CHAPTER-II

Review of Literature

In the previous chapter, an attempt was made to give some salient researches which show that women are poor performers in comparison to men in problem solving situations. The main aim of the present chapter is to highlight some of the personality and environmental factors responsible for the poorer performance of women and motivational mechanism which can help women increase their performance. In the present investigation an attempt is being made to study the effect of neuroticism and fear of success upon performance of women viz-a-viz problem solving and to see whether induced motivation improves or hinders the performance of women. The layout of the present chapter would be to provide the nature, stages and trends in problem solving research in the first section, and purely psychological factors which boost/hinder success in problem solving in the latter section.

Nature, Trends and Stages of Problem Solving:

Life is largely a process of satisfying wants. Wants are sometimes called 'motives', and range from those of strictly personal nature to wants that are part of complex social situation. These wants may range from those that are approved by society to those that are socially inappropriate and either should not exist at all, or should be appropriately modified. The satisfaction of wants or motives is sometimes called the "goal". The satisfaction of want may be hindered by difficulties
of at least three different types—personal inability, physical limitation and social taboo. The inter-relationship of these three factors—the want or motive, the satisfaction or goal, and the hindrance or difficulty, constitutes the pattern of organic adjustment to environment. If wants are strong, and if hindrances are great, then state of tension is created that acts as internal drive to activity. When the equilibrium is disturbed a problem exists, and this provides a need for thinking and reasoning. Thus, a want or motive is directed toward a state of want satisfaction or goal, but is hindered by some difficulty, necessitating some sort of problem solving behaviour.

Problem solving is the pattern or framework within which creative thinking and reasoning take place. Successful living and successful problem solving are identical. Cuban (1984) saw thinking as a cognitive process that produces behaviour directed towards problem solving. Hunt and Randhawa (1987) also adopted this definition. According to Hunt and Randhawa (1987) problem solving may focus on thinking process involved, with the minimization of the knowledge base required; or focus is on the knowledge base and thinking processes which may or may not be a direct product of the knowledge base itself. Demorest (1986) conceptualizes problem solving as a class of activities that are directed towards the attainment of goal.

Problem solutions can be based upon strategies involving insight, trial and error, hypothesis testing, algorithms, or
heuristics (Demorest, 1986).

**Unlearned or Instinctive Problem Solving Behaviour:**

Some lower animals appear to satisfy their wants in blind mechanical ways that are determined not by the peculiar conditions of the environment at the moment, but by the inherited organic structure of the organism itself. These fixed ways of behaviour are apparently unlearned, and vary little from individual to individual in the same species. Such instinctive reactions to difficulties are successful as long as these difficulties are usual and ordinary, but when the difficulties are unique, a fixed pattern of reaction often proves inappropriate.

**Trial and Error Problem-Solving Behaviour:**

According to Lawson (1960) the type of learning which is the most characteristic of every day situations has been called "Problem Solving", "trial and error learning", "instrumental conditioning" or "operant learning". The much used phrase trial and error means, logically, an exploration or searching for a goal. Morgan (1894) described the process of trial and error as a gradual process of many trials and seemed not to involve any clear perception of cause and effect. According to Thorndike (1898) problem solving behaviour is based upon trial and error learning. It requires three conditions: first, the production of variations; second, a consistent selection process, whereby particular combinations
produced can be picked out; and third, a mechanism for preserving and reproducing the selected variations. Thorndike (1898) inferred that there is no "seeing through the situation", which if achieved, the trial and error would have come to a sudden drop in time and error per trial, which was rarely the case. Campbell (1960) terms the process of trial and error as 'blind variation and selective retention' - 'blind' in the sense that attempts at solving problems are often made more or less at random.

**Insightful Problem Solving Behaviour:**

Yerkes (1916) found evidence for insight in many sudden transitions from trial and error behaviour to the correct response, once it had been made, and in its transfer to somewhat modified situations. The same three criteria of insight in animals were used by Kohler (1917, 1924). They had previously been used by Ruger (1910) in his study of problem solving in human adults. The insight is 'hindsight' when it first occurs but functions of 'foresight' on the next trial. Duncker (1935) found that in solving a complex problem one partial insight follows another partial insight in steps. Tsai (1988) found that the most important factors conducive to the emergence of insight is what may be named 'the formation of insight sets'. He proposed that students should be trained to solve a long series of interesting problems by insight through understanding of interrelationships. This training can help to achieve the 'formation of insight sets' in their
precious plastic minds as an ignition starter to an alternative channel of their thinking in problem solving to enrich the quality of human life and accelerate the advances of civilization and welfare of mankind.

**Vicarious Problem Solving Behaviour:**

Human beings can respond to absent situations as though they are present. Man's superiority in this respect is due to his ability to use what de Laguna (1942) called "predicted language". This has enabled man to 'pre-solve' his problems and 'foresee' the consequences.

In addition to trial and error and insight, problem solutions may also depend upon strategies such as resonance, conditioning, information processing and concept formation as explained by some of the theories given below:

**Gestalt Theory:**

According to Duncker (1926) in strictly rational problem solving, the subject analyses the solution in order to discover the materials involved and the crucial relations whose re-organization results in the solution becoming clear. The goal must be analysed, too, in order that the subject can see what must be done in order to move from the recognition 'of the problem' state to the final solution state. Most solutions are achieved through what Duncker calls 'resonance'. 'Resonance' is the largely automatic application of previous experience to the
present situation - by means of cognitive perceptual responses. Perceptual responses are set off through reactions to 'signals' from the immediate environment in which the problem is set. Problem solving for Wertheimer (1945) depends on a grasping of the structural and functional relationship of the problem situation. The 'inner relations' of the problem situation must be discovered and each particular situation has its own distinctive set of requirements; finding these and reorganizing the situation in the light of this discovery is the key to solution. According to Wertheimer (1945) 'such a process is not just the sum of several steps, not an aggregate of several operations, but the growth of one line of thinking out of the gaps in the situation'.

**Association Theory:**

Association theory explains problem solving in terms of the associative process and the formation of associations in problem solving is governed by the principles of classical and operant conditioning. Both horizontal processes involving the chaining of associations over time and vertical processes involving the simultaneous operation of multiple associations are used as means of explaining complex problem solving. Bourne, Ekstrand and Dominowski (1971), in reviewing problem solving theories, indicate that response hierarchies and mediation are key concepts in current S-R explanations.
**Information Processing Theory:**

According to Newell and Simon (1972) problem solving is explained in terms of task environment in which it takes place; the space the problem solvers use to represent the environment, the task, and their accumulating knowledge about it, and the programme used for solution. In information processing theory, the individual is viewed as a processor of information (Broadbent 1958, 1971; Lachman et al., 1979; Massaro, 1975; Neisser, 1967). The central assumption of this theory is that a sequence of processing stages occurs between stimulus and response. The onset of these processing stages are successive and each stage operates on the information available to it. First, the memory construct describes or defines the nature of the information at the particular stage of processing. Second, the processing construct describes the operations performed by a stage of information processing.

Heppner and Krauskopf (1987) presented an information processing view of problem solving, previously discussed by Newell and Simon (1972). According to Heppner and Krauskopf (1987), problem solving processes involve how people take in information, process that information into plans for solutions to personal problems and carry out these plans; problem solving is viewed in terms of characteristics of a particular problem, four major problem solving processes and individual differences or personality variables. Moran (1987) discussed the information processing approach to problem solving as proposed
by Heppner and Krauskopf (1987) and concluded that problem solving is a function of problem characteristics, four problem solving processes (encoding, goal setting, planning and pattern matching) and individual differences.

Concept Learning Theory:

According to the theory of concept learning (Klausmeier, Ghatala, Frayer, 1974) concept formation, starting in infancy, proceeds according to an invariant sequence of four levels - concrete, identity, classificatory and formal. The external facilitative conditions change according to the four levels. Concepts attained to the classificatory and formal levels may be used in identifying newly encountered instances as examples or non-examples of the concept, in understanding hierarchies and taxonomies of which the particular concept is a part and in solving problems involving the concept. There are large differences in the extent to which children of same age, kindergarten through high school, have attained the levels of various concepts (Kalusmeier and Goodwin 1975). The kind and quality of education and the comprehension of language are highly correlated with, and possibly determinants of, both concept attainment and the uses of concepts, including their use in problem solving.

Trends in Problem Solving:

Open ended and close ended Problems: - An open-ended problem solving situation exists if problem has been recognized and the solver believes that he can usefully challenge one or
more of its boundary conditions. The less he is prepared to challenge the boundaries, the less open-ended the problem is as far as he is concerned. According to Rickards (1980) the characteristics of open-ended problem situation are that:

(i) Boundaries may change during problem solving;
(ii) Problem solving often involves production of novel and unexpected ideas; (iii) Process may involve creative thinking of an uncontrollable kind; (iv) Solutions often outside the bounds of logic can neither be proved for disapproved; and (v) Direct efforts at stimulation of creative process to solve problems is difficult.

In schools and in our daily life, we are often in positions of strictly close-ended nature. In close-ended problem situations, according to Rickards (1980):

(i) Boundaries are fixed during problem solving; (ii) Process is marked by predictability of final solution; (iii) Process is usually conscious, controllable and logically reconstructable; (iv) Solutions are often provable and logically correct; and (v) Procedures are known which directly aid problem solving (algorithms or heuristics).

**Group Problem-Solving:**

1. **Synectics:** The name was coined by W.J.J. Gordon, a Co-founder of Synectics Inc., an American consultancy organization, to describe a process leading to new insights through bringing together elements that are normally unrelated. Broadly speaking
the individual elements of synectics can be divided into: techniques that foster constructive interpersonal relationships; processes that give structure to a synectics meeting; roles that should be adopted by the participants; and techniques designed to bring about an atmosphere conducive to creative thinking. These elements include active listening in a genuine attempt to increase the amount of information received during a discussion. A person in a group needs to know not only that he has been heard, but that he has been understood. Feedback reassures him on this count. Goal orientation is used to change the attitude of mind to constantly seek new ways of looking at the problem (goal) and to accept the differences of opinion as expressions of different, but non-conflicting goals.

