CHAPTER II
A BRIEF REVIEW OF LITERATURE

An attempt has been made here to briefly review the empirical information available on the interrelationship of different variables included in the study. This review, based on available literature, has been presented under convenient sub-heads as follows:

1. Loneliness and its personality correlates.
2. Anxiety and its personality correlates.
3. Aggression and its personality correlates.
4. Loneliness and creativity.
5. Anxiety and creativity.
6. Aggression and creativity.
7. Loneliness and humour.
8. Anxiety and humour.
9. Aggression and humour.
10. Creativity and personality.
11. Humour and personality.
12. Creativity and humour.
13. Loneliness and anxiety.
14. Loneliness and aggression.
15. Anxiety and aggression.
16. Intelligence in relation to personality, creativity, humour, loneliness, anxiety and aggression.*
Loneliness and its personality correlates

Moore (1973) working on eighty-eight female first year college students formed a high and low loneliness groups on the basis of scores on loneliness. The tests administered were Sesenwein loneliness questionnaire, Leary inter-personal checklist, Cowen adjective checklist and a demographic questionnaire. The high loneliness group was found to be more hostile, more submissive, showed a greater discrepancy between self and reflected self concepts. They also had fewer friends in childhood, indulged in solitary activities to a greater extent and came from families with lower incomes. Wood and Hannel (1977) and Brennan and Auslander (1979) associated loneliness with some personal characteristics such as shyness, feelings of powerlessness, external control, low self esteem, social disinterest, failure and alienation from peers. Goswick and Jones (1982) investigated predictors of adolescent loneliness in 92 high school students and 192 undergraduates. They administered the UCLA loneliness scale and the adolescent experiences questionnaire. Loneliness was

* The present review is mainly focussed on researches on children aged between 13 to 17. However, researches on younger and older group also have been mentioned.
predicted by a combination of alienation, a lack of social facility and acceptance, inferiority feelings, negative school attitudes and a lack of social integration.

Hojat (1982) used the UCLA loneliness scale, Rosenberg self esteem scale, Rosenberg's misanthropy scale, Taylor manifest scale, Rotter's locus of control, Beck depression inventory and Eysenck's personality questionnaire on two groups of students. Group I consisted of 232 Iranian students (girls and boys) studying in various American colleges and Group II comprised of 305 Iranian students both girls and boys studying at the University of Tehran.

Multiple regression analysis revealed that in group I, the significant predictors of loneliness were anxiety, low self esteem, depression, negative scores on extraversion and external locus of control. 48% of the variance of loneliness scores could be accounted for by the personality measures. In group II, neuroticism, negative scores on extraversion, depression, misanthropy, low self esteem and psychoticism were significant predictors of loneliness. 53% of the variance of loneliness scores could be accounted for by the selected personality measures in this group. Factor analysis further demonstrated that loneliness is a multi-dimensional variable which comprised negative attributes of behaviour namely depression, anxiety, neuroticism, misanthropy,
external locus of control and psychoticism as opposed to positive dimension of personality namely self esteem and extraversion.

Paloutzian and Ellison (1982) asked college undergraduates a variety of questions concerning their adolescence; the results indicated that current loneliness was related to the remembered quality of poor parent-child relationship, low degree of family togetherness and poor quality of peer relationship. This study was based exclusively on retrospective accounts which might be influenced by subsequent experiences.

Goswick and Jones (1982) in a study on two samples of high school students (n=92) and college undergraduates (n=192) used the revised UCLA loneliness scale (Russell et al., 1980) and the Adolescent experiences questionnaire and found that among college students loneliness was positively related to parental disinterest.

Schmidt and Sermat (1983) found that self-reported loneliness was most highly related to the dissatisfaction with friendships.

Moore and Shultz (1983) working on 45 male and 54 female adolescents (14-19 years) administered the UCLA loneliness scale (Russell et al., 1980), the self-esteem scale (Rosenberg, 1965) the state-trait anxiety inventory (Spielberger et al., 1970) a locus of control measure
(Lenseson, 1974), a measure of self-consciousness (Feningstin et al., 1975), the zung depression scale (Zung, 1965), self rating scales of attractiveness, likability, happiness and life satisfaction. They found loneliness to be positively related to state and trait anxiety, an internal locus of control, depression, self-conscious and social anxiety, an internal locus of control, depression, self-conscious and social anxiety. Loneliness was negatively related to self-reported attractiveness, likability, happiness and life-satisfaction.

