CHAPTER 3

STATEMENT OF THE PROBLEMS

The description of problem-solving behaviour has offered a perennial challenge to psychologists. Many researchers have accepted this challenge and approached this in different ways at different times. The purpose of the present investigation is to analyse the process of human problem-solving behaviour under different instructions or sets given to the subjects of varying personality, intelligence, age, and sex.

A problem situation is defined as a novel situation in which the individual does not know in advance the path leading to the goal or the answer of the question. If the previous learning proves to be inadequate for the present problem or if the nature of the problem is too complex, the first response will not be a rewarding one. But if the motivation keeps him going, his behaviour is described as problem solving. Thus, a problem arises when behaviour is blocked because a desired end is not immediately attainable. Deriving
from the extensive studies in the field of problem solving, the following prominent characteristics of the problem-solving behaviour may be enumerated:

1. There is a tendency of search or exploration of the field within which the problem exists.

2. The subject attempts to recognise and pin point the problem.

3. The results of exploration are analysed to the advantage of restating the problem and subsequently getting a solution.

4. There comes a stage of attack on the problem. This is achieved preferably by getting the solutions of sub-problems.

5. Another characteristic of problem-solving behaviour has been the individual differences in respect of personality traits, intelligence, age, experience, and sex.

6. Also, in the course of problem solving, sometimes the person gets fixated at a particular method because of which solution becomes difficult. On the other hand, problem-solving behaviour may be facilitated if he gets positive direction. Thus, if a positive set is introduced and developed at the outset, the organism gets well oriented and chances of reaching the solution more easily are enhanced.

The last characteristic mentioned above is the hope for facilitation in problem-solving behaviour as a result of positive SET developed by appropriate DIRECTIONS. A positive set guides the individual towards and makes him prepared for the solution of the problem (Maier, 1930). The main function of the direction is to develop an attitude or set to act in a particular way that facilitates some responses by inhibiting
other competing ones. Set can be considered as an activity of short duration which is preparatory to some other activity. The set alone does not solve any problem, it only facilitates (or inhibits) the process of problem-solving behaviour (Johnson, 1944).

As has been mentioned in the previous chapter, Klausmeier (1961) has discussed several principles of working of a set. Three of his principles will be applied in the present study. These three functions of the set are:

(i) to assist the learner to state and delimit the problem,
(ii) to assist him in finding the needed information and methods, and
(iii) to aid him in interpreting and analysing information and methods. In order to study the effect of these three functions, the study was performed in three instruction - conditions (or experimental conditions) and a control condition. This will throw light on the comparative efficacy of the three principles in improving the problem-solving ability of the individual.

A very pertinent question arises whether direction affects persons of all types of PERSONALITY equally, or there is any individual difference in this respect. To state it more directly, whether a person with any type of personality will profit equally from the directions made available to him or a person with one trait will be benefited more than
the persons with other types of traits. Johnson (1944) rightly suggested that it would be worthwhile to study the relation between individual differences in thinking and other personality variables. The present study will, therefore, focus on the personality differences in respect of the effect of set on problem solving. However, there is no justification of taking all types of personality traits for this purpose because only a few traits have been found relevant to the problem-solving behaviour. Some of these personality traits tend to facilitate the problem-solving behaviour and some others are likely to hinder it. It seems that only six factors out of sixteen studied by Cattell are relevant to the problem-solving behaviour. These are: (i) Scholastic mental capacity (Factor B), (ii) ego-strength (Factor C), (iii) harria and premia (Factor I), (iv) untroubled and troubled adequacy (Factor O), (v) ergo tension (Factor Q4), and (vi) praxeria and satia (Factor M). The first five factors are seen from the very beginning of the life whereas the sixth one (Factor M) is seen to develop after the age of 17 years. Cattell treats these traits bipolar: those scoring low may be expected to perform quite opposite on problems to those scoring high. Whereas the high scorers on factor B and C and low scorers on factors I, O, Q4 & M tend to form facilitatory personality groups, the low scorers on factors B & C and high scorers on factor I,
O, Qd, & N tend to form inhibitory personality groups as far as the problem-solving ability is concerned.

Cattell also constellation some personality factors at a second level. He grouped different personality factors into four second order personality factors. Out of these four second order personality factors two - I (Anxiety) and II (Tenderminded emotionality vs Alert Pause) seem to be relevant to the problem-solving behaviour. The low scorers on factor I and high scorers on factor III seem to perform better in a problem situation as compared with their opposites.