**Brainstorming:**

Brainstorming is the brainchild of the advertisement executive, Alex Osborn. He developed Brainstorming as a structured group ideation technique with a set of simple but effective rules. Osborn (1957) defines brainstorming as 'using the brain to storm a creative problem and to do so in commando-fashion, with each stormer audaciously attacking the same objective. Page and Thomas (1979) define brainstorming a technique of exploring, possible solutions to problems. Muttagi (1981) defines brainstorming as essentially a group participation method of problem solving. David (1987) describes
brainstorming as an approach to increase the learner's creativity and openness for problem solving. In a brainstorming session following rules are involved:

(a) **Defer evaluation:** During the first part of the brainstorming judgement is ruled out, i.e., negative criticism of ideas is withheld until later. This climate encourages participants to share ideas which they otherwise may have censored and not pooled.

(b) ** Fantasize freely:** The participants are encouraged, urged to let themselves go and generate ideas no matter how fanciful, which their imagination can conjure up.

(c) **Generate quantity:** The emphasis in the first phase is on the participants generating as many ideas as possible. The greater the number of ideas, the more the likelihood of winning.

(d) **Build on ideas:** In addition to contributing ideas of their own, participants should use the ideas of others by building on to them or combining them with other ideas.

Brainstorming can be used for generating many ideas by individuals and by group within a short time. Brainstorming is particularly useful for problems that can have multiple solutions, of which some may be better than the others.

Some of the modifications of brainstorming are solo brainstorming, Phillips' Buzz also known as Phillips 66, stop and go, trigger session, 5-3-5, wildest idea and reverse
brainstorming. Solo brainstorming as its name suggests is individual brain-storming. Phillips 66 is so called because of the participation of 6 groups of 6 persons each. Each group brainstorms and presents its ideas to the parent group. The advantages claimed are that large groups can be handled and that several distinctly different ideas are likely to be developed. 'Stop and Go' was developed for technical groups who did not take kindly to wild shooting. It is a compromise of 'wild shooting' with 'evaluation' at short intervals. 'Trigger sessions' is a combination of individual and group brainstorming. Each member produces ideas which are shared by the group. These individual ideas act as 'triggers' to generate new ideas in a group. 6-3-5 also called the 'Robin Round Robin' or Brain Writing. The name 6-3-5 is derived from a group of 6 people who receive 3 cards each. On each of which they record a different idea. These cards are shuffled a maximum of 5 times to other members. Group members are required to build upon the last recorded idea on the cards received. In 'Wildest idea' adaptation of brainstorming one packs up the most ridiculous idea generated during the session and attempts to transform into something useful. The effort induces an atmosphere of levity and relaxation while focussing on generating workable directions from a way-out-idea. In 'Reverse Brainstorming' the 'Chosen' solution is subjected to brainstorming so as to disclose the problems in implementation
that are likely to arise, the possible detrimental effects on other areas of operation etc. In short it is a vital check which helps to minimize the risk of the unanticipated hurdles.

Thorn (1987) concentrated on blending synectics and Osborn Parne’s model (Parne, 1967) of brainstorming and highlighted four basic elements of problem solving, i.e., how one becomes aware of the situation, how information is collected and used, how innovative connections are made and how effective results are produced.

**Stages of Problem Solving:**

The problem solving process has been variously described by many writers (Houtz, Tetenbaum and Phillips, 1981) as involving skills of problem sensitivity, definition, preparation, idea generation, and evaluation. Johnson (1955, 1972) has proposed a three stage model of problem solving process involving: (i) preparation of activities such as problem awareness, definition, data gathering for background etc. to be performed before actual solutions are attempted; (ii) production of activities involving idea or hypothesis generation; and (iii) judgement or activities involving the evaluation and comparison of ideas and selection of most appropriate response. According to Skinner (1984) generally six stages may be distinguished in the solution of a problem, i.e., understanding the problem, collecting information, formulating possible hypotheses, evaluating the possible solutions, trying or testing possible
solutions of predicted value and forming conclusions. Wallas (1976) identified four stages in the solution of problem, i.e., preparation, incubation, inspiration and verification. Prior to Wallas (1976), John Dewey (1910) gave almost similar sequence of reflective thinking, i.e., experiencing a difficulty, locating and defining a problem, suggesting possible hypothesis-mental elaboration and testing hypothesis. While analysing the problem solving behaviour in any particular situation, the stages given by Vinacke (1952) seem to be more acceptable which may logically be defined as confrontation by a problem, working towards a solution and solution (Kumar, 1975). Similarly, Maier (1930) and Gagne (1964) have also given the steps for the solution of problem which only differ in nomenclature and terminology (Kumar, 1975). Elijah (1980) gave four models to explain the pathways to creative problem solving.

1. **Osborn's Pathways to Creative Problem Solving:**

Osborn (1957) elaborated these sequential problem solving steps. The model presented is as modified by Parnes and Harding (1962). Osborn's model includes seven steps including: realization of the problem; the need to resolve the problem; identification of what the problem really is, i.e., looking at the problem from various frames of reference; preparation for problem's solution, i.e., evaluation of the means at the solver's disposal and to decide whether there is need for more information in order to bridge the gap between the problem and solution;
manipulation, i.e., classifying of facts, combining them in new ways and associating them with past experience. If the possible solution develops at this stage the next steps in the process 'incubation' and 'illumination' may be skipped and 'verification' stage entered upon. Incubation is the developmental stage of new and fresh ideas when the non-conscious computer is classifying, comparing, combining, transforming bits and pieces to form fresh Kaleidoscopic patterns. But these patterns do not surface until the threshold of mental resistance is low - when suddenly illumination, the 'Aha!' experience comes forth. Next comes the verification stage in which the solutions are evaluated.

![Diagram of Osborn's Pathways to Creative Problem Solving]

**Fig. 1: Osborn's Pathways to Creative Problem Solving**

**Guilford's Problem Solving Model:**

Guilford (1977) observes 'the brain is a computer between our ears which can be conceived as functioning in the manner of
problem solving model (see Figure II) 'Input I' indicates the series of problem solving events. The possible sources of input are E for the environment and S for the soma (the individual's body).

Cognition I: The second stage covers the awareness that a problem exists and something needs to be done.

Cognition II: At this state the problem is structured, an awareness of the nature of the problem is generated and what will be needed in order to solve it. This stage provides the cues for retrieving needed information from the memory storage. Cognition II also covers the formation of hypotheses. A hypothesis is a projected guess coming from what is already known. If the right answer comes up at this stage, there may be shifting of the action immediately to the last stage i.e. convergent (one right answer) production stage.

If the answer is not acceptable then the action shifts to Input III - the 'Divergent' (several possible answers) production stage.

Output I results from divergent production only; Output II comes from convergent production only; and Output III issues from convergent production that has followed some divergent production. Underlying everything is the memory store. Arrows pointing to it indicate the
mental operation of memory, arrows from it indicate the contributions from the memory store to ongoing events.

FIG. II: GUILFORD'S PROBLEM SOLVING MODEL

If it were not for the memory activity, it would not be possible to remain oriented to what is going on, to avoid repeating errors.
The process of evaluation occurs all along, checking on both the information coming in and the production of ideas. Some arrows bypass evaluation. This is most important for divergent production as too much evaluation at this stage could severely hamper retrieval of items of information. Evaluation, however, cannot be bypassed in the case of convergent production.

Input II and III indicate the points at which the problem solver feels the need of going back to the environment to obtain additional input, recognising that input is not sufficient problem solver can reject all the solution can go all the way back to start over again. Back-tracking may, of course, occur at any point.

Prince's Mind Spring Model:

Prince's (1975) model (see Figure III) is deceptively simple but extremely relevant and widely applicable. The elements are:

Wish: All creative problem solving begins with wishing. The wish can also come about from external pressures organisational, survival etc. Wishing is a powerful liberating element since it gives licence to think and feel without concerns about practicality.

Retrieve: When the wish is demanding enough, the mind activates the brain to retrieve, from the memory store, connected
information that may be helpful to the situation needing resolution.

**Compare:** The words/images retrieved, are then compared with the solutional needs.

**Transform:** These retrievals need to be changed, and added to be useful as a possible solution.

![Diagram of Prince's Mind Spring Model of Problem Solving](image)

**FIG. III : PRINCE'S MIND SPRING MODEL OF PROBLEM SOLVING**

The tentatively possible solution is then retained in the memory store and when a workable solution is not developed, the mind repeats the process.

**Imaging:** According to Prince (1975) 'imaging is our most
important thinking skill because it accompanies and facilitates all the other thinking operations.

**Lamb's Action Motivation Concept of Problem Solving:**

This concept came about as a result of Lamb's (1978) investigation of non-verbal behaviour of problem solvers and its significance. From the study of over 10,000 managers engaged in problem solving activities Lamb (1978) distilled the observation that "every individual will concentrate more activity into certain stages in the sequence of problem solving action and will correspondingly neglect others. This is inbuilt pattern of behaviour and remains constant regardless of the demands of the situation". This added the behaviouristic or as Lamb put it an 'action motivated' dimension which governs the creative problem solving process (see Figure IV).

1. **Basic Stages of Problem Solving Action:**

   (a) **Attention:** When problems first surface, problem solvers give attention to the facts of the situation. They research, question, probe and analyse.

   (b) **Intention:** The intention stage follows the attention stage. During this stage a direction is resolved upon. The decision is not yet taken but it is likely to be restricted within the direction resolved upon. The intention needs to be reasonably firm - too high a degree of firmness may result in
inflexibility, but hesitancy, too needs to be avoided.

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**ACTION MOTIVATIONS**

1. **INVESTIGATING** — defining, categorizing, fact finding, establishing method, defining standards and principle; teasing out information within a defined area.

2. **EXPLORING** — having awareness of scope of information; looking for alternative possibilities and ways of approach; looking for alternative reasons; questioning assumptions.

3. **DETERMINING** — having firmness of purpose; determination, persistence against difficult odds; resistance to pressure, strong conviction.

4. **CONFRONTING** — crystallizing issues, establishing importance, challenging; realistic recognition of immediate needs; forthright acceptance of hard facts.

5. **DECIDING** — having sense of timing; starting off a process of implementation at the appropriate moment; decisiveness in order of time priorities; seizing opportunities; flexible on the spot programming.

6. **ANTICIPATING** — looking ahead, farsightedness, foreseeing consequences of action; evaluating practicalities; constant anticipation of future developments; systematic future programming.

**ACTION SEQUENCE**

**ATTENDING**

7. **COMMUNICATING** — establishing and maintaining reciprocal communication; approachability; imparting and inviting knowledge and information; harmonizing, including, sympathizing; sharing own process of investigating and exploring.

**COMMITTING**

8. **PRESENTING** — maintaining confidence, making a positive demonstration, declaring intentions, influencing, persuading, emphasizing, insisting, resisting; sharing own process of determining and confronting.

