3.7.1 Cluster Analysis

"Cluster analysis has become a common tool for the marketing researcher. Both the academic researcher and the marketing researcher rely on the technique for developing empirical groupings of persons, products, or occasions which may serve as the basis for further analysis.

Despite its frequent use, little is known about the nature and application of the various methods of Clustering. That is so because, the researchers themselves did not specify the particular method employed by them. In the absence of the information and also in the absence of the precise guidelines for using the various methods of Clustering, much is left to the ingenuity of the researchers.

Two general sets of issues confront the marketing researcher seeking to use Cluster analysis. One set of issues involves theoretical properties of particular algorithms. These issues are considered in the literature on Cluster analysis (Anderberg 1973; Bailey 1974; Cormack 1971; Hartigan 1975), . The second set of issues are more practical and pertain to the actual use of clustering procedures for data analysis.

Cluster analysis has most frequently been employed as a classification tool. It has also been used by some researchers as a means of representing the structure of data via the construction of dendrograms (Bertin 1967; Hartigan 1967) or overlapping clusters (Arabie et al 1981;Shepard and Arabie 1979).

The latter applications are distinct from the use of Cluster analysis for classification and represent an alternative to multidimensional scaling and factor analytic approaches to representing similarity of data. Whereas, classification is concerned with the identification of discrete categories (taxonomies), structural representation is concerned with the development of a faithful representation of relationships.

Both uses of Cluster analysis are legitimate, but the objectives of these applications are very different. The best clustering algorithm for accomplishing one of these objectives is not necessarily the best for the other objective.

Unlike other statistical methods for classification, such as Discriminant analysis and Automatic Interaction Detection , Cluster Analysis makes no prior assumptions about important differences within a population.

Uses Of Cluster Analysis In Marketing

The primary use of Cluster analysis in marketing has been for market segmentation. Since the appearance of Smith's (1956) classic article, market segmentation has become an important tool for both academic research and applied marketing.

A second and equally important use of Cluster analysis has been in seeking a better understanding of buyer behaviors by identifying homogeneous groups of buyers.

Cluster analysis has been less frequently applied to the type of theory-building problem, possibly because of theorists' discomfort with a set of procedures which appear ad hoc. Nevertheless, there is clearly a need for better classification of relevant buyer characteristics.

Cluster analysis has been employed in the development of potential new product opportunities. By clustering brands/products, competitive sets within the larger market structure can be determined. Thus, a firm can examine its current offerings vis-a-vis those of its competitors. The firm can determine the extent to which a current or potential product offering is uniquely positioned or is in a competitive set with other products (Srivastva, Leone, and Shocker 1981; Srivastava, Shocker, and Day 1978).

Although Cluster analysis has not been used frequently in such applications, largely because of the availability of other techniques such as Multidimensional scaling, Factor analysis, and Discriminant analysis, it is not uncommon to find Cluster analysis used as an adjunct to these other techniques.

Cluster analysis has also been suggested as an alternative to Factor analysis and Discriminant analysis. In such applications it is important for the analyst to determine whether discrete categories of products are desirable or a representation of market structure is desirable. The later may be more useful in many market structure applications, in which case Cluster analysis would not be used as a classification technique and the analyst would face a different set of issues.

Cluster analysis has also been employed by several researchers in the problem of test market selection (Green,Frank, and Robinson 1967). Such applications are concerned with the identification of relatively homogeneous sets of test markets which may become interchangeable in test market studies.

The identification of such homogenous sets of test markets allows generalization of the results obtained in one test market to other test market in the same Cluster, thereby reducing the number of test markets required.

Finally, Cluster analysis has been used as a general data reduction technique to develop aggregates of data which are more general and more easily managed than individual observations.

In order to test the various hypotheses advanced, the present study used the Cluster analysis primarily as a classification tool. Cluster analysis emerged as a relevant tool to classify respondents based on their product purchase behaviour. Though the products had been classified into three groups based on their appeal and usage, it was thought fit to group the individuals based on their product purchase and usage, so as to identify the market segment based on product purchase.