Asher et al. (1984) used a self-reporting questionnaire to learn whether the children who are least accepted by their classmates are more lonely. They found that unpopular children reported significantly more loneliness than popular children and loneliness was also related to low status.

Schmitt and Kurdek (1985) in a study on 71 male college students, 85 female college students and 51 elderly females administered the differential loneliness scale (Schmidt and Sermat, 1983), short form of Rotter's locus of control scale (Valecha and Ostrum, 1974), perceived social support scale (Procidano and Heller, 1983), depression scale (Radloff, 1977), self consciousness scale (Fengstein, Scheier and Buss, 1975). They found that low perceived social support from family and friends repeatedly emerged as significant
correlates of loneliness in all groups particularly for college men.

Moroi (1985) administered the revised UCLA loneliness scale, self esteem scale, self consciousness scale, self monitoring scale and high school life questionnaire on 192 students of 1st year of high school. They found a positive correlation with social anxiety and private self consciousness for males. He found loneliness to be negatively correlated with self esteem and self monitoring.

Hymel et al. (1985) conducted a two year longitudinal study to analyze elementary school children’s attributions for social situation. He found loneliness to be associated with negative self-perceptions.

In an extensive study on 174 gifted 14-17 year old students, Kaiser and Berndt (1985) found loneliness to be characterized by frustrated dependency and recognition needs, alienation, insufficient love, understanding, and social support.

Stokes (1985) working on 97 male and 82 female undergraduates administered the extraversion and Neuroticism scales of EPQ (Eysenck and Eysenck, 1975), the Marlowe-Crowne social desirability scale (Crowne and Marlowe, 1960) and UCLA loneliness scale (Russell et al., 1978). He found extraverts to be less lonely. Neuroticism was not related to loneliness
but makes a strong independent contribution to the prediction of loneliness.

Mijuskovic (1986) quotes from Brennan (1982) some personality characteristics that tend to promote loneliness and sense of despair among children. They are, low self esteem, strong feelings of self pity, pessimism regarding being liked and respected by others, disinterest in school activities and shyness.

Wittenberg and Reis (1986), used the UCLA loneliness scale, reactions to social situations scale (Buhrmester and Furman, 1984), dating and assertiveness questionnaire (Levenson and Gottman, 1978), personality attributes questionnaire, acceptance of others inventory and social desirability scale. They found that lonelier subjects were more deficient in relationship formation and maintenance skills, and held more negative perceptions of their roommates.

Ovellet and Joshi (1986), in a study on 81 French Canadian undergraduates administered a french translation of the revised edition of the UCLA loneliness scale, the Beck depression inventory validated on French-Canadian sample and a French adaptation of the social extreme inventory. The results indicate that lonely subjects were relatively depressed and had low self esteem. Lonely subjects more than non-lonely subjects were inclined to introspect.
Vitkus and Horowitz (1987) administered the UCLA loneliness scale on subjects who were further assigned two roles: Role of a person with a problem (condition Pr) and role of a listener (condition Li). Lonely subjects did not differ from non-lonely subjects in their social performance with each particular role. They differed in their subjective evaluations of themselves and of their performance.

Larson (1990) examined people of different ages on the solitary part of their daily lives as having unique potentials and liabilities. He found that adolescents who spend at least some portion of their time alone appear to be better adjusted, perhaps because solitude facilitates the adolescent development task of individuation and identity formation. In adulthood and old age spending large amounts of time alone is more likely to be correlated with poor adjustment.

Loneliness among adults has been found to be related to being unmarried (Weiss, 1975, 1976); the transition from living at home to living at college (Cutrona, 1982), isolation from kin and non-kin, low education, low income, death of significant others, and unemployment (Fischer and Phillips, 1982). The personality variables associated with loneliness include: Physical illness (Lynch, 1976), boredom, restlessness and unhappiness (Perlman, Gerson and Spinner,
1978), depression (Bragg, 1979; Schultz and Moore, 1984), self criticism (Loucks, 1980), low self-esteem, shyness, feeling of alienation, external locus of control and the belief that the world is not a just place (Jones, Freeman and Goswick, 1981). Studies of the interpersonal dimensions of loneliness indicate that lonely subjects rate themselves and others negatively and expect others to rate them negatively (Jones et al., 1981); see themselves as self-conscious, unfriendly, unacceptable to others and unattractive to members of the opposite sex (Jones et al., 1981).