9. **OPERATING** — on the spot organizing of people; creating sense of urgency or slowing down of pace, spurring people on or delaying activity with awareness of objectives; controlling the action; sharing own process of deciding and anticipating.

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**BEGINNING THE PROCESS OF IMPLEMENTATION**

**FIG. IV : LAMB'S ACTION MOTIVATION CONCEPT OF PROBLEM SOLVING**
(c) **Commitment**:- The third and final stage before the process of implementation is described as commitment. At this stage the decision to be implemented is finalized and the process of implementation planned.

2. **Assertion and Perspective Phase**:

Lamb suggested that these three basic stages have two complementary phases each – the assertion and perspective. During assertion phase, a direct effort at making things happen is engaged upon whereas, in the perspective phase, results are sought to be achieved through a restructuring of the situation to generate the desired climate. The assertion and perspective phases of attention are investigating and exploring respectively. The Assertion and Perspective phases of Intention are Determining and Confronting and of Commitment are deciding and Anticipating respectively.

3. **Interaction Modes**:

These action motivations are operated not in isolation, but within an environment. Lamb theorizes that this interaction with the environment is congruent with the three Basic Action Motivation States. The interaction mode Communicating relate to the Attention stage, Presenting to the Intention stage and Operating to the Commitment Stage.

This model highlights an additional dimension to the problem solving process, i.e., motivation.
Synthink Model of Problem Solving:

Elijah (1980) gave Synthink Model of problem solving to account for the ineffective problem solving and poor decision making which is more often a result of emotional and cultural inhibitions rather than a lack of knowledge. These inhibitions are the result of some childhood learning and experiences which even though forgotten and buried in the non-conscious still exercise a very strong influence in our conscious problem solving and decision making processes. The synthink model of problem solving is the graphical representation of the mind at work — it visibly sets out the mind's conscious and non-conscious components. It traces, it analyses, it records the many interactions taking place in each component and between them.

The Synthink model recognises the block owner to be a unique individual and accepts that there are no general solutions that will find possible acceptance with all persons.

The model consists of two orbits. The outer orbit of consciousness is a graphic representation of our level of full awareness. This orbit is an outgrowth of the inner orbit of non-consciousness and derives its vitality from this deeper level of self. The outer orbit is strongly influenced by the stored memories and instinctive urges inherent in each individual. Its components consist of
developed capacities and processes (see Figure V). The developed capacities are value base, cognition and syntropy. The learned processes are evaluate, diverge and converge.

These capacities and processes interact and influence each other in a variety of ways. The total energy in the system (outer and inner) is assumed to be constant, but is different for each individual. When this energy flows freely between the two orbits and their respective components, the system is in balance and effective. When however, there is a block in the system (caused by emotional sources mainly), the energy is disproportionately invested in one of the capacities and until free flow is again achieved the system is out of balance and not very effective. The individual in this situation experiences "being stuck" or going around in circles.

Developed Capacities:

(a) **Value Base:** This base consists of standards and beliefs that gradually build up as adulthood approaches. These influence behaviour and attitudes. Value base can be either evaluative, i.e., used as an instrument of appraisal or convergent i.e., when employed as a means of conformity.
(b) **Cognition**: This capacity represents knowledge facts, proven authenticated experiences and appropriate methods and techniques. It may also contain outdated irrelevant information. Cognition can be divergent, when existing knowledge is used to develop new ideas or evaluative as used to reclassify known ideas in new ways.

(c) **Syntropy**: This capacity stands for the ability to eliminate obsolete, to challenge constraints, to generate
ideas, to shift our frame of reference etc. Syntropy can be divergent or convergent.

**Learned Processes:**

(a) **Evaluate**: include to analyse, appraise, compare, constrast, decide, differentiate, discriminate, examine, judge, question, review etc.

(b) **Diverge**: include to anticipate, confront, deflect, divert, explore etc.

(c) **Converge**: include to accord, adapt, adjust, conform, focus, harmonize etc.

The inner orbit represents the non-conscious level that has been developing from the time of our birth. The Synthink model illustrates in its inner orbit the compulsions Survival-Affiliation-Achievement:

(a) **Survival**: This is described as an inborn compulsion which covers striving against odds hunger and other physical deprivations. To ensure survival the person is forced to react to the environment. To 'react' is an inborn drive.

(b) **Affiliation**: After survival is assured, one begins to relate to people - this compulsion is called affiliation. Affiliation includes compulsion of wanting to belong (inclusion) and yet of wanting to be himself (exclusion) when this compulsion becomes operative, the person is driven to 'experience'.
(c) **Achievement:** The next stage of growth at the non-conscious level is Achievement and the associative drive is 'learning'. Its inherent dichotomy is success/failure. It generates the desire to get things done.

**Memories:**

In the inner orbit, the model illustrates three memory banks. In these are stored memories of reactions, experiences and learning from infancy onwards between their respective compulsions.

**The Zone of Introspective Association:**

The inner orbit represents the past, the subjective and the non-conscious energy components whereas, the outer orbit represents the present, the rational and the acquired energy components. There is very intimate relationship between the inner and outer orbits. In addition 'imagination' and 'intuition' illustrated by dotted lines establish connecting bridges between the outer capacities and inner compulsions.

**Orbital Interactions:**

Each capacity is connected by imagination/intuition to two compulsions.

Hunt and Randhawa (1987) suggested that there are two types of successful problem solvers, namely, planners and part planners and three types of non-solvers, i.e., chancers, repeaters and loopers, according to the strategies used by them.
Planners consider the legality to the moves before they make them. They make one or two errors, but they quickly learn from their errors and solve the problem with shorter average time per move, lower number of backward moves and lower number of illegal moves whereas, part planners operate with small sub-goals. Chancers : type (i) do not learn from errors and repeat the same move again exemplified by large number of illegal moves and unproductive repetitionsness; type (ii). Chancers do not make that particular move again, but make equally unproductive move. Repeaters, repeatedly go over to old patterns (backward moves in sequence) and do not venture into new areas. Loopers are unable to break the pattern containing legal, illegal and backward moves.

As far as the importance of any one theory or model of problem solving is concerned, Hocevar and Zarnegar (1987) made it clear that any significant theory building regarding problem solving would necessarily be delimited to specific class of problems rather than to problem solving in general because extremely diverse set of tasks fall under the rubric of problem solving.

Apart from the nature and strategies caused by the problem solver, the problem solving might depend upon a number of stimulus and organismic factors. Number of studies have taken into account various psychological variables to see their
effect on problem solving (e.g., Harcotunian and Tate, 1960; Kumar, 1975; Zuckerman and Allison, 1976; Ajwani and Upadhyay, 1983; Funke, 1983; Kumar and Kapila, 1987; Kumari, 1988; Ohri and Malhotra, 1988).

Therefore, it may be inferred that problem solving depends upon multiple factors acting conjointly on the individual. In the present investigation personality, fear of success and induced motivation have been selected to see their effect on problem solving efficiency of university and working women.

Concept of Personality (Neuroticism):

Personality is a fundamental concept in psychology, and no experimental or applied psychology can flourish which does not incorporate concepts related to personality, such as traits, aptitudes, attitudes etc. It is due to personality differences that individuals behave differently in identical situations.

The most distinctive feature of any individual is his personality. This is the overall pattern of integration of his structures, modes of behaviour, interests, attitudes, intellectual abilities, aptitudes and many other distinguishable characteristics. Personality is an important variable in most of the behavioural responses. According to Brody (1972), the study of personality rests ultimately on the fact of individual
Hippocrates and Galen classified people on the basis of 'fluids' or 'humors' of the body into melancholic, choleric, sanguine and phlegmatic. These four types are supposed to be responsible for differences in behaviour. This physiological theory is now regarded as somewhat quaint, but the descriptive scheme is still used. It was an oversimplification in that people cannot be neatly pigeonholed into four categories. Wundt in nineteenth century pointed out that the four way classification of Greeks could be accommodated by two independent and continuous variables of emotional response strength of emotions and speed of change. What Wundt called speed of response is now usually labelled as extraversion/introversion and high strength factor is now called emotional instability and neuroticism (Wilson, 1977). The reference of extraversion/introversion dates back to (1755), first published in English dictionary of Dr. Johnson but the lead in this area was promptly taken by Jung (1923). Before Jung, notably Jordan (1890) and Gross (1962) had put forward personality theories based on a type division, but Jung (1923) was the first one to gain wide-spread acceptance for the type theory. The credit for extending these theoretical concepts to laboratory setting and real life situations is mostly shared by Eysenck and his associates, who with their dimensional approach to personality at causative and descriptive levels have ushered a new era in modern times.
In recent times, other personality theories too have come to the fore, though with the different emphasis. According to Watson (1924) personality is "the end product of our habit system". Allport (1937, 1963) defined it as the dynamic organization within the individual of these psychological systems that determines his unique adjustment to his environment. According to Cattell (1956) personality is that 'what a person can do in a given situation'. Guilford (1959) defined personality as a person's unique pattern of traits. It is the most adequate conceptualization of person's behaviour in all its detail (McClelland, 1951). Eysenck (1965) states that "there is some agreement that refers to some enduring disposition in the constitution of individuals and that it is basic reality underlying individual differences in behaviour". According to Hilgard (1962) "the term personality is used to mean the configuration of individual characteristics and ways of behaving which determines individual's unique adjustment to his environment. Hence, personality includes any characteristics, that are important in the maintenance of self respect". According to Eysenck (1952) "personality is more or less stable and enduring organization of the person's character, temperament, intellect, environment". Richard et al. (1988) established the significance of both genetic and environmental factors in the constitution of personality. Eysenck's dimensional approach to personality has set about much experimentation where with his two factors viz.
E and N, most of the experimental research in personality has opened up new vistas in relating performance to temperament factors in variety of memory learning and problem solving tasks (Eysenck, 1985; Kumar & Kapila, 1987; and Tamwar, 1989). Similar to E and N others too in this field have found similar factors (Guilford, 1934; Cattell, 1956; and Walkey, Green & McCormick, 1986).

A Review of Eysenck's Personality Theory:

Eysenck (1987) has shown that four basic types of human temperaments, i.e., phlegmatic, sanguine, melancholic and choleric can be described as combinations of two dimensional system: Introversion - extroversion (E) and Neuroticism (N). Eysenck (1947) had proposed a three dimensional model of personality: Introversion-extraversion (E), Neuroticism (N) and Psychoticism (P), and a psychobiological model (H. Eysenck, 1967, 1981; H. Eysenck and M. Eysenck, 1985). The model is hierarchical one that conceptualizes each of the three broad dimensions sub-divided at a lower level into narrower and more specific traits, which finally may be sub-divided into habits of reaction or aggregate of behavioural instances. Cattell (1956) and Guilford (1934), similar to Eysenck's extraversion and neuroticism, extracted factors which closely resemble them. Walkey, Green and McCormick (1986) also revealed the presence of E and N factors and third factor
congruent with lie scale in EPI.