INTELLIGENCE is another psychological characteristic of the person which can be considered as a determining factor in problem solution. As has already been discussed in the previous chapter, Terman and Laverson (1960) found significant difference between high and low intelligence groups. High scorers on an intelligence test will do better on a problem situation than the low scorers. Therefore, the present study will attempt to investigate whether the subjects with high I.Q. will have any advantage in problem solving over those having low I.Q.

AGE has also been found as an independent variable in most of the mental processes. It seems to be an important factor in problem-solving behaviour as well. It has already been mentioned that psychologists like Heldreder (1957),
Wetherick (1964), and Rimoldi (1974) found that age had 
significant role to play in problem solving. It has been 
generally observed that the general ability to solve the 
problems increases with age. This increase in ability is 
because of the increased feeling of responsibility to the 
problems and adoption of more definite modes of attack to 
the problem (Heidbreder, 1928) or because of using different 
logical approaches to problems by the individuals with 
increasing age (Rimoldi, 1974). In order to examine the 
role of age, subjects in various personality and intelligence 
groups would be selected from different age-groups and the 
differences in their performance would be analysed.

Some psychologists have tried to explain the male-
female differences in problem-solving behaviour, but 
specific functioning of sex has not yet been determined. 
Garai and Scheinfeld (1963), Greenberger, Connor, and 
Sorensen, (1971), and Kreitler et al. (1974) have found 
boys surpassing girls in ability to solve problems 
requiring manipulation and restructuring. However, it is 
seen that for some special types of problems, girls have 
superior ability whereas in some other types of problems the 
males subjects excel the females (Medell, 1934; Billings, 
1934; Sweeney, 1938; McHerrar, 1955; States, 1957; Meier & 
Burke, 1967). Contrary to this, some psychologists like
Strayenski (1973) did not find any significant sex
difference in the problem-solving behaviour. Looking into
the inconsistency in results as regards the role of sex
in problem solving, both males and females would be included
in each personality sub-group drawn from varying ages and
will be tested in different experimental (set) conditions
for their problem-solving behaviour.

To be more pointed, the present study would focus on
probing into the following problems pertaining to the
problem-solving behaviour of various personality, intelligence,
age, and sex sub-groups.

A. EFFECT OF INDIVIDUAL FACTORS

PROBLEM A (1).

The first problem is to investigate whether directions
intended to assist the individual in (i) stating and delimiting
the problem, (ii) finding the needed information and methods,
and (iii) interpreting and analysing the information and
methods already used bring about any improvement in the
problem-solving ability.

HYPOTHESIS (A-1).

It is hypothesized that the direction to the subjects
would facilitate their problem-solving behaviour. It has
already been mentioned that various types of directions to be
given in the present study are based on Kleinmehner's principles.
Positive results are expected because the directions would induce such sets in the subjects which would help them in searching for the information and method of solution. Therefore, it is further hypothesized that when the subjects are assisted in finding the needed information and methods, he is profited more than when he is assisted only to state and delimit the problems or when not at all given any such help. This is so because under the former condition, the subject would concentrate his activities in following the indicated methods of solution with the help of the information available and consequently would get the solution easily and quickly.

PROBLEM A (2).

Our second problem is to study whether the persons with different personality traits would show any difference in their problem-solving behaviour. To be more specific, attempt will be made to study whether the subjects with facilitating personality traits would have any edge over those with inhibiting personality traits.

HYPOTHESIS (4.11).

As Johnson (1944) has suggested, there should be difference in problem-solving behaviour of persons with varying personality factors. For the present, six of Cattell's sixteen primary personality factors and two second-order factors were considered relevant to problem-solving behaviour. Mendelssohn & Gerald (1970) found that the subjects of low facilitation group appeared troubled by self-doubt and with high anxiety in respect of problem-solving behaviour. Berkely (1943) noted the significant role played by emotional factors in problem situations. It is assumed that persons with facilitating personality traits (e.g., primary factors B and C with high scores and I, O, Q4, and N with low scores and second-order factors I low and II high would perform on problems in a better way than those having the inhibitory personality traits (e.g., first-order factors B & C low and I, O, Q4, & N high and second-order factors I high and III low). It may be noted that factor M develops after the age of 17 years.
PROBLEM A (3).