As is clear from the brief review given above, loneliness turns out largely to be a negative phenomenon (Brennan and Auslander, 1979; Goswick and Jones, 1982; Hojat, 1982; Moore and Shultz, 1983; Kaiser and Berndt, 1985; Wittenberg and Reis, 1986; Ovellet and Joshi, 1986). Such like traits as alienation, insecurity, depression, pessimism, etc. are revealed to be associated with it. However, it may be mentioned here that such results may be partly due to the specific way loneliness has been operationalised by the empirical researchers. For, there have been writers, particularly in the field of creative aesthetics, who have tried to discern a lot of positive force in solitude which can lead to self discovery, individuation and sometimes to unique revelations (Larson et al., 1982 Suedfield, 1982; Larson, 1990).
Anxiety and its personality correlates

Lipsitt (1958) studied the self-concepts of 300 fourth, fifth and sixth grade boys and girls and calculated an overall index of the good:bad dimension of their self-concepts. Students were also given an anxiety test. Children (both boys and girls) with poor self-concepts were significantly more anxious than children with good self-concepts.

Coopersmith (1959) working on a sample of 102 fifth and 6th grade children found that children who had high self-esteem were significantly less anxious than those with low self-esteem.

Doris and Sarason's study (1959) on high and low anxiety subjects showed a significantly higher self blame score among high anxiety subjects.

Mitchell (1959) measured the self concept of 100 freshmen and Sophomore women students and correlated their scores with the adequacy of their self concepts. The resulting coefficient of correlation was -.41. The better the self concept, the less the anxiety. Fiedler et al. (1958), Cowen et al. (1957) and Worchel (1957) also reported that selfconcept scores and anxiety scores are negatively correlated. Taylor manifest anxiety scale was used in all the 3 studies mentioned above.
Sharma (1967) in a study on adolescents found a correlation of -.51 between self concept (positive-negative dimensions) and anxiety. Subjects with negative self concepts were more anxious than subjects with positive self-concept.

Cattell and Catell (1969) reported that anxious children would have high scores on D, O and Q4 factors scoring lower than average on C, H and Q3, that is they will be excitable, apprehensive, tense, will be affected by feelings, will be shy and will be uncontrolled.

Bull and Strongman (1971) found a high positive correlation between anxiety and neuroticism and a small negative correlation between anxiety and extraversion.

Barton, Bartsch and Cattell (1974) administered the high school personality questionnaire, and culture fair intelligence test to over 300, 6th and 7th grade children. Three months later, the subjects completed standarized achievement test on social studies, science, maths and reading. Results indicate that extreme scores on either end of the extraversion or anxiety dimensions were related to high achievement.

Allen et al. (1974) found that students possessing an external locus of control reported more anxiety during oral assessments and performed more poorly on a written examination than their more internally oriented peers.
Frederking (1975) found that deprivation in early infancy led to the development of high rate of anxiety and depression.

Fuller (1976) found that A-state of anxiety was negatively related to one measure of flexibility, all measures of accuracy and to efficiency in the general problem-solving tasks. A-state was positively related to efficiency in the unusual uses' task and to both measures of information seeking.

Perry and Millimet (1977) working on 16 low anxiety and 16 high anxiety VIII grade children and their parents administered several questionnaire's concerning their family life. The family of the low anxious children was characterized by consistency and harmony and the high anxious child was more likely to come from a broken home. The families of high anxious children that had remained together were characterized by parental inconsistency, disagreement, criticism and a lack of definition of family rules.

Sliwa (1977) administered Coopersmith self esteem inventory and Sarason's general anxiety and test anxiety scale for children to 40 randomly chosen normal students. Low negative but insignificant relationship existed between self-esteem and general anxiety.

Tiwari, Morbhatt and Morbhatt (1980) in study on 200
male and 200 female intermediate school children found that when anxiety was high, achievement was low and high levels of aspiration increased anxiety.