In a recent book, H. Eysenck and M. Eysenck (1985) have pictured the subtraits of E, N and P as follows:

E: - Sociable, lively, active, assertive, sensation seeking, carefree, dominant, surgent and venturesome;
N: - anxious, depressed, guilt feelings, low self esteem, tense, irrational, shy, moody and emotional; and
P: - aggressive, cold, egocentric, impersonal, impulsive, antisocial, creative and tough minded.

Tellegen (1985) also presented a three factor model that is quite similar to Eysenck's except the E factor is called positive emotionality, the N factor is labelled negative emotionality and P factor is described as constraint. Earlier, Costa McCrae and Arenberg (1980) have described a three factor model in which E and N are the two factors, but McCrae and Costa (1985a) found that third factor, openness to experience, does not resemble P or correlate with it.


The five dimensional model (Fiske, 1949; Tuples and Christal, 1961; Goldberg, Norman and Schwartz, 1980; Hogman, 1982; McCrae and Costa, 1985a, 1985b; Digman and Inouye, 1986) also includes Eysenck's E and N plus conscientiousness (C), agreeableness (A) and culture (or openness to experience).
Eysenck (1985) contends that the I-E and N factors contribute to a description of personality more than any other set of factors in a non-cognitive field. As regards the study of extraversion/introversion and neuroticism, Eysenck (1964) believes that it can be analysed at the two levels i.e., causative and descriptive.

**Extraversion/Introversion:**

According to Eysenck and Eysenck (1968), on the descriptive side, the typical extravert is social, likes parties, has many friends, needs to have people to talk to and does not like to study or to read by himself. He craves for excitement, takes chances, acts on the spur of the moment and is generally an impulsive individual. Whereas, a typical introvert is a quite retiring sort of person, introspective, fond of books rather than people, he is reserved and distant except to intimate friends. He does not like excitement, takes matter of everyday life with proper seriousness, and likes a well ordered way of life.

On the causative side, Eysenck (1973) gave evidence that differences in extraverts and introverts are due to lower thresholds of reticular arousal of introverts in comparison to extraverts. Eysenck (1957) tried to derive most of the known differences between introverts and extraverts by the excitation inhibition theory. He states his fundamental assumptions as follows:
Individuals in whom reactive inhibition is generated quickly, which is strong and dissipates slowly are pre-disposed to develop extraverted pattern of behaviour and to develop hysterical disorders in case of nervous breakdown; conversely in whom reactive inhibition is generated slowly are pre-disposed to develop introverted pattern of behaviour and to develop dysthymic disorder in case of nervous breakdown.

There is a good deal of evidence that EPI's extraversion scale is multidimensional, with impulsivity and sociability as its main components (Howarth, 1976; Guilford, 1977; Revelle et al., 1980; Rocklin and Revelle, 1981; Campbell and Reynolds, 1984). Gray (1970, 1982) and Gray et al. (1983) showed that impulsivity factor is primarily responsible for the EPI extraversion scale's capacity to predict arousal phenomena.

The dimension of E/I has been controlled in the investigation undertaken currently - only those subjects were selected who scored between Mean ± 1 S-D on E/I. In the present research work the effect of N is being studied viz-a-vis problem solving in university and working women.

Neuroticism:

In this study the central focus is upon neuroticism - stability or anxiety, which is conceived as an important aspect of individual differences. Within the present conceptualization that regards psychology as being concerned with a stimulus-organism-response (S-O-R) sequence of events,
neuroticism/anxiety clearly qualifies as an organismic state (Eysenck, 1983). Anxiety is currently a central concept in most theories of personality and it is also widely regarded as a principal cause of diverse debilitating psychological symptoms and instances of creative self expression. The levels of anxiety or neuroticism, the two being highly correlated (Bendig, 1963 and Eysenck, 1985) has a direct bearing upon performance - as the research evidence indicates.

As regards the explanation of the second dimension neuroticism- stability, Eysenck (1953) believes that it is inherited and has neuro-physiological basis. High N scores are indicative of emotional liability and over reactivity. High scoring individuals tend to be emotionally overresponsive and have difficulties in returning to normal state after emotional experiences. Such individuals frequently complain of vague somatic upsets of minor kinds such as headaches, digestive troubles, insomnia, backaches etc. and report many worries and other disagreeable feelings. Such individuals are predisposed to develop neurotic disorders under stress, but such disposition should not be confused with actual nervous breakdown, a person may score high on N while functioning adequately in work, sex, family and society spheres. The explanation of neuroticism on causative side is taken to be neuro-physiological. According to Brody
emotionality is thought by Eysenck to be dependent upon activity of quasi independent system called the visceral brain including hippocampus, amygdala and hypothalamus.

Differences in threshold of activity of visceral brain are presumed to be the physiological basis of individual differences in neuroticism/stability dimension. Neurotics are assumed to have low threshold of such activation. Arousal of visceral brain is assumed to lead to arousal of reticular activation system but not the converse.

Eysenck deducted from Hull's theory (1943) that neuroticism may be considered as a general factor in motivation or striving (Hall and Lindzey, 1962) and is autonomic drive (Furneaux, 1961; Eysenck and White, 1964). Lazarus, Deese and Osler (1952) had earlier described this motivational force to possess energizing and directive properties. Leuba (1955), Feldman (1964) and Alderman et al. (1967) hypothesized that "higher the Drive the less will be the increment of stimulation required to reach optimal stimulation and lower the Drive the greater the increment of stimulation necessary to reach optimal level". As suggested by Madan (1967) "how far this motivational force will retain its energizing and directive aspects and not become disorganizing and disruptive one due to emotional accompaniments, will determine the prediction of effects of neuroticism on performance in learning tasks".

**Neuroticism and Problem Solving:**

There is a plethora of theories and experimental studies concerned with the effects of anxiety/neuroticism on performance. The most highly developed theory of the effects of anxiety/neuroticism on learning was put forward by Spence and Spence (1966) and discussed by M.W. Eysenck (1977). Their theory can appropriately be considered in the context of the Yerkes - Dodson Law (Yerkes and Dodson, 1908) which stated that moderate levels of arousal are optimal for performance, and this optimal level of arousal varies inversely with task difficulty. This law was also reviewed by Spence (1956); Broadhurst (1957), Madan (1967), Bourne, Ekstrand and Dominowski (1971) and Kumar (1975) confirming that with tasks of higher difficulty too much of anxiety/neuroticism is disadvantageous. The basic problem with Yerkes - Dodson Law is that it merely describes predicted relationships among arousal, task difficulty and performance without providing any insights into the factors producing these relationships. Spence and Spence (1966) explained these factors on the basis of Hullian notion (Hull, 1943) that there is a multiplicative
relationship between drive and habit strength, an increase in drive produced by anxiety will increase the difference in probability of two responses differing in habit strength. Anxiety would thus cause the stronger of the two competing responses to become still stronger, leading to the prediction that anxiety would increase the efficiency of performance on tasks such as simple conditioning where the correct response has no effective competitor.

The position is rather different with more complex tasks, in which the correct response has to be discriminated from other strongly competing responses. In this case, an increase in anxiety would make the incorrect responses still stronger relative to the correct response, thus leading to a decrement in performance. The evidence is generally supportive to this prediction (M.W. Eysenck, 1977), with the work of Kumar (1975), Revelle and Humphrey (1983) and Gupta and Khan (1987) being a special interest. In these studies it was found that high drive facilitates the performance in simple tasks where correct response tendencies are stronger and hence positive feedback, than the competing response tendencies.

One difficulty with the theoretical approach of this arousal theory is that there are situations in which the conflicting predictions can be made on the basis of this theory. For example, in case of task in which there is a dominant response and a weak competing response, under conditions of low
anxiety only the dominant response exceeds the response threshold, thus guaranteeing perfect performance. Under conditions of high anxiety, on the other hand, the excitatory potential of the weak competing response now exceeds the threshold and thus has some finite probability of being elicited. Therefore, the prediction must be that anxiety will reduce performance on this easy task. And also the high anxiety subjects will out-perform low-anxiety subjects on a difficult task, if the correct response is below the threshold for high anxiety group. Therefore, M.W. Eysenck (1981) concluded that the Spence and Spence (1966) approach only generates unambiguous predictions provided that detailed information is available about the number and relative strengths of all the relevant responses and about the positioning of the response threshold.

For many years, the arousal/drive theory of anxiety/neuroticism was predominant (Duffy, 1962; Spence and Spence, 1966). The greatest inadequacy with the theory was that it assumes that effect of anxiety are centred exclusively on retrieval processes and that anxiety/neuroticism does not affect other aspects of information processing (e.g., attentional and encoding processes etc.). Gerald (1985) also suggested that arousal theory does not explain adequately the observed interactive effect on complex cognitive task performance. Recently, however, there has been a
reinterpretation of anxiety in terms of cognitive attributions and direction of attention (Weine, 1971; Weiner, 1972; Mandler, 1975; Sarason, 1975; Humphrey and Revelle, 1984). In this later interpretation, anxiety is seen as a distractor, i.e., anxious subjects devote cognitive capacity to worrying about the performance and thus have a less capacity to devote to the task. A reconciliation of the drive and attributational theories can be found in the two factor anxiety theories of Morris and Liebert (1970) and Schalling (1978). In these theories some anxiety inductions are seen as affecting primary somatic anxiety (arousal), others as affecting cognitive anxiety (reducing on task effort) and others as affecting both.

Since working memory is typically involved in the processing and temporary 'holding' of information, any anxiety induced reduction in its capacity would inevitably have wide ranging effects on performance of many cognitive tasks. M.W. Eysenck (1977) found that high anxiety reduced working memory's capacity. It is reasonable to assume that 'difficult' or complex tasks make greater demands upon working memory capacity than do easy tasks and the evidence indicates that working memory capacity is reduced under high anxiety (Darke, 1988).