Similar to the above is the question of relationship between intelligence and problem-solving behaviour whether the high intelligence group would be at an advantage as compared with the low intelligence group in respect of problem solving.

HYPOTHESIS (A-111).

Most of the intelligence tests required the subjects to solve various problems, and the intelligence is supposed to be based on the capacity to solve problems. It is obvious that intelligent subjects excel the deficient ones because of high level of logic and definite attacks to problems. Hence, in the present investigation, it is hypothesized that the subjects of high intelligence would do better on the problematic tasks by way of getting solutions quickly than would do those in low intelligence group.

PROBLEM A (4).

Our fourth problem is to study whether persons of different ages possess differential ability of problem solving or people do not differ in problem-solving behaviour because of variation in their age.

HYPOTHESIS (A-IV).

Many psychologists (i.e., Heidbruder, 1935; Alpert, 1937; Hathorn, 1931; Maier, 1936; Strzygowski, 1973; Rimoldi, 1974, etc.) have found that the general ability to solve the problems also increases with increase in age. Therefore, it is assumed that the older subjects would solve more problems and more quickly than the younger subjects.
PROBLEM A (6).

One of the bases of individual differences is male-female dichotomy. Therefore, another problem for study is to see whether male and female subjects show equal proficiency in problem solving or one sex has an advantage over the other.

HYPOTHESIS (A-V).

Many investigators have found males excelling in some problems and the females in the others (Budell, 1934; Billings, 1934; Sweeney, 1953; Keiser, 1955; Stants, 1957; Maley and Barks, 1957). This does not provide any clear picture of the role of sex. Not only this, in a recent study Strayssowski (1973) did not find any difference in problem solving ability of his male and female subjects. However, Carl and Schairfield (1968), Greenberg et al. (1971), Matt (1972), and Kreitler et al. (1974) have reported that males do better than females in manipulative and restructuring type of problems. In the present experiment, the problem-solving behaviour of male and female subjects was studied with the help of two puzzles. If at all these problems require manipulation, it can be assumed that males would solve the problems more quickly than would be done by the female subjects.

B. EFFECT OF INTERACTION AMONG FACTORS (EXCLUDING DIRECTION VARIABLE)

The problems raised in the above are confined to the operation of a single factor at a time. But it would be a lepsoled study if we do not delve into the interactions between two or more factors. For example, we stimulate to study the effect of sex or direction under Problem 1 and the role of personality, intelligence, age, and sex in Problems 2
through A, but it remains unanswered, for instance, whether persons of facilitatory and inhibitory personality traits would really differ in regard to their problem-solving behaviour with advances in age; whether subjects having facilitatory and inhibitory personality traits would show any difference in performance on a problem task because of their sex. These and many more questions arise some of which, as detailed below, have been chosen for the present research.

Effect of interaction among various factors can be predicted on the basis of their expected individual effects on problem-solving behaviour as detailed under subsection A above. If we assign different weights to different aspects of a variable, we can work out the joint effect of more than one factor. Accordingly, the following weightage scheme has been proposed as a model on which basis the hypotheses to follow would be formed (Table 2).

Table 2. Proposed Model for working out expected interaction effects.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Aspects</th>
<th>Weightage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personality</td>
<td>Facilitatory</td>
<td>++</td>
</tr>
<tr>
<td></td>
<td>Inhibitory</td>
<td>+</td>
</tr>
<tr>
<td>Intelligence</td>
<td>High</td>
<td>++</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>+</td>
</tr>
</tbody>
</table>
Table 2: Proposed Model for working out expected interaction effects (Continued).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Aspects</th>
<th>Weightage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>10-13 years</td>
<td>+++</td>
</tr>
<tr>
<td></td>
<td>14-16 years</td>
<td>++</td>
</tr>
<tr>
<td></td>
<td>17-19 years</td>
<td>+</td>
</tr>
<tr>
<td>Sex</td>
<td>Male</td>
<td>++</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>+</td>
</tr>
</tbody>
</table>

Now, if we are interested in predicting the confined effect of Personality, Age, & Sex, we may expect that a Male (+ + +) subject with Facilitatory Traits (++) in oldest age group (+++) would be the best problem solver (7 points) whereas a female (+) subject with inhibitory traits (+) in youngest age-group (+) would be the poorest (only 3 points). Similarly, performance of any subgroup formed on these bases may be predicted.

