INTRODUCTION
CHAPTER I

INTRODUCTION

There are individual differences in styles of perceiving, remembering, thinking and judging. These individual variations, if not directly a part of the personality, are intimately associated with the non-cognitive dimensions of personality. Since these dimensions are usually concerned with the way an individual construes knowledge about him or himself and the world, they are called cognitive styles. Numerous approaches to the study of cognitive styles have been made. The important cognitive styles are sharpeners and levelers, narrow and extensive scanners, psychological differentiation, tolerance/intolerance for ambiguity, cognitive consistency, locus of control.

Coop and Sigel (1971) used the term cognitive style to denote consistencies in individual modes of functioning in a variety of behavioural situations. Witkin et al. (1971) defined cognitive style as "the characteristic, self-consistent modes of functioning which individuals show in their perceptual and intellectual activities". Earlier, Witkin et al. (1962) had described at length the cognitive style known as psychological differentiation. The vast body
of empirical work done by Witkin and his associates (1962/1974) is interpreted in terms of the concept of differentiation. The general concept of differentiation refers to a process of change in a system toward greater specialization. However, they first conceived of this concept while interpreting the self-consistent individual differences observed in the mode of orientation towards upright and also in terms of the ease and difficulty in separating an item from an organized field, both in the field of perception and cognition (Witkin, 1949, 1950 and 1952). The more differentiated subjects were referred to as field-independent and the others as field dependent. As these tendencies denote a stable and self-consistent way of reaching towards a goal, a form of process variables, they conform more with the concept of 'style' rather than the concept of 'ability'. Thus, the tendency to rely primarily on internal referents in a self-consistent way has been designated as a 'Field-Independent' Cognitive Style; and the tendency to give greater credit to external referents, a 'Field Dependent' Cognitive Style. Recently, Witkin (1976) observed that "the labels field-independent and field-dependent represent tendencies, varying in degrees of strength to rely primarily on internal or external referents. Certainly we are not dealing with two distinct categories of people." (p. 16). A field-dependent cognitive style is defined by a global mode of perception so that the organization of the field as
a whole dominates perception of its parts. In contrast, a field independent cognitive style is characterized by a more analytic approach to the stimulus field, which is reflected in a greater ease in overcoming an embedded context (Within et al., 1974, 1979).

In 1962, Within provided the first theoretical model of differentiation. Differentiation was considered a higher order individual differences construct, with four lower order constructs radiating from it. These were: articulated cognitive functioning, articulated body concept, sense of separate identity, structured controls and specialized defenses. A good deal of evidence was available by 1962 showing that the measures of these lower order constructs were interrelated. However, as Within et al. (1962, p. 389) had anticipated, continued research provided new kinds of evidence that lead to elaborations and refinements in the development of the theory itself.

Within (1979) modified the earlier model and presented a new model. This new model is pyramidal in structure with the highest order construct (psychological differentiation) at the top, and the most specific constructs at the base. The most obvious feature of the model is its separation, at one level down from differentiation into three sectors: segregation of psychological functions, segregation of neurophysiological functions and autonomy of independence of the perceptual and social fields or self-nonsel segmentation.
The last category refers to the separation of the self from its environment or the field, leading to the use of the terms field dependence and field independence. Another approach to field dependence independence is called 'perceptual skill approach', which considers the RFT, EFT and Koh's Block Tests as based on the Gestalt laws of perception. The familiarity with these reflects the individual differences on them. Weber (1966, 1967) has proposed a sensotype theory which suggests that different cultures use different sense modalities in processing incoming information.