Darke (1988) reviewed some of the researches exhibiting performance decrements of highly anxious subjects on capacity demanding tasks (e.g. Deffenbacher, 1977, 1978; Zatz and Chasin, 1983, 1985) that is, on tasks that require subjects to
consciously manipulate information and concluded that high anxiety subjects have effectively smaller working memory capacity to devote to task resolution. M.W. Eysenck (1983) also suggested that the finding that anxiety reduces working memory capacity may be relevant to the explanation of one of the most reliable effects of anxiety on performance while reviewing the results of some of the researches (Hamilton, Hockey and Rejman, 1977; Mayer, 1977; and Eysenck, 1981) on this basis. These researches suggested that anxiety had little effect on rote problems, but greatly impaired performance on cognitive tasks (e.g., anagram solving, water jar problem etc.) thus strengthening the argument that anxiety reduces the available capacity of working memory.

In view of the evidence implicating cognitive factors in anxiety, several theorists (Wine, 1971; and Morris et al., 1977) have suggested that major reason for the detrimental effects of anxiety on performance is the presence of task-irrelevant cognitive activities or worry associated with high anxiety. Eyseneck (1982) argued that high anxiety subjects engage in significantly more task-irrelevant processing (worry) than their low anxiety counterparts (e.g., Ganzer, 1968; Morris and Liebert, 1970). Paulman and Kennelly (1984) also supported these results. Zorantonello et al. (1984) suggested that anxious subjects display a reduced efficiency in
anagrams solution and rated themselves as having experienced more cognitive interference during the task - irrelevant cognitive activities associated with high anxiety play a major part in producing impaired performance, but it seems to predict that anxiety/neuroticism will always reduce performance, and is unable to predict the facilitatory effects of anxiety on performance.

Earlier, another explanation of the effects of anxiety on performance was proposed by Easterbrook (1959). He argued that high anxiety produces restrictions in the range of cue utilization. The consequence of this progressive reduction in the range of cues used as anxiety or arousal increases, 'will reduce the proportion of irrelevant cues employed, and so improve performance. When all irrelevant cues have been excluded, however, ... further reduction in the number of cues employed can only affect relevant cues, and proficiency will fall'.

Easterbrook's (1959) notion that anxiety increases attentional selectivity can be used to explain Yerkes – Dodson Law (Yerkes and Dodson, 1908). If one assumes that difficult tasks tend to incorporate more components or cues than easy tasks, then the narrowing of attention under high anxiety would have a greater detrimental effect upon the performance of difficult tasks.

Nottelman and Hill (1977) observed that high anxiety children were observed to engage in substantially more off
glancing and Deffenbacher (1978) found that high anxiety subjects actually reported spending far less time than low anxiety subjects attending to task irrelevant information.

Hamilton (1983) on the basis of overwhelming experimental evidence (Spielberger, 1966, 1972; Liebert and Morris, 1967; Wine, 1971; Sarason, 1975) concluded that anxiety may be regarded as a psychogenic stresser which adds an information processing load to the cognitive processing system. High anxiety according to Hamilton (1983) produces data and resource limitations in human information processing capacity (Broadbent, 1971; Kahneman, 1973; Norman and Bobrow, 1975). The high anxious subjects would perform worse than low anxious subjects when task becomes more difficult, i.e., when there is a substantial increase in its information processing demands—confirming thereby Yerkes–Dodson Law (Yerkes and Dodson, 1908). In other words, in the presence of anxiety, arousal will be used by the information processing system to generate associated long term memory data. Their function is to retrieve previously employed response strategies that led to anxiety reduction.

Ferguson (1987) in her study on anagram task concluded that high anxiety leads to decreased information intake and defensive information processing. Ferguson (1983) had found
that anxiety did not facilitate word recognition and even debilitating stimulus recognition (Patton, 1968; Blum and Barbour, 1979).

All these theoretical explanations regarding the effect of neuroticism/anxiety on performance (Easterbrook, 1959; Wine, 1971; Morris et al., 1977; Deffenbacher, 1977, 1978; Hamilton, 1983; Eysenck, 1983; Zatz and Chasin, 1983, 1985; and Darke, 1988) are consistent with Yerkes-Dodson Law (Yerkes and Dodson, 1908), which stated that moderate levels of arousal are optimal for performance, and this optimal level of arousal varies inversely with task difficulty.

Most of the experimental studies, leaving aside few exceptions, confirm Yerkes-Dodson-Law (Yerkes and Dodson, 1908) and the contention of Spence and Spence (1966) that on a comparatively simpler tasks, stable/low anxious subjects are superior in performance than the neurotic/high anxious subjects (Kumar, 1975). Earlier, Romanow (1958) found that high anxious subjects were clearly inferior to subjects of low and moderate anxiety on most complex and difficult problem solving tasks. Fillenbaum and Jackman (1961) reported that subjects with high anxiety performed poorly in problem solving. Dunn (1968) using verbal concept task observed that low anxiety group was superior at all levels of task complexity to high anxiety group, the difference being greatest on the most difficult problem.

Experiments have shown that high anxiety subjects were
poorer in the learning of paired associate tasks than their low anxious counterparts (Mohsin, 1972). Stinke (1973) pointed out that the low anxious subjects performed better than the high anxious subjects on paired associate tasks. Rabindradas and Narayanan (1977) and Paul (1980) also found that low anxious subjects are superior than high anxious subjects on paired associate tasks.

The number of studies on serial verbal learning task also confirm the superiority of low anxious or stable subjects on high anxious subjects (Spielberger and Smith, 1966; Hodges and Spielberger, 1969; Krishna and Verma, 1972; Passi and Singh, 1972; Gakhar and Luthra, 1974; Geen, 1976; Sharma and Wangu, 1976; and Ravinder, 1977).

Nijhawan and Cheema (1971) and Nijhawan (1972) have shown in their studies that high anxious subjects perform less well in maze learning than subjects with low anxiety. Helode and Sawade (1985) found that neuroticism was negatively related to verbal maze learning, i.e., greater the neuroticism the greater the number of trials required for learning the complex verbal maze.

Denney (1966) and Kianoosh (1977) found the detrimental effects of high anxiety in concept formation tasks. Mayer (1977) concluded that anxiety had little effect upon rote problems, but high anxiety subjects were considerably inferior to low anxiety subjects on cognitive problems. Mohan and Kumar (1979) in their
study on performance on intelligence test, having five progressively more difficult stages, found that neurotics perform better on the simpler sets, but as items become more difficult the stables perform significantly better than neurotics.

Deffenbacher and Hazaleus (1985) have reported that high anxious subjects performed more poorly than low anxious subjects on Worderlic Personnel Test. Upadhayay et al. (1985) also found that anxiety affects performance on an attention task adversely.

With respect to anagram problem solving, number of studies have documented significantly inferior performance for high anxiety subjects than their low anxiety counterparts (Sarason, 1972; 1978, 1984; Nottleman and Hill, 1977; Deffenbacher, 1978; Carver et al., 1983; and Sharma and Sud, 1989). Sharma and Gupta (1988) in their study on 9th grade boys and girls found that subjects with high anxiety gave significantly less number of correct responses than their low anxiety counterparts on anagrams problem solving task. Rishi and Kumar (1986) in their study on anagrams, Bhatia squares problem and concept formation task found that stables perform better than neurotics.

Phillips, Martin and Meyers (1972) have shown that high anxious school children approach problem solving tasks in a
rigid, stereotyped manner, which would result in the inter-
ference with adaptation to different problem solving strategies 
in response to the particular demands of the task. Covington 
(1983) also found that the performance of high anxiety subjects 
is poorer than the performance of low anxiety subjects on 
difficult problem solving tasks. Sharma and Bhartiya (1987) 
found that stability is positively related to performance.

Some indirect evidence can also be quoted to show the 
effect of neuroticism/anxiety on performance on various kinds 
of tasks. The main bulk of evidence favours stability as a 
determiner of better academic attainment (Savage, 1962; 
Butcher et al., 1963; Kline, 1966; Child, 1964; Madan, 1967; 
Butcher, 1969; Eysenck and Cookson, 1969; Singh, 1978; Arvind 
and Kundu, 1981; and Trylong, 1988).

In contrast to these studies Verma (1977) concluded that 
there is no significant difference between the low and high 
anxious subjects in the production of complex geometrical 
figures. Westin, Salvesen and Go-estan (1986) also found no 
relationship of problem solving styles of final year medical 
students to their neuroticism scores. Pishkin et al. (1978) 
concluded that high anxious subjects showed fewer errors to 
solution of the concept identification problem than low 
anxious subjects. Deshpande and Kawane (1982) found that the 
moderate anxious group is superior in performance to high and 
low anxious groups.
These contradictory findings may be interpreted in relation to the strong motives of high anxious subjects to avoid failure and criticism. As Dagaur (1988) have stated that anxiety when present in a manageable limits may provide a challenge and a motivating force and it may also act as a general physiological arousal. Some of the non-consistent findings seem to have been produced due to variety of learning and problem solving tasks used in these studies. It may be suggested that each task might be calling up a different experience hence lacking in unanimity (Rishi and Kumar, 1986).

It can be argued somewhat speculatively that most, if not all, of these findings lead to the prediction that anxiety and neuroticism will much more consistently impair performance than observed performance efficiency especially in complex tasks.

**Concept of Fear of Success and Review of Literature:**

Prior to Horner's (1968) work, individual differences in achievement motivation were accounted for by two personality variables - the motive to approach success and the motive to avoid failure (Atkinson and Feather, 1966). The motive to approach success is conceptualized as a stable disposition to strive for success in situations in which standards of excellence are applied. The motive to avoid failure corresponds to anxiety about failing in testing situation. However, most
studies on these motives have been done with male subjects. The data that do exist on female subjects are ambiguous and contradictory. It has been shown that among males (Atkinson and Feather, 1966) achievement related imagery increases under achievement oriented instructions (emphasis on leadership capacity and intelligence) and resultant achievement motivation scores, i.e., the motive to approach success minus the motive to avoid failure are related to various behavioural measures. However, attempts to replicate these results with females have not been successful (Lesser, Kravitz and Packard, 1963; French and Lesser, 1964; Lipinski, 1965; and Alper and Greenberger, 1967). To explain this failure to replicate, Horner (1968) suggested that most women have a motive to avoid success, that is, a disposition to become anxious about achieving success because they expect negative consequences such as social rejection and/or feeling of being unfeminine as a result of succeeding (Horner, 1972).