Problem B (1).

The first among the interaction problems is whether there is any difference between the subjects of facilitatory and inhibitory personality groups in respect of their problem-solving behaviour with advances in age. That is, whether there exists any significant interaction effect of personality and
age of the subjects in respect of their problem-solving behaviour.

HYPOTHESIS (B-1).

It has already been assumed that subjects with facilitatory personality traits and with advanced age would have an edge over those with inhibitory personality traits and lower age respectively. When combined effect of these two factors is to be tested, it can be assumed that the oldest subjects with facilitatory traits would do the best of all and the youngest subjects with inhibitory personality traits would be the poorest problem solvers. The basis of this assumption can be clarified with the help of following illustration (based on previously mentioned model) wherein levels of performance of various personality-and age-groups are indicated by number of plus signs (Table 3).

<table>
<thead>
<tr>
<th>Age group</th>
<th>Personality Traits</th>
<th>Facilitatory</th>
<th>Inhibitory</th>
</tr>
</thead>
<tbody>
<tr>
<td>19-23 years</td>
<td>++, +++</td>
<td>+, +++</td>
<td></td>
</tr>
<tr>
<td>14-16 years</td>
<td>++, ++</td>
<td>+, ++</td>
<td></td>
</tr>
<tr>
<td>10-11 years</td>
<td>++, +</td>
<td>+, +</td>
<td></td>
</tr>
</tbody>
</table>

It is clear from this illustration that the oldest subjects (19-23 years) with facilitatory personality traits having highest points are in the most advantageous position and the youngest subjects (10-11 years) with inhibitory traits having the lowest plus points are likely to be the poorest. The oldest
subjects with inhibitory traits and the subjects in the middle age-group (14-16 years, in this study) with facilitatory traits would be equal and occupy the second position. In the same way, the subjects in the middle age-groups with inhibitory traits and the youngest subjects with facilitatory traits are likely to do equally well and will stand at the third position. The psychological basis of this expectation is that with increasing age the subjects of both the personality groups would improve their problem-solving ability, but the subjects of facilitatory group would be at an advantage. Therefore, the subjects with facilitatory personality traits would show more improvement in their problem-solving ability than the subjects with inhibitory personality traits with increase in age. In other words, as the age increases, ability to solve the problems would also improve, the rate being higher for the subjects of facilitatory personality group than for the inhibitory personality group.

PROBLEM B (2).

A similar question arises whether the subjects of high intelligence group would do better with increase in age than those with low I.Q.

HYPOTHESIS (R-11).

As has already been assumed, subjects with high intelligence do better than the subjects of low intelligence, and the ability to solve the problems increases with age. Therefore, it can now be assumed that with the increase in age the subjects in high intelligence group would do better than the subjects in low intelligence age-group on a problem.

PROBLEM B (3).

Another problem is whether the facilitatory and inhibitory personality and male-female dichotomies yield any significant interaction effect in respect of their problem-solving behaviour. In other words, whether there is any
difference between the problem-solving behaviour of the subjects with facilitatory and inhibitory personality because of their sex.

HYPOTHESIS (A.111).

The role of personality and sex in problem-solving behaviour were expected to be very important in Problems A(5) and A(5), respectively. While considering the joint effect of these two factors, it can be assumed that the performance of the facilitatory and inhibitory personality groups could vary according to their sexes. If we look into the model on page 87, we can hypothesize that the males with facilitatory traits would do the best and the females with inhibitory personality the least, whereas the males with inhibitory traits and the females with facilitatory traits would take intermediary positions. That is, there would be an interaction effect of personality and sex as regards the problem-solving behaviour of the subjects.

PROBLEM B (4).

It would also be useful and relevant to study the joint effect of age and sex on problem-solving behaviour, that is, whether the problem-solving behaviour of males and females would change with advances in age.

HYPOTHESIS (B.14).

We have previously assumed that sex and age play their own role in problem-solving behaviour. In the present context, it can be hypothesized that with increase in age the male subjects would do better than the females. It is evident from the model (Page 87) that the male subjects of the oldest age (18-23 years in this study) having highest positive points (6 points) would show the best and the females in the youngest age-group would show the most poor performance on a problem task. Females from the highest age level and males of middle
age-level occupy the second position, and the other two
groups - females from middle age-level and males of lowest
age-level - would fall at the third position. It means that
the males would show better performance with increase in age
as compared with the females.