Verma and Upadhyay (1980) administered a personality test, Sinha's comprehensive anxiety test, and a version of the MMPI to measure conflict. Results show that extroverted subjects had less anxiety and conflict than introverted subjects. Findings are attributed to the fact that the introverts are more concerned with their own subjective organisation, rarely seek help from others and are very sensitive to criticism. Extroverts, on the other hand, minimize their failures seeking out help from others, which in turn minimizes their anxiety and conflict.

Ruisel (1982) found that highly anxious subjects inadequately concentrate on their task, hesitate when making decisions and succumb more intensively to self criticism and self ratings.

Costalat and Anne (1984) found that with regard to social affiliation, anxious subjects preferred to associate with other participants from the same company while non-anxious subjects preferred to act alone in a training situation. Anxious subjects expected to be compared with others, revealed affective needs while non-anxious subjects did not expect to be compared with others and revealed non-social cognitive needs.
Door, Pozner and Stephens (1985) administered the state-trait anxiety inventory for children and Coopersmith self-esteem inventories to 4th 6th graders. Results support the assumption that self esteem and anxiety are strongly related. Subjects who tend to respond fearfully to ego threats tended to have lower self-esteem.

Alam and Srivastava (1986) in a study on undergraduate students, found that poor adjustment and high anxiety led to feeling of inadequacy, insecurity, inferiority, depreciation, and self devaluation which have a negative impact on self perceptions.

Alam, Khan and Tandon (1987) compared personality characteristics of 50 truants and 50 non-truants from 9th and 10th grades. They found truants to be more anxious than the non-truants.

Harnett and Lee (1988) conducted a case study with 8 elementary school students. They revealed that fear of withdrawal of adult aproval, teacher's or parents, were a common theme for anxious children and it lead to a generalised fear of failure and task avoidance.

Mathews and Odom (1989) administered the state-trait anxiety inventory for children and the Coopersmith self-esteem inventory. They found that low levels of both state
and trait anxiety associate moderately with high levels of self esteem.

Cheng and Page (1989) in a study on 9th grade children found that subjects with high anxiety tended to have low self esteem and subjects with low anxiety tended to have high self esteem.

As is clear from the brief review given above the studies available in this area do provide insights into some characteristics of the anxious children (Bull and Strongman, 1971; Allen et al., 1974; Verma and Upadyay, 1980; Costalat and Anne, 1984; Alam and Srivastava, 1986; Harnett and Lee, 1988 and Mathews and Odom, 1989). However, they seem to fall short of yielding a complete picture of their total personality.

**Aggression and its personality correlates**

Bender (1943) in a longitudinal study of aggressive children from 1½ years to 12 years found that these children indulged in dangerous headbanging, persistent screaming and hitting themselves and others, their destruction was aimless and uncontrolled and any attempt at directing their behaviour was met with massive defiance: kicking chairs, screaming, homicidal and suicidal threats. The reason for such behaviour was desertion by parents, having no close contact, oedipal rivalry and frustrations at school.
Redl and Wineman (1957) presented in detail the everyday behaviours of aggressive, disturbed children. Their account leans heavily on the concept of ego-strength. Because of weak egos the children are incapable of mastering and controlling their intense hatred. Anxiety, insecurity and guilt all lead to distorted, disorganised aggressive outbursts. There is so little tolerance for tension that even mild frustrations, trigger destructive responses, which go beyond the stimulus for aggression.

Esler (1968) examined 100 adolescents institutionalized under maximum security because of extremely aggressive behaviour and acting out. Characteristics included fear and inability to make friends, narcissism and its constant pampering and identity problems. Other characteristics were anguish of being castrated, longing for the security of the womb, feelings of emptiness and paranoia of being hurt.

Frost (1970) administered the Junior Eysenck personality inventory (Eysenck, 1965) and the aggression scale of the Frost self description questionnaire. Results show that introverts internalize aggression. Data did not provide evidence that extroverts internalise aggression.

Stadts (1975) observed that clumsy poorly coordinated children are more likely to bump into other children and
damage their possessions. At that point, a cycle of real aggression may be easily initiated: The child is scolded by the teacher, derided by the other children and possibly punished by parents for misbehaving at school and home. The child may respond with anger and overt aggression perhaps damaging property and fighting with other children.