Quick Cluster programme of SPSS was performed both for the Frequency of purchase and the Likelihood measure of purchasing the 18 products under investigation. Having classified the respondents using the Cluster analysis F tests were performed to assess the mean difference for the Predictor variables among the Cluster memberships. The results and findings are presented in the fourth Chapter. on the Cluster provides Cluster analysis

3.7.2 Canonical Analysis

More than 35 years ago, Hotelling derived a method to deal with the general problem of relating two sets of variables measured across a group [Hotelling, 1935;1936].

This technique, Canonical analysis or the method of Canonical correlations, has recently received increased attention, and efficient computational procedures and several proofs and extensions have been offered, [Anderson 1958; De Groot and Li, 1966; Gower, 1966; Horst, 1961; Kendall, 1957; Koons,1962; Lawly, 1959; Meredith, 1964; Morrision, 1967; Roy, 1957; and Rozeboom, 1965], simultaneously, computation of Canonical correlations has been greatly aided by the widespread availability of high-speed computing machinery and related software packages (Cooley,1962; Roskam,1966;Weldman,1967).

Unfortunately, methods of interpreting Canonical correlations have lagged behind the technical advances [Kendall, 1967]. In general, the objectives of Canonical analysis are:

1. To determine vectors of weights for each set of variables such that linear combinations of the respective variables are maximally correlated. This goal implies optimal prediction of linear combinations of variables (variates) from one vector, given variable values in the other vector.

2. To determine whether two sets of variables are statistically independent of one another in a linear sense or conversely, to determine the magnitude of the relationships between the two sets.

3. To explain the nature of any relationships between the sets of variables, generally by measuring the relative contribution of each variable to the Canonical relationships obtained. The first objective is primarily one of prediction, and typically there are few problems of interpretation.

The existence of relationships between two variable sets has traditionally been determined by testing the statistical significance of the Canonical correlation coefficients. Several adequate tests exist (Bartlett, 1941; Cooley & Lohnes, 1962; Lawley, 1959; Mariott, 1952; and Veldman, 1967), so there is seldom any difficulty in interpreting the probability that the coefficients are significantly different from zero.

Interpretation problems begin to mount when attempts are made to assess how strongly (beyond statistical significance) the two sets of variables are related in a practical sense. Since the Canonical correlations are by definition maximal, Canonical relationships between sets are invariably overstated.

A common method of assessing relationship strength of the shared variance between linear combinations of the variables in each set. Such an approach is directly analogous to squaring the multiple correlation coefficient in regression to measure the amount of variation in the dependent variable that is associated with variable in the independent variables.

One possible solution to the problem involves extending a method for estimating the average Canonical relationship between two data sets of nominal measurements [Srikantan, 197Ø]. This extension provides an index of the average relationship as the Mean Square of the Canonical Correlations (MSCC). If R_i =ith Canonical correlation. and C correlations are obtained, then the unbiased estimate of the mean square of the Canonical correlation can be computed by:

$$MSCC = R_i^2 / C.$$

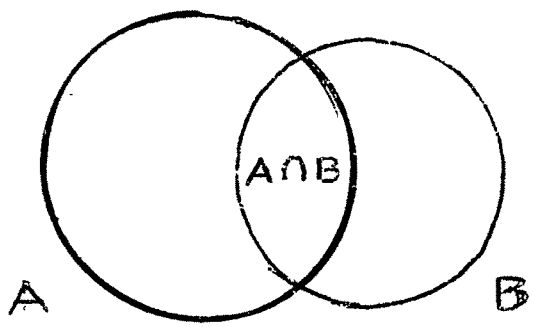
Another measure of the overall relationship obtained by Canonical analysis of two sets of variables is to establish the proportion of variance shared by linear composites of the two sets of variables; this proportion can be extracted by any given number of Canonical relationships. This procedure is analogous to a measure in factor analysis of the percentage of total variance in a set of variables that is extracted by a given number of factors. Just as it might be desirable to know how much total variance can be extracted by factors with Eigen values of 1.Ø or more, one might also wish to know how much of the common variance in linear combinations of both sets is extracted by a subject of the Canonical relationships (say those that are significant beyond some alpha level, such as .Ø5 or .Ø1).