Horner's (1968) study examined the effects of the motive to avoid success on performance under conditions in which this motive was aroused. In the first session subjects responded to several verbal cues of TAT nature and performed number of tasks. Subjects worked in large mixed sex groups. The motive to avoid success was inferred from stories written in responses to the following verbal cue: "After the first term finals Anne (John) finds herself (himself) at the top of her (his) medical
school class". Females responded to Anne Cue and males to John Cue. Female's fear of success stories were characterized by three major themes: social rejection, concern with one's normality and femininity and denial of bizarre responses. In the second session subjects were randomly assigned to one of three experimental conditions: a non-competitive condition in which subjects worked by themselves; a mixed sex competitive condition; and same sex competitive condition. The results showed that females whose stories showed fear of success performed better in non-competitive than the competitive situation, while females whose stories did not show fear of success performed better in competitive situation. Because of the conflict between success and femininity, females with high fear of success were assumed to be inhibited in their performance in achievement oriented tasks. In fact, Horner suggested that while men become unsexed by failure, women become unsexed by success.

The modern theory of achievement motivation (Raynor, 1969, 1974; Atkinson, 1974; and Revelle and Michaels, 1976) postulates that the resultant tendency to engage in an achievement task ($T_R$) is the algebraic sum of tendency to engage in an achievement task ($T_a$) of tendency to avoid engaging in a task that might result in failure ($T_{af}$) and of other extrinsic motivational tendencies ($T_{ext}$).
Factors such as potential income, social approval and prestige etc. are the components of extrinsic motivation. Horner (1968, 1970, 1974) showed women displaying some evidence of negative consequences like social rejection or worse. This negative extrinsic motivation in the form of social rejection gave rise to the concept of fear of success. This fear of success among women may be related to an important social change in this age of reappraisal and redefinition of the role of male and female (Mead, 1949).

The motive to avoid success or success anxiety was conceptualized as a stable latent disposition, acquired early in life probably as a part of sex-role socialization. According to Brown (1978) fear of success is not a motive but may be regarded as a measure of achievement related conflict and is positively related to fear of failure. Gravenkemper and Paludi (1983) suggested that fear of success is situationally determined. The interference of fear of success with performance was thought to occur in situations in which this motive was aroused, that is when achievement of success required "masculine" qualities such as aggressiveness, competitiveness and ambition. According to the expectancy value theory of motivation, within which the concept of fear of success is embedded, the amount of interference with performance depends upon the strength of

\[ T_r = T_s + T_{af} + T_{ext} \]
motive to avoid success, the probability of success and the negative incentive value of success. It should be emphasized, however, that the motive to avoid success does not imply the wish to fail. While fear of success refers to the negative value of success and the inhibition of achievement related behaviour the wish to fail indicates the positive value of failure. Horner suggested that a high level of fear of success characterizes high achievement motivated women who are more likely to achieve and, therefore, to experience the negative consequences of success.

Homer's description of the construct of fear of success links it to the cultural norms of sex-role appropriate conduct. Condry and Dyer (1974) and Shapiro (1979) suggested that fear of success may be conceptualized as a fear of deviance from sex-role standards. Such fear should be more common among women with traditional sex-role ideology. It should be noted that the equation between success and masculinity and contract between success and femininity are socially determined. Thus any sex-differences on the motive to avoid success are culture bound and subject to change.

Women with high fear of success were thought to be inhibited in achievement related situations and/or defensive and anxious about success and thus fear of success is expected to be related to behavioural measures. Zuckerman et al. (1980) argued that effects of task outcomes should be moderated by
level of fear of success. First, for high fear of success persons, success has aversive implications and therefore should not increase the attractiveness of the task. Second, since high fear of success persons do not attribute success outcomes to themselves (Zuckerman and Allison, 1976), their sense of competence, and consequently their intrinsic motivation should not increase under a success condition. The person with high fear of success maintains a self defeating strategy.

Horner (1968, 1970, 1974) had predicted that competitive situations would impair the intellectual performance of women who fear success. In her initial study, Horner (1968, 1970) found that college women with fear of success performed better on a verbal skills task when working alone than in mixed-sex competition and women who did not fear success showed an opposite pattern. Fear of success is conceived as a latent motive that hinders performance only when aroused by some aspect of the situation (Horner, 1970; Bremer and Wittig, 1980; Gravenkemper and Paludi, 1983). Horner (1970) singled out competition as most likely to arouse fear of success. According to Horner (1970), negative outcomes might be further increased if the competitor were an "important man" such as a boy friend. In a team competition where a woman works with a partner to outperform another team and where her own individual score will not be made public, in such cases negative consequences of success should be minimized, hence leading to low fear of success. It
was predicted that fear of success and sex-role traditionalism would affect women's performance in similar ways. But, Peplau's (1976) study failed to support Horner's prediction. She found that sex-role attitudes had greater impact than fear of success on women's achievement, both in laboratory and in daily life.

Jacqueline (1982) found that fear of success in women was clearly associated with striving to develop career interests compatible with their strong commitment to home and husband, while in similarly motivated males it was a product of compensatory motivational dynamics, thus subjects were motivated to avoid what they perceived sex-role inappropriate behaviour while confirming to socially accepted values internalized in early years. Bremer and Wittig (1980) expressed deviance from appropriate roles and role overload as a support for situational interpretation of fear of success. Whereas, Greenfeld (1978) found no difference in fear of success of women in male dominated and female dominated jobs.

"The woman who wishes to participate in sports and remain womanly" faces great stress. By choosing sport she usually places herself outside the social mainstream.... Father comments 'she is our little tomboy'. These comments carry the message of expected cultural behaviour. When the girl has the message clearly she loses 'games to a boy' on purpose she knows that she may win the game and lose the boy' Marie Hart (1971).

In achievement situations, women consistently estimate their performance as lower than males (Crandall, 1969; Berg and Hyde, 1976) and under-estimate their actual performance
(Crandall, 1969). Lenney (1977) concludes that if females believe, or are led to believe that a task is gender appropriate for them, they do not give lower estimates of performance than men. Rohrbaugh (1979) also concluded that when a female chooses to participate in a vigorous competitive activity, she may be risking a great deal. A female who has a courage of her convictions and the security of her feminine concept is still taking a risk when she wins from her male opponent, whether it may be in sports, business or a profession dominated by the male.

However, the fact that both males and females manifested fear of success implies that fear of success is not a sex-linked concept. In accordance with the view that fear of success is not specific to females, Sadd et al. (1978) reported that neither the fear of success scale nor any other measure of fear of success yielded higher scores for females than for males. Robbins (1983) on his sample of 148 males and 70 females found that nine per cent of each sex was judged to fear of success. Sund (1978) found that motive to avoid success was approximately equal between the sexes. These studies were unable to replicate Horner's result because in these studies it was not specified whether competition was involved or not, which is the essential condition for arousal of motive to avoid success. Horner's (1972) study revealed that 65.6% of females and only 9.1% male subjects wrote fear of
success stories. Zuckerman and Allison (1976) showed that females scored consistently higher on fear of success scale than did males, in line with Horner's suggestion that the motive to avoid success is more prevalent among females than among males. Number of other researches have also shown that there is higher frequency of fear of success in females than in males (Feather & Simon, 1973; Robbins & Robbins, 1973; Feather & Raphelson, 1974; and Moore, 1974).

While fear of success has usually been treated as a generalized inhibitor of achievement, this supposedly generalized fact may actually be somewhat limited (Griffore, 1977). For the motive to operate, it probably must be aroused by high expectancy of success, which might result from the subject's knowledge of the task difficulty. If subjects are informed about the task difficulty level, they may develop subjective probability of their ability to perform that task correctly. Therefore, high fear of success should relate to lower scores on low or perhaps medium difficulty tasks, on which the probabilities of success would be perceived to be high or moderate. If subjects believe that they are about to succeed, but fear success, their performance should be hampered, whereas differences between low and high fear of success subjects in their performance on high difficulty task is not clear (Griffore, 1977). Patty (1974) showed that high fear of success females performed better following directions that the
tasks were easy while low fear of success females had higher performance when tasks were described as difficult.

Zuckerman, Larrance, Porac and Blank (1980) suggested that in an achievement oriented world a person with high fear of success is less likely to strive for success and less likely to benefit from the achievement of success. However, they also suggested that their results were limited to the experimental procedures that were used and the evidence concerning the utility of fear of success in predicting achievement related behaviour in real life is still needed. Zuckerman and Allison (1976) found that females had higher fear of success scores than males and that subjects - both males and females with high fear of success performed worse on an anagram task and attributed success more to external factors and failure more to internal factors than did subjects with low fear of success scores. These results support Horner's (1972) suggestion that the motive to avoid success may interfere with achievement related performances and give rise to defensive responses (e.g. denial of responsibility) to success.

Alagna (1982) in his study on males and females under competition on anagrams and remote associates, concluded that women performed better when competition received peer approval than disapproval. He suggests that women are socialized to be more concerned than men with relationships and with being considerate and caring about the opinions of others.
Sherman (1983) in her study of fear of success in girls on mathematics concept found that girls were more oriented towards affective goals rather than achievement and many admitted to playing dumb in response to heterosexual social situation. These results illustrate developing strains between sex-roles and achievement.

However, recent reviews (Tresmer, 1976a; Zuckerman and Wheeler, 1975) of Horner's study suggested that her data did not provide clear support for her fear of success model. Furthermore, the fear of success research that followed Horner's study yielded disappointing results (Tresmer, 1976b, 1977; Zuckerman and Wheeler, 1975). No reliable sex-differences were found and the concept was not consistently related to any behavioural measure. Zuckerman and Wheeler (1975) attributed this state of affairs to inadequacy of Horner's (1968) original projective measures specially, the "successful medical student" cue which may tap attitudes towards medical school rather than a general personality trait. Another serious problem of Horner's measure is its uncertain reliability (Condry and Dyer, 1976). Zuckerman and Allison (1976) constructed a fear of success scale, which is a subjective measure based upon 27 items with co-efficient alpha of .69 among males and .73 among females. The significant correlation was found between Zuckerman and Allison's fear of success scale and Horner's projective measure. Negative
correlation was found between fear of success scale and Mehrabian's (1968) measures of achievement motivation indicating that person with high fear of success will have low achievement motivation.

The contradictory results in the field of fear of success may also be due to the fact that 'success' for men and women does not have similar meaning. Greenfeld, Greiner and Wood (1980) suggested that fear of success may also depend upon what does it mean for women to be successful. Webster's dictionary describes success as a favourable termination of a venture, especially the attainment of wealth, favour or eminence but most scholars have concluded that this definition applies only to men and not to women (Lozoff, 1974). Women's success means to fulfil affiliation needs (Clark and Esposito, 1966). Mednick (1979) also concluded that attempts to study women had produced so inconsistent results because men need success and women need approval.