Young (1976) explored variables related to aggression in 44 male adolescent psychiatric patients. He administered the Marlowe-Crowne social desirability scale, day dreaming questionnaire, Byrne repression sensitization scale and the Buss-Durkee hostility inventory. Multi-variate analysis indicated that high aggressors were significantly lower in their social desirability needs and significantly higher in their day-dreaming, hostile attitude and sensitization than were low aggressive patients.

Pitanen, and Pitkanen (1976) selected forty, 14 year old boys on the basis of peer rating to represent characteristic aggressive, controlled extrovert, anxious and controlled introvert patterns of behaviour. Each was asked to play specific roles. The controlled extroverts were sensible negotiators while the aggressive belittled the other’s proposals and showed disagreement and indifference. The controlled introverts conformed passively and the anxious had signs of blocking in their speech.
Lefkowitz et al. (1977) in a longitudinal study on 3rd grade population obtained peer ratings of aggression. These subjects were re-interviewed in the 13th grade and were also administered the Minnesota Multiphasic Personality Inventory (Dahlstrom et al., 1972) and self-report questionnaire. High aggressive males had more hypochondriacal complaints, obsessive-compulsive defenses and admitted to more schizophrenic like behaviours than low aggressive males. High aggressive males responded more like persons who inhibit such behaviour. Correlates of low aggression were readily classifiable as social attainment or social success.

Reidy (1977) found that abused children manifest more aggressive and problematic behaviour, even at early ages. Abused children, aged 6 to 7 years, were more aggressive in fantasy and freeplay and in school settings.

Hirschi and Hindelang (1977) suggest that child’s school experience mediates the relation between IQ and delinquency; that is, lower intellectual ability makes success in school more difficult and leads to poorer achievement. Poor achievement reduces self-esteem and frustrates the child. When faced with difficult social situations such a child is more likely to respond aggressively. The child with diminished intellectual abilities probably finds it more difficult to devise
alternative, less direct strategies to obtain his or her goals. Such behaviour will tend to be repeated if the child cannot learn and retain alternative strategies.

Lowenstein (1977) and Olweus (1978) have shown that bullies in school are generally below average in academic skills.

Rollins and Thomas (1979) reviewed 235 studies published between 1960 and 1974 dealing with parental child management techniques viewed as shapers of the developing child's social behaviour. They concluded: (a) aggressiveness correlated with other behaviour problems as well as academic and later delinquency problems and (b) this 'social incompetence' was generally associated with lack of parental supportiveness and inordinate use of coercive rather than inductive control attempts by parents. If a young child, striving to master new developmental tasks, is warmly and positively encouraged and supported, he or she will gain in self efficiency and personal competency in mastering the social and physical world. Without such support, the development of prosocial alternatives may be retarded. If a parent uses a great amount of punishment, power assertions and other such coercive control attempts and relatively fewer inductive efforts (e.g. reasoning, explanations of consequences for behaviour and discussions of feeling - behaviour relationship), the child will not readily acquire
non-coercive social behaviour.

George and Main (1979) found that abused toddlers physically assaulted peers and harassed care-givers.

Kinard (1980) found that abused 5 to 12 years olds were deficient in emotional development, particularly self concept and aggressiveness.

Ledingham and Schwartzman (1984) investigated the school placement of 122 aggressive, 150 withdrawn, 182 aggressive withdrawn and 299 control children in grades 1st, 3rd and 7th. They used the pupil evaluation inventory. Aggressive-withdrawn subjects had higher rates of school failure and special class placement.

Stewart (1985) in a study, reviewed the natural history, prevalence and psychological and biological correlates of aggressive conduct disorder (ACD) in childhood. Research indicates that the characteristics of ACD include aggressiveness, anti-social behaviour and ego-centricity. Correlates of ACD include a combination of overactivity and inattentiveness, rejection by peers, chronic sadness, lack of self-esteem and cognitive handicaps.

Griffin (1987) in a study of eighty-two, 6 to 13 year olds in a residential treatment programme characterized one group as aggressive and violent and compared it with two other groups. They were compared with regard to four
predictive indicators: Organic problems, family problems, conduct disordered behaviours and academic achievement problems. Significant differences were found on all the four predictors suggesting that aggressive youth are different in childhood than their behaviour disordered peers.