A variety of instruments are used to measure field dependence independence. Included in these are: Rod and Frame Test (RFT), Tilting Room Tilting Chair Test or Body Adjustment Test (BAT), Embedded Figures Test (EFT), Rotating Room Test (ART) and Koh's Block Designs. All these instruments have been used interchangeably by different researchers. Modified versions of the RFT like Portable Rod and Frame Test (PRFT) and of the EFT (Children Embedded Figures Test) and the GEFT (Group Embedded Figures Tests) are also in the field. In India, Sinha (1978) adapted the EFT to Indian setting by adding stories to each figure of the test. Thereby, he has developed Story-Pictorial Embedded Figures Test (SPEFT). Since all these tools measure field dependence-independence, a considerably high correlation is expected among them. Correlations ranging from 0.30 to 0.65
have been reported among the RFT, RFT and BAT (Witkin et al.,
Nevill, 1974; Goldstein and Backman, 1978). The validity of
Witkin's PD-I construct rests on the correlation of responses
across a number of different assessment methods (Witkin
et al., 1962). Later, Arbuthnot (1972) reviewed 40 studies
in which more than one measure of field dependence was used.
He concluded that the Koh's Block Design (KBD) and Draw-A-
Person Test (DAPT) need not be used as substitutes for the
RFT and EFT in the measurement of field dependence. He
recommended the use of the latter two along with other
important measures. Earlier, Wober (1967) had pointed out
that the RFT and EFT measure different aspects of personality
in different cultures. He found no significant correlations
between them. Recently, the use of multiple measures has
been suggested to designate field dependents and field
independents to avoid any misinterpretation.

A moderate, positive relationship is also reported
between measure of PD-I and intelligence (Witkin et al.,
1962; Witkin et al., 1971; Satterly, 1976; Rulfs, 1978;
Guercio, 1980; Swyter, 1982). This relationship is due
primarily to the high correlations between the perceptual
tasks and those parts of the IQ test termed as 'analytical
index' (Dyk and Witkin, 1965). This 'analytical index'
refers specifically to three subtests of the Wechsler IQ
series: Block Design, Picture Completion and Object Assembly.
There are still some unanswered questions as to whether the tests of field dependence are measuring unique cognitive factors or are simply reflective of general intelligence. Within et al. (1962) had argued that field-independent individuals are not generally more intelligent but rather better endowed in a particular component of intelligence.

Another important cognitive style is 'locus of control'. Simply stated, Internal-External locus of control refers to degree to which an individual perceives that the events that happen to him or her are dependent on his or her own behaviour or are the result of fate, luck, chance or powers beyond one's personal control and understanding. Internally oriented people show more freedom of movement. Since freedom of movement depends on the breadth of categories in the person's expectancy repertoire, it qualifies as a cognitive style construct. If a student fails in an examination, he tends to blame himself if he is more internal and blames external agents or bad luck if he is more external. Externals are more subject to anxiety and depression (Naditch, Gargon and Michael, 1975), while internals are more likely to use denial (Lefcourt, Hogg and Sordoni, 1975; Phares, 1976). In general, which style is more appropriate depends upon the goal to which the behaviour is directed (Rotter, 1975). Earlier Phares (1951) demonstrated that an individual's perception of locus
of control was related to expectancies about success or failure in judgment task. He found that individuals predicted their potential success on a task, according to whether or not they perceived task results as dependent on their performance or as being capricious and unpredictable because results were due to luck or chance. When individuals believe their performance to affect results, they make appropriate and realistic judgements which follow their past performance. In chance or luck situations, individuals make judgements unrelated to and independent of their performance.

The social learning theorist, concerned with cognitive and internal control variable, is Julian Rotter (1954). The concepts Rotter uses to describe the dynamics of behaviour are: behaviour potential, situation, expectancy, reinforcement value, need potential, and freedom of movement (Rotter, Chance and Phares, 1972). Essentially, Rotter is concerned with action. Behaviour potential is a joint function of expectancy and reinforcement value and is also affected by the situation. Reinforcement value and situation are environmental variables. Expectancy is a cognitive variable. Need potential (motivators such as love, achievement, and recognition) provides a deeper understanding of behaviour potential and reinforcement value. It varies between individuals and within the same individual. Freedom of movement literally refers to the freedom of action a person has in a specific situation where he is affected by a
particular need potential. This freedom depends on how many different ways the individual believes he can go about satisfying the need; thus, freedom of movement is related to expectancy. Rotter's important integration of person and environmental variables has led him to construct concepts such as locus of control.