Peplau (1976) suggested that researches concerned with women's achievement might do well to emphasize sex-role attitudes.

The body of research on fear of success has atleast succeeded in demonstrating the power of cultural role prescriptions as determiners of achievement behaviour. These cultural role expectations are bound to change with the changing society
and with greater participation of women in economic mainstream, and with this the concept of fear of success is also expected to change.

The measurement of fear of success is an important factor since it is an important segment of personality, especially among women, which has an important bearing on achievement in competitive situations, but unfortunately the results through Horner's projective measure has not been consistent. Whereas, Zuckerman and Allison's (1976) scale is having higher reliability and validity and at the same time is having positive relationship with Horner's projective measure of fear of success, so such kind of tools should be used to obtain fear of success scores. In the present investigation Zuckerman and Allison's (1976) fear of success scale is being used, because it is easy to administer and at the same time it is psychometrically sound to see the effect of fear of success on performance of women.

On the basis of the suggestions of Spielberger (1966) that higher state anxiety and lower performance will be found in women high in motive to avoid success, it is expected that women with high neuroticism scores, i.e., high trait anxiety coupled with high fear of success will be lower in their performance than women with low neuroticism scores and low fear of success.
**Concept of Motivation:**

The term motivation, as defined by psychologists, refers to the causes for the initiation, continuation (or cessation), and direction of behaviour. It is assumed that every behaviour is motivated and begins, continues and is directed towards some goal. All people are always motivated to some extent. The intensity and direction of the motivation may vary. The study of motivation is, therefore, the examination of factors in a person - environment interaction that allow an understanding of why certain behaviours are performed over others. Since motivation is an attempt to explain why certain behaviours occur and become predominant, the scope of theorizing can be as broad as the differences among theoreticians in psychology. Common to most theories of motivation are a number of premises, namely that humans begin life with a plastic armoratorium and that this can be shaped by events both intrinsic and extrinsic to the individual. Disagreement tends to centre on the relative importance of each of the influencing factors (such as pre-genital dispositions), intrinsic factors (such as expectations, hopes and challenges), and extrinsic reinforcing or punitive events and their interactions.

The study of motivation has traditionally had to do with analysis of various factors which incite and direct an individual's action. Jones (1955) defined problem of motivation as
"how behaviour gets started, is energized, is sustained, is directed, is stopped, and what kind of subjective reaction is present in the organism while all this is going on".

Freud (1949) argued that motivation could be reduced to biological drives (or instincts) and that individual's actions are often determined by influences of which one is at the time, completely unaware. Freud's conception of instinct or need, as a persistent internal stimulus gave added impetus to the arguments of McDougall (1908) who also called attention to the goal striving character of behaviour. Lewin (1938) gave a mathematical (conceptual) representation of human motivation and conflict. He explicitly identified the problem of motivation in a new famous programmatic equation: \( B = f(P,E) \). The equation says that behaviour (B) must always be considered the result of interaction between the person (P) and that person's immediate psychological environment (E).

Hull (1930) departed from the traditional answer given to the motivational question within S-R psychology, which had long been simply that response is motivated (i.e. caused) by the stimulus (or situation). Instead he gave the widely known principle of motivation: \( S^E_R = D_x S^H_R \). It states that the strength of the excitatory tendency to respond is a certain way (\( S^E_R \)) depends upon the magnitude of drive (D), conceived as a non-specific excitement of behaviour, as well as on the
strength of habit \( (S-R^H) \) of responding that way in this stimulus situation, (i.e., the strength of \( S-R \) connection). According to this principle, the various biological needs (hunger, thirst, sex) of the organism are all represented as sources of general drive, and the habit of responding in a certain way depended on previously rewarded training. This motivational principle, Drive \( X \) Habit, to account for the competing response tendencies was later adapted to accommodate emotional reactions such as fear or frustration and anticipation of reward as additional source of drive (Brown, 1961). Sometimes referred to as a "mechanistic view" of motivation (Weiner, 1972), it asserts that the variables which intervene between the observable stimulus situation and the observable response of the subject are, essentially, the overall level of drive (attributed to the variety of sources at the time) which intensifies any and all response tendencies elicited by a particular stimulus situation, and the strength of habit for each competing response.

According to the cognitive view of motivation (Weiner, 1972) the determining role of expectations of the consequences of action is the main point of emphasis and according to Edwards (1954) people act to maximize their subjectively expected ability.

Probably the best developed and most clearly enunciated reactive intrinsic motivation is that of Berlyne (1963).
Berlyne (1963) postulated a motivation that drives individual to react to environments moderately high in uncertainty with approach and exploratory behaviour. He called this drive an exploratory drive and the state curiosity. Thus he argued that curiosity is a state of tension induced by an environment high in uncertainty and response conflict that leads to many possible forms of exploration. Environmental factors that induce curiosity, were those high in collative variability—such variables as incongruity, novelty, complexity, difficulty and contradiction. The affect associated with the curious state is held to be mixed, for some degree of anxiety is considered to be present in the excitement. The approach and avoidance tendencies interact to produce 'Wundt Curve' indicating that moderate discrepancies in the environment lead to approach and exploration, but extreme discrepancies lead to withdrawal and avoidance (Hunt 1971; and Day 1981).

One of the most important motivations in an educational milieu is anxiety. Like curiosity it tends to be extrinsic but it can viewed both as task intrinsic and person intrinsic. In the first instance (Task intrinsic) it arises when the external stimuli become overwhelming. Some psychologists (Day and Berlyne 1971) prefer to label this situation fear rather than anxiety, for the source of emotion is fairly clear. Anxiety as a person intrinsic motivation is frequently viewed as ego threatening. It is felt by many psychologists (Spielberger et al., 1981) to reflect a condition where in a person perceives
a threat to his or her ego rather than a physical danger. This reflects a notion that people can punish themselves for failure to prepare adequately as well as reward themselves for achievement. Such anxiety can be persuasive and can affect an individual's behaviour across many facets of life.

According to White (1959) motivation, to become competent or effective in dealing with environment, is a biological drive that leads to such behaviours as grasping and exploring, crawling and walking, attention and perception, language and thinking and manipulating and changing the environment. White (1959) argued that competence motivation, although genetically disposed, grows with learning and achievement. Competence is not dichotomous trait, but one along which people vary. Competence motivation acts to drive an individual to take the initiative and act on the environment. People can be more competent in some facets of their lives than in other facets, and more competent in some situations than in others. If the person's interaction with the environment is rewarded he will become more competent and vice versa.

**Achievement Motivation:**

While curiosity can be considered an immediate autotelic motivation because it is immediately reinforcing and the reinforcement lies in the interaction between person and task,
achievement motivation can be considered an extended person-intrinsic motivation because its reinforcement is delayed and arises from an interaction within the person. This motivation is:

a pattern of planning, of actions, and of feelings connected with striving to achieve some internalized standard of excellence, as contrasted for example, with power or friendship (Vidler, 1977, p.67).

Achievement motivation it also called need for achievement (n-ach.). Important is the attitude to achieve rather than the achievements themselves. The need to achieve appears to be a need that becomes part of an individual's personality and affects that person's behaviour in every facet of life including education. Individuals with high need for achievement are people interested in excellence for its own sake and they choose challenging goals (McClelland, 1958) and prefer delayed, larger rewards to immediate smaller rewards.

The theory of achievement motivation developed by Atkinson (1957) has undergone major revision (Atkinson, 1974; Raynor, 1969, 1974). The theory of achievement postulates that the resultant tendency ($T_r$) to engage in an achievement task is the algebraic sum of the tendency to engage in an achievement task, of the tendency to avoid engaging in a task that might result in failure, and of other extrinsic motivational tendencies. Revelle and Michaels (1976) assumed that individual

$$T_r = T_s + T_{af} + T_{ext}$$

engages in any achievement task because of various extrinsic
sources of motivation other than achievement oriented ones.

Extrinsic motivation is there when the source of reward or punishment lies external to individual and in the control of other people who determine the appropriateness of the behaviour of the individual. The nature of the reward or punishment may vary greatly, including verbal statements of praise or contempt, physical rewards of punishments or signs of approval or disapproval. All of these motivate because they serve to initiate or terminate some behaviour, change its frequency of occurrence and hopefully, direct it towards some satisfying goal.

Motivational control theory given by Hyland (1986) provides a microscopic description of those same processes that occur in conventional theories of motivation. According to motivational control theory (Hyland, 1988) a reference criterion is compared with perceptual input in a comparator, and the difference between the two generates a signal labelled detected error. The detected error elicits behaviour that reduces the discrepancy between the reference criterion and perceptual input. The reference criterion has the same properties as those denoted by the terms purpose and goal (Wiener, 1948; Ashby, 1952; Boden, 1972; Powers, 1973, 1978; Carver & Scheier, 1981, 1982). The purpose and goal can be used in several senses and consequently there are different kinds of reference criteria. These reference criteria could
be an end state (Lewin, 1935, 1938), or rate of progress toward an end state (Carver & Scheier, 1987), or a sense of doing or being e.g., Murry's (1938) concept of need and McClelland's (1951) concept of motive; or the reference criterion could be a particular emotion (Kirsch, 1986). The perceptual input is a selected aspect from the person's perceived environment and can take different forms corresponding to four different kinds of reference criteria—it can be some aspect of situation surrounding the person, or can derive from person's own actions or can derive from person's internal environment. Detected error (directly or indirectly) selects and energizes a particular behaviour that tends to eliminate the difference between the reference criterion and perceptual input.

To explain the intensity of behaviour, Hyland (1987) gave the concept of error sensitivity. Error sensitivity is one way of representing the importance or salience of goals (e.g., Carver and Scheier, 1982). A person's goal is salient to the extent that the non-attainment of that goal is salient. The more salient a given error between reference criterion and perceptual input, the greater the intensity of behaviour generated to achieve the goal. The extent to which error sensitivity is aroused by situational and other factors depends on personality characteristics. Consistent with Murray's (1938) suggestion that personality can be understood in terms
of variation in the arousability of needs, a personality contribution to error sensitivity is assumed. This personality contribution may reflect prior learning (as well as genetic contribution). Thus, there is learning contribution to error sensitivity and other factors affecting error sensitivity interact with this personality contribution.