Each Canonical root can be multiplied by the residual variances from which its variates were extracted, because: (1)the root reflects the variates' shared variance and (2) each successive relationship is orthogonal to the preceding one. Summing these products for all roots gives a measure of the association between sets of variables. taking into account the variance in linear composites of the sets extracted through each stage of the Canonical analysis.

Redundancy

To rectify such inherent overstatement in measures of Canonical association, Stewart and Love [1968], Regland [1967], and Miller and Farr [1969, 1971], apparently working independently, developed similar measures to assess the average relationship between two sets of variables.

Figure 3.1



If A represents the variation in a set of variables measured over several objects, and B represents variation in another set of measures on the same objects. then A∩B may be taken as a measure of their shared variation.

This intersection of the two sets is termed "redundancy" by Stewart and Love. Redundancy, expressed as a percentage of the total variation in each set, is rarely symmetrical in the sense that the percentages are the same for both variable sets, because the total variance and the number of variables in each set will differ.

Hotelling has shown that Canonical analysis is the equivalent of performing independent principal components analyses on each of two sets of variables. Then the resulting component structures are rotated to develop weights for each variable that produce maximum correlations between components on each side. Stewart and Love's redundancy technique uses this concept of a factor extracting variance from a set of variables; it also uses the rotation of factor analysis. They define the sum of the squared correlations (loadings) of a Canonical variate (or factor) with the individual variables within a set as the variance extracted by that variate (the communality of that factor). Dividing this sum by the number of variables in the set (M) gives the proportion of the set's variance extracted that Canonical variate.

Therefore, redundancy provides a summary measure of the average ability of a set of P variables (taken as a set) to explain variation in C criterion variables (taken one at a time). Rather Than relying on an "inflated" Canonical root, which reflects an optimum weighting of both sides of the relationship, we predict actual scores for criterion variables and measures the accuracy of this prediction.

In sum, it seems reasonable to use Canonical correlation coefficients to test for the existence of overall relationships between sets of variables, but for a measure of the magnitude of the relationships, redundancy may be more appropriate.

Thus, Canonical correlation is a subclass of multivariate analysis which, as defined by Kendall is that "branch of statistical analysis which is concerned with relationship of sets of dependent variates.

As described earlier, Canonical analysis is a technique for dealing mainly with composite association between sets of criterion and predictor variables. Geometrically, it may be viewed as a measure of the extent to which a group of individuals occupies the same relative position in the space spanned by the criterion variables as it does in the space spanned by the predictor variables. Canonical analysis can also be used in prediction and hence, can fill a function that traditional multiple regression serves.

The present investigation has utilized Canonical Correlational Analysis primarily to explain the nature of the relationship between the sets of variables, and to identify the relative contribution of each variable to the canonical relatioship. The present study included 18 products purchased and consumed by the University Youth. Similarly 18 predictor variables formed part of the study. Canonical analysis seemed to meet the requirement of using both the set of variables into the analysis simultaneously for forming linear relationships among the two sets of variables. The present study, therefore used Canonical Analysis for the Frequency of purchase measure and also for the Likelihood measure. Besides these two Canonical analysis, further analysis were also carried out using subsets of predictor variables.

Thus, Canonical analysis using Personality as a subset of predictor variables, Perceptual variables and Motivational set were performed with the Criterion set of variables for the Frequency and also for the Likelihood measure. The results and findings are reported in the fourth Chapter.