The effect of reinforcement following some behavior on the part of a human subject is not a simple stamping in process but depends upon whether or not the person perceives a causal relationship between his own behavior and the reward. A perception of causal relationship need not be all or none but can vary in degree. The individuals are quite stable in their locus of control dimension with respect to time, age and situation (Lefcourt, 1974).

Within the social learning framework, a number of early assessment instruments were devised and investigators began to identify the degree to which individuals appear to hold generalized expectancies about internal versus external control of reinforcement. The I-E scale evolved out of early works by Phares (1955), but subsequent scale development was carried out by late Shepard Liverant, J.B. Rotter, Melvin Seeman, Douglas Crowne, William James and Nowicki Strickland. When the I-E Scale was first developed, early researchers suggested that responses to the instrument reflected one general factor (Franklin, 1963; Rotter, 1966). Later factor analyses of the original scale and subsequent measures of
I-E (Curin et al., 1969; Mirels, 1970; Nowicki, 1973; Reid and Ware, 1973, 1974) suggested several separate factors although these vary from population to population and across sexes. This development gave rise to a continuing debate about the uni versus multi dimensionality of the I-E construct. Levenson and Miller (1974) devised a tridimensional locus of control scale with 'Internality', 'Powerful Others' and 'Chance' as separate dimensions. The work on these dimensions has led to better understanding of the phenomenological variables involved in antipollution groups, perceived parental upbringing, psychopathological diagnosis and clinical improvement (Levenson, 1975). Multiple regression research can now be conducted with a series of I-E sub-scales such as fatalism and social system control, which they have found to be orthogonal to each other (Reid and Ware, 1971). It should be possible, according to these investigators, to make differential predictions of highly specific types of behaviour as sub-areas of perceived control are identified, and the reliability of the related sub-scales are increased through the refinement of the assessment device.

A number of models have been developed within which a variety of independent variables have been examined as antecedents of cognitive styles. An ecological and cultural model has been developed by Berry (1966, 1971, 1975) and was
employed by Witkin and Berry (1975) and by Berry (1976). A biosocial model has been developed by Dawson (1967, 1969, 1975) which deals more with some biological variables. Berry (1979) considers ecological, cultural and biological adaptations and acculturation as antecedent variables of psychological differentiation. Their notion of psychological differentiation is committed to symmetrical development of articulated processes in all spheres while Gamble and Ginsberg (1981) expected deviation from symmetry. Different antecedent variables considered in this study are derived from Berry's ecocultural model. These include variables like sex, intelligence, socio-economic status and degree of urbanism. In the second phase of the study family antecedents like family authority structure, family size and birth order have been taken into account.

In their early works, Witkin and his colleagues found females to be more field dependent than males, the difference being largest among adults. There are a number of Western researchers supporting the view (e.g. Roodin et al., 1975; Allen and Chalet, 1978; Eulish, 1978; Witkin, 1979; Gibson, 1981). It has also been pointed out that stylistic differences in sex vary as a function of cultural factors like socialization, sex-role diversity, social stratification and other ecocultural factors. Evidence to date suggests
that in nomadic samples sex difference in cognitive style is relatively uncommon as compared to sedentary groups (Berry, 1966; Dawson, 1967). In non-Western and Indian settings also, boys are observed to be more field independent than their girl counterparts (Pandey, 1970a, b; Kao, Su and Chen, 1975; Hyde et al., 1975; Sinha, 1980; Sharma and Ahuja, 1981), but these are not as common in non-Western settings as in Western settings (e.g. Feldman, 1971; MacArthur, 1974; Chandler, 1974). It is possible to understand this pattern on the basis of the developmental influences acting on boys and girls as they grow in each of these contrasting eco-cultural settings (Witkin and Berry, 1975; Van Leeuwen, 1978). There are also a number of within-culture studies in which no statistically significant sex differences in field independence have been observed for children as well as undergraduates (e.g. Bond, 1974; Cecconi and Pizzamiglio, 1975; Demash and Balter, 1976; Reyes, Lagunes and Valagne, 1979). Consequently the issue of sex differences in field dependence remains open and calls for multivariate attempts across cultures to solve this riddle.