PROBLEM B (5).

The interaction among the personality, age, and sex
variables may also produce interesting results. The problem,
therefore, is to investigate whether the subjects with
facilitatory personality traits would differ from those with
inhibitory personality traits because of their sex and age,
or the two would solve the problems with equal efficiency.

HYPOTHESIS (A. v).

The expected roles played by these factors individually
have already been mentioned. If we consider the joint effect of
the three factors, we have to take account of total positive
points with each factor. On account of total positive points,
it is assumed that the oldest males having facilitatory
personality traits are likely to excel all other sub-groups
and the youngest females having inhibitory personality traits
are likely to be excelled by all other sub-groups selected
on the basis of these three factors. In other words, the
facilitatory personality group would show better performance
on a problem task as compared with the inhibitory personality
group with advances in age and having masculine sex, that is,
there would be significant interaction effect of personality,
age, and sex variables on the problem-solving behavior.

C. EFFECT OF INTERACTION OF DIRECT DEM VARIABLES
WITH OTHER FACTORS

So far we have considered the effect of any individual
variable as well as effect of interaction among the personality,
intelligence, sex, and age variables, there still remains the problem of studying the interaction of these variables with the experimental treatment in terms of the nature of direction. For instance, whether persons with facilitatory and inhibitory personality traits would profit equally from instructions; whether persons of facilitatory or inhibitory traits drawn from various age-groups would be affected differentially by instructions; whether instructions would help males and females equally and that too to those having different personality traits and in different age groups. These and many more questions arise, which have been chosen for the present research. These problems pertaining to the interaction of direction with other variables as taken up in the present study are specified below.

PROBLEM C (1).

The first among these problems is whether direction (set) affects the groups with facilitatory and inhibitory personality traits equally. In other words, whether a person with any type of personality would profit equally from the directions given to him, or the same direction would be received differently by different personality groups.

HYPOTHESIS (C-1).

As Johnson (1944) states, individual differences play a major role in problem-solving behaviour. Some persons have
the liking for speed and hurry but others have love for efficiency; some are serious minded whereas others are carefree. This suggests that all would not be affected in similar fashion by same sort of direction. It is, therefore, hypothesized that the subjects of facilitatory personality group would profit more from the direction than the subjects of inhibitory personality group. The reasoning behind this assumption is that the untroubled and emotionally stable subjects of high ego strength and intelligence (facilitatory personality group) can integrate the available information in a better way and can reason fairly well in comparison to the subjects with inhibitory factors.

PROBLEM C (2).

We have taken up the study of the role of intelligence in problem-solving behaviour under Problem A (3). We may also see whether low and high intelligence groups are equally receptive to directions, or are the two intelligence groups differentially affected in their problem-solving behaviour as result of directions.

HYPOTHESIS (Q11).

It is hypothesized that the low intelligence group would not be benefited as much from the directions as the high intelligence group because the latter can integrate the information available in directions more easily and in a better way than can the former group of subjects.

PROBLEM C (3).

Age is assumed to be playing important role in problem solving (Problem A 4). If it is so, then it becomes inquisitive to test whether direction would also affect the problem-solving
behaviour differently at various ages.

HYPOTHESIS (C - III).

Since maturity in understanding and comprehension comes through age, problem solving is expected to be facilitated with increase in age. Also, since the direction to be given in the present study would be positive and facilitative, older subjects may be assumed to be in an advantageous position as compared to the younger ones in respect of getting profit from directions. That is the younger the subjects, the less they would be benefited by the instructions (or directions) in getting the solution.

PROBLEM C (4).

Taking into consideration the male-female dichotomy in relation to experimental treatment (directions), a very pertinent question arises; whether the subjects of two sexes differ in taking the benefit of the direction in problem solving.

HYPOTHESIS (C - IV).

The problems used in the present investigation require restructuring and to some extent a bit of manipulation. As has already been hypothesized, males are likely to excel females in these type of problems. By the same token it may also be assumed that males would be affected more by the direction than the females. That is, males would do better with the help of positive sets (directions) in these problem situations than would do the females.

PROBLEM C (5).

Another point of investigation in the present research project is to study the effect of direction on persons of
different personalities drawn from various age levels.

HYPOTHESIS (C-v).