Goal - relevant aspects of the situation (e.g. presence of goal) can arouse error sensitivity. The greater the value of the goal, the greater is the error sensitivity. Instructions or other forms of attentional focus can arouse error sensitivity. For example, the instruction that this task measures intelligence and ability might increase error sensitivity on a control loop whose reference criterion is seeking intelligence and ability which, in turn, will increase the error sensitivity of subordinate goals also. For example, if error sensitivity of seeking intelligence and ability control loop is increased through appropriate attentional instructions, then this will tend to increase error sensitivity for control loops to perform on anagram tasks, if successful competition of anagram task is perceived as a way of demonstrating intelligence and ability. Motivational control in consistence with Atkinson and Birch's (1970) theory of dynamics of action and Hull's (1943) theory of reactive inhibition states that some environmental events increase error sensitivity whereas others decrease it.
Induced Motivation or Drive and Performance:

Experimental evidence indicates that drive or motivation is a significant factor in human learning. Cannon's (1918) definition of drive in terms of stimulation has led to the recognition of the importance of internal stimuli in determination of behaviour. According to Mohan (1972), motivation may be understood from two stand points: Firstly, the externally induced drive or motivation such as through verbal comments, remarks or gestures; and secondly, the internal drive in Hullian sense would be almost like endowed ability.

Maehr (1978) has purposed a situational - contextual model of achievement motivation. He has identified three basic determinants of achievement motivation, namely social expectation, task characteristics and self. Maehr (1984) has proposed that different groups or individuals may not necessarily be more or less motivated to achieve. Rather they may be motivated towards different goals and prefer different means to attain those goals. Therefore, induced motivation will produce different effects upon people with different goals.

Agnihotri and Misra (1986) reviewed the study conducted by Maehr and Nicholls (1980) who have also abstracted three forms of achievement related motivation, namely, ability oriented motivation, task oriented motivation and social approval oriented motivation. The ability oriented motivation emphasizes that the goal of the behaviour is to maximize the subjective probability
of attributing his ability to oneself. The task oriented motivation has the primary goal of producing an adequate product for its own sake rather than to demonstrate ability. The social approval oriented motivation has its goal as maintaining commitment rather than ability. It is this social approval oriented motivation which can arouse fear of success.

All these motivation states can be controlled through various techniques, i.e., reinforcements, punishment, reward, knowledge of results and ego-oriented instructions. In most experimental work, instructions are phrased to establish an intention to perform well. Drive in terms of verbal instructions, according to Brown (1961) "Whether administered before, during or after a bit of behaviour has been exhibited, are stimuli, which like electric shock and noise, may have motivational consequences". Thus differential instructions, with regard to task, are expected to elicit different drive levels in the subjects and hence different performance. It has been postulated that arousal and performance are related by inverted function (Yerkes and Dodson, 1908) and that individuals will seek to maintain an optimal arousal level. On this basis, Wayne (1988) postulated that other things being equal, the performance of low arousal subjects can be enhanced by increasing their arousal levels through application of appropriate motivation in the form of instructions or monetary rewards.
In the present investigation induced drive was manipulated instructionally in the form of ego-oriented instructions. The term ego involvement is used to refer to circumstances in which attitudes relative to the person himself and his possessions—the people, groups, values, and institutions with which he is involved are engaged (Sherif and Cantril, 1947; Sherif and Sherif, 1956). A variety of experimental operations have been used in the studies of ego involvement (Iverson and Reuder, 1956). But they tend to focus on threats to the individual's identity, status or importance. Iverson and Reuder (1956) suggest that in most of the experiments situation is devised containing the possibility of interference with or deprivation of the need to enhance or to maintain one's feeling of self-esteem. The chief operations employed in this regard include: (i) involvement set up by instructions, i.e., telling the subject that she or he is taking an important intelligence or personality test; (ii) providing materials which involve him in some way, or by labelling the subjects' product abnormal or as failures or by using materials consonant or dissonant with his attitudes; and (iii) classification of subjects as anxious or having high or low self-esteem and then subjecting them to procedures of first two years. Telling the subjects that he is taking an important intelligence or personality test can work only in a culture which prizes intellectual capacity and certain traits of personality-
therefore will not help women with high fear of success who are afraid to succeed because they know that their intellectual capability will not be accepted by the society.

Connell (1988) argued that if gains in performance depend upon the attitude formed towards the task, this attitude was defined as an emotional response to stimulus or effectance, a need which impels the organism towards competence and is satisfied by a feeling of efficacy. Connell (1988) considered this need as intrinsic to dealing effectively with the environment.

Self perceptions of competence promote subsequent interest in an activity (White, 1959; Lepper, 1981; Deci and Ryan, 1985; and Bandura, 1986). Perceptions of competence can develop from a direct experience with an activity (Bandura, 1982; Sansone, 1986) but people often rely on social input to gain an adequate sense of their competence (Nicholls, 1984). Harackiewicz et al. (1987) suggested that it should be possible to affect intrinsic motivation with external communications and incentives which make people feel competent e.g., performance feedback or the feedback about the quality of work completed. The effect of the evaluative contingencies also depends on the individual's initial attitudes about task competence (Harackiewicz and Manderlink, 1984; Harackewicz et al., 1984). Individuals who value competence begin an activity more concerned about doing well. According to this formulation ego-involving instructions should only enhance interest when people
care about doing well. Achievement oriented individuals show strong interest in diagnostic ability assessment (Trope, 1975) and become involved in activities where performance is evaluated (Harackiewicz and Manderlink, 1984). Those who are not oriented toward achievement avoid ability assessment when possible and are less likely to value competence (Heckhausen, 1968). This may happen in the case of high fear of success subjects who may avoid ability assessment and also in high anxiety individuals who may become anxious about task outcomes rather than concentrate on task itself, after getting instructions that the task is a measure of their ability.

Nicholls (1984) defined ego-involving situations as those where one's goal is to demonstrate high competence relative to others and where mastery of the task is a means to this end, whereas, task involving situations are those in which a person's concern is to learn to do the activity and where mastery is an end in itself.

Alper (1948) had earlier found that ego-involvement was related to memory gains over a retention interval. Feldman (1964) showed that high drive group was superior to low drive group in the study of psychomotor performance.

Sandelands et al. (1988) found that subjects in high involvement condition, produced by instructing the subjects
that the task is an indicator of ability, attempted more anagrams than subjects in low involvement condition, produced by giving only task instructions. Lou (1988) found that verbal persuasion and goal setting increased self concept and achievement.

A number of experiments show the positive effect of externally induced drive. Induced drive in the form of ego-involving instructions may have motivational consequences and thus produce increments in performance. As Brown (1961) suggested that verbal instructions are stimuli which like electric shock and noise may have motivational consequences. Sherif and Sherif (1967) suggested that 'ego attitudes' and their involvement give a pattern of personal consistency to the individual's behaviour. When the stability is disturbed 'ego tension' arises. When these 'ego-tensions' are caused by failure or threat of failure, anxiety germinates. This anxiety which is the anticipation of painful consequences, serves as a motivating state and energizes the individual to restore consistency and balance.

Alper (1946) compared the learning and retention of nonsense syllables and digits when the learning task was presented as measuring intellectual ability (ego involvement) and when it was not. The ego involved subjects showed no loss of retention in over twenty four hours, whereas, the control subjects did. Mohan, J. (1966) demonstrated a favourable evidence of experimentally controlled motivation through different instructions. He found that high motivation group was
better than low motivation group on pursuit rotor task in an experiment on reminiscence.

In the area of problem solving also the induced motivation has been found to have beneficial effect upon performance. Lutes (1926) in his study on children found that motivation was important factor for improving the arithmetic problem solving skills. Leibowitz (1966) in a study on problem solving has shown a positive effect on motivation upon performance. Kumar (1975) in his study on match stick problem, problem squares, farmer's problem, prisoner's problem and Hanfman Kassanin Vigotsky sorting test found that induced motivation presented in the form of ego involving instructions facilitates performance on all the problems.

Ruth (1988) suggested that goal choice is regulated by self referent as well as social cognitions (e.g., perceptions of competence, perceived adult expectations of behaviour), emotions that energize behaviour (e.g., interest) and that control behaviour (guilt, pride). Hitt (1988) concluded that test wiseness instructions did improve the mathematics standardized scores of subjects.

French and Lesser (1965) had found that females would respond to arousal cues with heightened achievement motivation scores and high motivated performance relationship, when the cues were related to a goal that was achievement oriented to them but
not otherwise. Angelini (1966) found that Brazilian college women showed increase in n-ach. Under achievement instructions, Kumar (1983) found that ego oriented instructions brought the performance of women at par with men.

Edward (1988) in his study on middle school children found that induced motivation (presented in the form of enhanced versions of science experiments), found that induced motivation helped where help was needed, i.e., in less engaging materials and among females who were less confident. Sandelands et al. (1988) found that subjects in high involvement condition, produced by instructing the subjects that the task is an indicator of ability, attempted more anagrams than subjects in low involvement condition produced by giving only task instructions.

In contrast to these studies the motivational impact of task involvement has been investigated in its own right. Ryan et al. (1983) suggests that ego involvement generally leads people to adopt an internally controlling style, which undermines self determination. Consistent with this reasoning several studies have demonstrated that task involving situations generally lead to higher levels of intrinsic motivation than do ego involving ones (Ryan, 1982; Ryan et al., 1983; Plant and Ryan, 1985). Harackiewicz et al. (1984) found that subjects who were told that activity would be evaluated displayed less subsequent intrinsic motivation than did
subjects who were not told this previously. Maehr and Stalling (1972) and Benware and Deci (1984) reported that evaluative test impaired college students' conceptual learning.

The impairment in the performance of subjects when they are told that the task they are about to perform is a test of their ability and when they are motivated to complete the task whenever they stuck anywhere, may be due to the fact that drive may evoke stress which leads subjects to focus their attention on task irrelevant information (Sarason, 1972, 1975) hence causing poorer performance. This stress may be magnified when coupled with certain personality traits (Kumar, 1975). Deffenbacher (1978) also found that ego involvement coupled with high anxiety leads to evaluative stress eliciting interfering anxiety in the form of attention to worry some thoughts and set up elements of task irrelevance.

Ego involving instructions may also have debilitating effect upon the performance of individuals who rate personal success in a given domain as low in importance as may happen in the case of subjects with high fear of success.

The deduction on the basis of above review may be permitted that ego involving instructions when coupled with high neuroticism/anxiety and along with high fear of success would be perceived as stress. Whereas, ego involving instructions when administered to low anxiety, low fear of success group it would be perceived as motivating. Hence, the
instructions provided to these two groups may subsequently produce debilitating or facilitative effect respectively and, therefore, the ego involving instruction may produce differential results.