Field dependent people possess fewer analytic skills and lack originality while field independents have greater skills on intelligence tests and analytic ability. Various studies have shown a positive relationship between field independence and intelligence in children (e.g. Bigelow, 1971;
Busch and Simon, 1972; Crandall and Lacey, 1972; Drayer, Hulac and Rigler, 1971; Erginel, 1972; Massari and Massari, 1973; Riley and Denmark, 1974; Satterly, 1976; Satterly, 1979; Flexer and Roberge, 1981) and in undergraduates (Dubois and Cohen, 1970; Gough and Olton, 1972; Widiger, Knudsen and Rorer, 1980). The correlations between measures of field dependence and intelligence are mostly in the 0.40-0.60 range. Goodenough and Karp (1961) and Within et al. (1971) concluded that these intellectual tests share with the measures of field dependence, the requirement of an overcoming embedding context. They presented evidence that correlations between the EFT and Wechsler IQ scales were due to common analytical factor. The magnitude of correlations between FD-I and intelligence has been taken as an indication that a single dimension underlies performance on intelligence and field independence tests (Zigler, 1963a, b; Brody, 1972; Vernon, 1972). This controversy is still to be resolved. In India this issue is yet to be explored.

A large body of evidence, mostly from Western settings, is available suggesting that social, occupational and economic status measures are related to cognitive functioning in many areas, with lower class individuals demonstrating less adequate cognitive development than their higher class counterparts (e.g. Triandis, 1973; Gruenfield, Weissenberge and Loh, 1973; MacEachron and Gruenfield, 1975; Ford, 1979; Jones, 1981). In India, Ghuman (1978) and Majeed and Ghooh (1981)
connected with socialization ideologies and practices which justify the view that urban-bred children will tend to develop more field independence characteristics than children bred in rural areas. In India, Sinha (1980) and Chatterjee and Paul (1981) observed ruralities to be more field dependent. But Redd and Schwartz (1977), Wagner (1978) and Sharma and Ahuja (1981) failed to support these findings. There is a possibility that effects of degree of urbanism on PD-I may be moderated by intelligence, sex, SES, culture etc. Thus, this variable needs systematic exploration especially in India within multivariate perspective.

Since both field dependence independence and locus of control are cognitive styles, a similar pattern of antecedents is expected in both the cases. There is a good deal of inconsistency regarding gender differences in locus of control. Some studies have observed males to be more internal than females (Newhouse, 1974; Hochreich, 1975a; Deux, 1976; Deux and Paris, 1977; Dudley, 1978), while others did not report any significant gender differences (e.g. Christner, 1977; Barling and Pinchem, 1978; Mini, 1980; Al Khafaji, 1981; Pendrich-Salowy, Buchanan and Drew, 1982). The sex or gender differences can be expected as a result of differential socialization practices. But in case of academic failures, females tend to blame themselves more than any others (Lefcourt, 1973). Boys are attuned to relate successes with their self-acceptance and
thus, they are unable to take failures contingent upon their own behaviour. In India, Ruby (1972), Aggarwal and Manju (1975) and Khanna and Khanna (1979) found females to be more external, while Maqsud (1980) and Abuja (1981) could not observe any sex differences. Strickland and Haley (1980) obtained different factor structures for boys and girls. Regardless of whether there are sex differences in I-E scores or not, sex very often does affect the relationship between I-E scores and other behavioural measures particularly achievement and defensiveness (Nowicki, 1975).