It has already been assumed that the subjects of facilitatory personality or those in older age-groups would profit more by instructions than the subjects of either inhibitory personality traits or in lower age-groups, respectively. While considering the combined effect of the three factors, it can be hypothesized that the oldest subjects with facilitatory personality traits would be benefited the most by instructions and the subjects in the lowest age group with inhibitory personality traits would be profited the least, the other groups (viz., subjects with facilitatory traits but in lower age-groups, or those with inhibitory traits and in older age-groups) falling in intermediary positions in respect of gaining from the instructions. That is, with increase in age the subjects of facilitatory personality group would profit more from the directions than the subjects of inhibitory personality group.

PROBLEM C (6).

Another problem of sufficient importance is whether or not the subjects with different intelligence and in different age groups would be benefited equally by the instructions. In other words with increase in age whether the subjects with high intelligence would gain more from the directions than the subjects with low intelligence.

HYPOTHESIS (C-vi).

It has been assumed above that the subjects of older age-group and with high I.Q. would be benefited more by instructions. In context of the present problem, it can be hypothesized that high intelligence subjects in the highest age-group (19-23 years in the present study) would profit the most and the youngest subjects (10-11 years) with low I.Q.
would profit the least from the same direction. The remaining sub-groups are expected to occupy various positions between the two extremes. That is, the oldest subjects with low I.Q. and the subjects in middle age-group with high I.Q. would be benefited equally from the direction and would occupy second place. Similarly, the subjects in middle age group with low I.Q. and youngest one with high intelligence would fall at third position in respect of getting benefit from the directions. In other words, with advance in age the subjects of high intelligence group would profit more from the directions than the subjects of low intelligence group.

PROBLEM C (7).

The next problem taken for this study is whether there would be any difference between the subjects of facilitatory and inhibitory personality groups because of their sexes in respect of gaining from the directions or there would not be any differential effect of direction on various personality and sex-groups.

HYPOTHESIS (C vii).

We have previously assumed that the subjects of facilitatory personality group and male subjects will be benefited more by directions than the subjects of inhibitory personality group and females, respectively. Considering these facts and basing on our model proposed on page it can be expected that the males with facilitatory personality traits would be the greatest beneficiaries and the females with inhibitory traits would be at the lowest side in respect of gaining from the directions, the other two subgroups - males with inhibitory personality traits and females with facilitatory personality traits falling inbetween. That is, there would exist a significant interaction effect among three variables - personality, sex, and experimental conditions.

PROBLEM C (8).

It has been mentioned that the age and sex are
important factors in respect of the effect of direction in problem solving. An allied problem is whether the male subjects with increase in age would be affected differently by instructions than the female subjects or the two groups would be affected equally.

HYPOTHESIS (C.viii).

Previously it was assumed that male subjects and those in higher ages would profit more from the direction than the females or the subjects in the lower age groups. While considering the combined effect of age, sex, and direction, it is hypothesized that the male subjects of oldest age would be benefited the most and the female subjects of youngest age the least by directions in problem solving. Based on our previous model, it is also assumed that the younger males and older females would equally profit from instructions, and they would be in between the two former groups. More clearly with increase in age the males would profit more from the direction than the females.

PROBLEM C (9).

Lastly, we intend to investigate into the interaction effect of personality, age, sex, and direction in problem solving. The problem, therefore, is to investigate whether the subjects with facilitatory personality traits would differ from the subjects with inhibitory personality traits because of their sexes and increase in age in respect of gaining from the direction.

HYPOTHESIS (C ix).

It is hypothesized that the male subjects with
facilitatory personality traits in the oldest age-group would be profited the most from the directions whereas the female subjects with inhibitory traits in youngest age-group would be profited the least. The other subjects are expected to fall at different positions as per the proposed model (Page 37). For example, the males in the oldest age-group with inhibitory personality traits, males in the middle age-group with facilitatory traits, and the oldest female subjects with facilitatory traits would be affected equally by set and would occupy second rank. The third position would be occupied by several subgroups, viz. males in middle age-group with inhibitory traits, males in the lowest age-group with facilitatory traits, females in the oldest age-group with inhibitory traits and females in middle age-group with facilitatory traits. Youngest male subjects with inhibitory personality traits, females in the middle age-group with inhibitory traits, and the youngest females with facilitatory personality traits are likely to profit equally from instructions and to perform just above the lowest group. Say otherwise, there would exist a significant interaction effect among the four variables - personality, age, sex, and experimental conditions.