3.7.3 Discriminant Function Analysis

Discriminant analysis, first introduced by Sir Ronald Fisher, is the statistical technique most commonly used to investigate this set of problems. The concept underlying Discriminant analysis is fairly simple. Linear combinations of the independent, sometimes called predictor, variables are formed and serve as the basis for classifying cases into one of the groups.

In Discriminant analysis, a linear combination of the independent variables is formed and serves as the basis for assigning cases to groups. Thus, information contained in multiple independent variables is summarized in a single index.

Discriminant analysis begins with the desire to statistically distinguish between two or more groups of cases. These "groups" are defined by the particular research situation.

The analysis aspects of this technique provide several tools for the interpretation of data. Among these are statistical tests for measuring the success with which the discriminating variables actually discriminate when combined into the Discriminant functions. When there are more than two groups, it may be possible to obtain satisfactory discriminating with fewer than the maximum number of functions. (This is similar to determining the number of factors in factor analysis.) The result is often of major theoretical significance, and statistical tests are included for this purpose. Since the Discriminant functions can be thought of as the axes of a geometric space, they can be used to study the spatial relationships among the groups. More importantly, the weighting coefficients can be interpreted much as in multiple regression or factor analysis.

The use of Discriminant analysis as a classification technique comes after the initial computation. Once a set of variables is found which provides satisfactory discrimination for cases with known group memberships, a set of new cases with unknown memberships.

As a check of the adequacy of the Discriminant functions, one can classify the original set of cases to see how many are correctly classified by the variables being used. The procedure for classification involves the use of a separate linear combination of the discriminating variables for each group. These produce a probability of membership in the respective group, and the case is assigned to the group with the highest probability.

The three most commonly used algorithms for variable selection are, forward entry, stepwise and backward elimination. The principles are the same as in multiple regression. What differs are the actual criteria for variable selected.

Stepwise variable selection algorithms combine the features of forward selection and backward elimination. In a stepwise method the first variable included in the analysis has the largest acceptable value for the selection criterion. After first variable is entered, the value of the criterion is re-evaluated for all variables not in the model, and the variable with the largest acceptable criterion value is entered next. At this point, the variable entered first is re-evaluated to determine whether it meets the removal criterion. If it does, it is removed from the model.

The next step is to examine the variables not in the equation for entry followed by examination of the variables in the equation for removal. Variables are removed until none remain that meet the removal criterion. Variable selection terminates when no more variables meet entry or removal criteria.

Other criteria besides Wilks' lambda are sometimes used for variable selection.

Rao's V

Rao's V also known as the Lawley-Hotelling trace, where the larger the differences between group means, the larger Rao's V.

One way to evaluate the contribution of a variable is to see how much it increase Rao's V when it is added to the model. The sampling distribution of V is approximately a chi-square with $p(g - 1)$ degrees of freedom. A test of the significance of the change in Rao's V when a variable is included can also be based on the chi-square distribution. It is possible for a variable to actually decrease Rao's V when it is added to a model.

Mahalanobis D

Mahalanobis' distance, D is a generalised measure of the distance between two groups, where p is the number of variables in the model, X is the mean for the ith variable in group a, and w is an element from the inverse of the within-groups.

When Mahalanobis' distance is the criterion for variable selection, the Mahalanobis'distances between all pairs of groups are calculated first. The variable that has the largest D for the two groups that are closest (have the smallest D initially) is selected for inclusion.

Between-Groups F

A test of the null hypothesis that the two sets of population are equal can be based on Mahalanobis' distance. The corresponding F statistic is

$$F = \frac{(n - 1 - p)n_1 n_2}{p(n-2)(n_1+n_2)} D2ab$$

This F value can also be used for variable selection. At each step the variable chosen for inclusion is the one with the largest F value. Since the Mahalanobis' distance is weighted by the sample sizes when the between-groups F is used as the criterion for stepwise selection, the results from the two methods may differ.