The association between intelligence and I-E control is not yet clear. However, some Western studies have found positive relationship between intelligence and internal locus of control (Hjella, 1970; Brown and Strickland, 1972; Cliffer and Cleary, 1972; Wu Wu Tien, 1975; Finch et al., 1976; Gordon, 1977; Rose, 1977; Ollendick and Ollendick, 1978; Maqsud, 1983). Children with internal control show more intellectual interest and better intelligence test performance than their external counterparts. This suggests that a person perceiving his reinforcements as being externally-controlled is less likely to try and succeed. Studies like those by Shaw and Uhl (1971) could not find significant differences in locus of control, attributable to intelligence. It could be that intelligence relates significantly with some dimensions of locus of control and
McGinnies et al., 1974; Parsons and Schneider, 1974; Reitz and Groff, 1974; Tyler and Holusinger, 1975; Kagan, 1976; Lau, Chuang and Yang, 1977; Horowitz, 1979; Gaa and Shore, 1979; Buriel and Rivera, 1980; Galeji and Silva, 1982).

External belief might be expected to prevail in oriental and rural societies where destiny and fatalism are emphasized. The modern individuals are less likely to believe that life is essentially a game of luck and chance and that man has little control over his fate. However, Christner (1977), Knight et al. (1978) and Abuja (1981) did not observe any significant effect of degree of urbanism on locus of control. Further, sex and SES variables are also expected to mediate the relationship of locus of control and degree of urbanism. A multivariate, multidimensional research is called for to arrive at a definite conclusion on this issue.

Socialization practices play an important role in the development of field independence and locus of control. When socialization practices encourage separation from parental control, then development proceeds towards greater field independence. However, when the course of development is either governed by a tightly organized, strictly enforced set of rules and prescriptions for behaviour, or when parental nurturing and protective functions inhibit separation, then greater field dependence develops. Within and Berry (1975) argued that differences in the broader societal pressures emanating from tight to loose structures may reinforce such
specific socialization emphasis. In the West maternal authority and parental strictness has been observed to be associated with field dependence (Baron, 1971; Ramires and Price Williams, 1974a; Witkin and Berry, 1975; Edgerton, 1975; Jones, 1975; Claya and De Boeck, 1976; Holman and Saucer, 1977; MacEachron and Gruenfield, 1978; Witkin, 1979; Roach, 1979; Gershenhsky et al., 1980). In non-Western settings also, Mitchelmore (1974), Neff and Schwartz (1977), Punnuswami (1977) and Laosa (1980) observed the importance of paternal authority in fostering field independence.

In the case of locus of control also family antecedents are quite important. Child's belief in internal control of reinforcements are related to the degree to which their parents are protective, nurturant, approving, and non-rejecting. The maintenance of a supportive, positive relationship between parent and child seems more likely to foster a child's belief in internal control than is a relationship characterized by punishment, rejection and criticism. In Western studies by Mac Donald (1971b), Paul (1972), Barzin (1973), Levenson (1973b), Nowicki and Sigel (1974), Wicher and Newicki (1975), Scheck (1978), Bradley (1979), Halpin et al. (1980), Rohner et al. (1980), Grossman (1981), Chao (1981), Barling (1982), Nowicki and Schmeewind (1982), Parish (1982), Lancaster and Richmond (1983), Parish and Nunn (1983) and Parish and Horton (1983) paternal authority has been found to be related to internal locus of
control. In case of these cognitive styles i.e. field dependence-independence and locus of control none of the Indian studies has considered this family antecedent within a multivariate framework. Besides, paternal authority, family size and birth order are also of considerable importance in determining the cognitive styles of an individual. In larger families with more interpersonal interaction changes of friction are also quite high, and these encourage externality and field independence. Mezlik (1973), Witkin et al. (1974), Dreyer (1975), Mitchelmore (1974), Holtzman et al. (1975), and Gore (1978) have concluded that large and extended family uses more authoritarian child rearing practices which encourage field dependence. But Roodin et al. (1974) and Roach (1978) did not find any significant effect of family size on FD-I. Similarly, Roodin et al. (1970) failed to observe any significant effect of family size on locus of control cognitive style. However, a study by Sat and Natarajan (1981) in India reported an association of large family and external locus of control. One reason of contradictory findings is the consideration of locus of control as an unitary concept. Obviously, more research is called for in this area.

In case of birth order, 'first borns' are expected to be more field independent and internal than their 'later born' counterparts. However, Della and Ronald (1971), Roodin et al. (1974), Sherman (1974), Roach (1979), Swanson (1979)
could not get any difference between first and later borns on field dependence-independence. Further, Mace Donald (1971a) and Mark (1973) found 'first borns' to be more internal. But in Rava's (1978) study in India, 'first borns' have been found to be more external than 'later borns'. In these uni-variate studies, variables like sex and family size also need to be included.

**Present Study**

There are many studies in the West dealing with the antecedents of these two cognitive styles. However, in India very few attempts are made in this direction. Cross-cultural differences are expected to play a significant role and there is a likelihood that a different pattern of antecedents may emerge in Indian settings. Moreover, very few investigations have used multivariate factorial designs in studying the antecedents of cognitive styles. In real life situations, the variables are intertwined and their effects can not be separated or studied in isolation. Multivariate attempts can lead to more meaningful conclusions.

Cross-cultural studies help in finding causal relationship of psychological variables. Further, Wachtel (1972) suggested that any determination of the perceptual articulation dimension of cognitive style should involve more than one measure if the interpretation of the results is to be consistent with the original study (see also Witkin et al.,
1954). Keeping this in view, two measures of field dependence-independence i.e. the EFT and the KBD have been employed in this study. Moreover, the dimensionality of Rotter's Scale has been questioned by many investigators. Due to this argument, a tri-dimensional scale of locus of control has been used in the study. Very few attempts have been made in India to study different dimensions of locus of control. In fact, no serious attempt has been made to study the antecedents of these two cognitive styles in India within multivariate framework.

In view of the above, the present study has been conducted. The study has been conducted in two phases. In Phase I, the socio-cultural antecedents i.e. sex, intelligence, socio-economic status and degree of urbanism have been studied. In Phase II, family antecedents (family authority structure, family size and birth order) are explored.

For Phase I of the study, $2 \times 2 \times 2 \times 5$ between group designs have been used separately for two indices of EFT and KBD. Three $2 \times 2 \times 2 \times 3$ between group designs have been used separately for 'Internality', 'Powerful Others' and 'Chance' dimensions of locus of control. The sample has been randomly drawn from high schools of Delhi city, rural areas and towns of Mandi, Himachal Pradesh.

For Phase II of the study, high school students have been matched in terms of intelligence, area, socio-economic
status, age etc. and pairs of field dependent and field independent students have been identified. Similarly, on all the three dimensions of locus of control, internals and externals pairs have been identified. On these selected students, Children’s Interview Schedule has been administered and also their family size and birth order are determined.

Objectives of the Study

The main objective of the present investigation is to explore different antecedents of cognitive styles; field dependence—indepenedence and locus of control. Specifically, this multivariate investigation attempts to study:

(1) The single and joint effects of antecedent variables, i.e. sex, intelligence, socio-economic status and degree of urbanism on field dependence-independence cognitive style.

(2) The single and joint effects of antecedent variables i.e. sex, intelligence, socio-economic status and degree of urbanism on three dimensions of locus of control i.e. 'Internality', 'Powerful Others' and 'Chance'.

(3) The influence of different family antecedents i.e. family authority structure, family size and birth order on field dependence-independence cognitive style.
(4) The influence of different family antecedents i.e. family authority structure, family size and birth order on three dimensions of locus of control i.e. 'Internality', 'Powerful Others' and 'Chance'.

(5) The interrelationships among measures of intelligence (IPIH), two indices of the HFT (mean score and mean number of correct responses), the EBD and 'Internality', 'Powerful Others' and 'Chance' dimensions of locus of control.