The present study had made use of Discriminant Function Analysis for two different purposes. Firstly, both the Cluster and Canonical analysis were used to classify the individuals based on product purchase and to explore the linear relationship between the two sets of Variables respectively, hence it was thought relevant to identify the better discriminating variables from among the predictor variables for each product individually and separately. Secondly, the Discriminant Function Analysis was performed as a sequel to the Cluster analysis, using the Cluster membership as the grouping variable. The present study had made use of the Stepwise discriminant function Analysis, using increase in Rao's V as the selection rule.

Thus 18 Discriminant Function Analysis were performed for the Frequency of purchase measure and similarly another 18 analysis for the Likelihood measure. The results and findings are presented in the fourth chapter.

A summary of each analysis, namely Cluster Analysis, Canonical Analysis and Discriminant Analysis is given below

1.Cluster Analysis

The distinguishing feature of Cluster analysis is that no assignment of individuals to categories is made in advance. For example, if the analyst has a set of socioeconomic measures for each of a sample of consumers, he may be interested in :

a. Setting up clusters of individuals who are "similar" with respect to a general socioeconomic configuration.

b. Determining some "best" number of clusters.

c Determining whether overall Cluster measures are significantly different.

2.Canonical Analysis

In Canonical analysis , the analyst is not concerned with a single criterion, multiple predictor relationship (as in ordinary multiple linear correlation) but, rather, with relationships among sets of criterion variables and predictor variables. The objectives are to :

a. Determine the maximum correlation between a set (of more than one element) of criterion variables and predictor variables.

b. Derive :weights" for each set of criterion and predictor variables, such that the weighted such are maximally correlated.

c. Derive additional linear functions which maximize the remaining correlation, subject to being "independent of the preceding set(s) of linear compounds.

d. Test statistical significance of the correlation measures.

3. Discriminant Function Analysis

In Linear Discriminatory analysis , the criterion variable is categorical, while the predictor variables are continuous measurements. he discriminant(s) is determined from known assignment of sample members to categories. The objectives of this class of techniques are to:

a. Predict an individual's group assignment to one of two or more categories on the basis of his scores on the set of measured characteristics.

b. Test whether the sample groups have arisen from a single population versus two or more populations.

c. Determine the relative importance of each predictor variable in making "optimal" assignment of individuals to categories.

The specific algorithm, statistical technique and the programme employed in the present study are discussed in 3.8.Ø.

3.8.Ø. COMPUTER PROGRAMME

The present investigation has employed the 'Advanced statistics SPSS/PC + for the IBM PC/XT/AT (SPSS Inc. 1986) for the various statistical analysis.

SPSS/MANOVA (Hull Nie, 1981) was used for computing the Canonical analysis, while SPSS/PC + Quick Cluster (Cluster analysis for large files) was used for Cluster analysis and SPSS/PC + DISCRIMINANT with increase in Rao's V was used for the Discriminant analysis.

3.9.Ø. SUMMARY

In order to test the various hypotheses proposed, tools were meticulously chosen and in some cases developed to measure consumer behaviour related Personality, Perceptual and Motivational dimensions so as to remedy many a criticisms leveled in the use of existing and available instruments. This investigation has made an attempt to compare two separate measures of purchase behaviour and in the process tried to test out a new model of behavioural intentions proposed as an alternative to Fishbein.

Products were selected on the basis of their relevance, actual purchase and consumption by a specific market segment namely the university youths who make their own decisions and who live in the residential University Hostels. Who may tend to influence and get influenced in the process of decision making. Thus the study was focused specifically in selecting the segment, relevant types of products, trying out two separate measures of purchase behaviour and analyzing the data using three different statistical techniques.

Thus, the major contribution of this study could be in the area of methodology and paving the ground for a sound theory building for market segmentation.

The next chapter presents the results and interpretations of the results. The results are presented based on the three analyses performed on the data.