Renken, Egeland, Marvenney, and Sarah et al. (1989) in a longitudinal study of 191 children at high risk for caretaking, used teacher ratings as outcome measures. They found that such children had (i) a developmental history of insecure attachment and poor adjustment and (ii) chaotic or stressful life circumstances.

Moskowitz and Schwartzman (1989) conducted a longitudinal study of 7, 10 and 13 years old children. For both males and females, high aggressiveness was predictive of low intelligence, poor school achievement and psychiatric problems.

McColloch, Gilbert and Johnson (1990) studied the effects of environment conditions on 21 families, with an aggressive male adolescent (aged 12-14 years) and control families using three experimental tasks. Aggressive families showed poorer problems solving skills and greater negativity than control families. Aggressive adolescents also differed from controls in that they scored much higher on the psychoticism scale of the Eysenck personality inventory.
Kashani and Shepperd (1990) administered the social support questionnaire, the Millon adolescent personality inventory and the conflict tactics scale to 75 male and 75 female students aged 14 to 16 years. They found that all subjects used reasoning to resolve conflict. However, those with less social support and more forceful personality were more likely to use verbal and physical aggression. Introverted subjects were less likely to use verbal aggression.

The brief review outlined above shows that only very scattered insights are available into the personality of aggressive children (Redl and Wineman, 1957; Esler, 1968; Stadts, 1975; Young, 1976; Lefkowitz et al., 1977; Lowenstein, 1977; Olweu, 1978; Ledingham and Schwartzman, 1989 and Kashani and Shepperd, 1990). However, more systematic observations using psychometric measures, therefore, seems very much in order.

Loneliness and creativity

There is relatively little empirical research available on the relationship between loneliness and creativity. However, some theoretical assertions and introspective reports of the creative individuals are available. They are briefly outlined below in order to have a general understanding of the relationship between the two
domains; Florence Sabin as a child did not form social relationship with other children and even in college her sister was her only friend. (Phelan, 1969). Writer/scientist Rachel Carson was described by a close friend as a 'loner' and a college friend recalled her as being rather withdrawn (Sterling, 1970). Another writer May Sarton (1977), expressed her difficulty with constant interaction with people, "I lose my centre. I feel dispersed, scattered, in pieces. I must have time alone in which to mull over any encounter, and to extract its juice, its essence...." Jessamyn West (Berges, 1977) noted "I've heard of writers who carefully cut their ties with the world. They find some isolated corner where they can concentrate without interruptin. I've never been that lucky". Psychoanalyst Karen Horney's biographer said that she kept much of herself 'submerged' (Rubens, 1978).

All the above observations point to some kind of positive affinity between loneliness (in the sense of solitude) and creativity. However, empirical observations in this area using psychometric indices are very few. In one exceptional study on IX and XI graders, Kaur (1989), using loneliness scale (Asher, 1984), the revised UCLA loneliness scale (Schmidt and Sermat, 1983), Torrance test of creative thinking (Verbal and Figural Form A, Torrance 1966) found a non-significant correlation between loneliness and figural
and verbal indices of creativity for both males and females.

**Anxiety and creativity**

Reid, King and Wickwire (1959) found that creative children, as compared to the non-creative children, tend to be more social, more warmhearted and less anxious.

Dentler and Mackler (1964), Kerr and McGhee (1964), Fleischer (1965) and Zdep (1966) reported that low anxiety subjects gave significantly more remote responses on remote associates test of creativity than the high anxiety subjects.

Wallach and Kogan (1965) assessing manifest anxiety and test anxiety alongside creativity reported anxiety to be at intermediate level for their two groups high on creativity regardless of intelligence.

Ward (1968) reported a negative relationship between neuroticism/anxiety and creativity. Helson (1967, 1971) discovered high creative females to be anxious over social and sexual conflicts.

Komarik (1972) found a significant positive correlation between creativity and neuroticism. Dillehunt (1973) in a study on gifted children found that there was some trend for the low creative group to express more general anxiety than the high creative group.

In order to study the level of neuroticism among the gifted art students, Gotz and Gotz (1973) administered
Mandsley personality inventory to 50 gifted and 50 ungifted students nominated by teacher which included painters and sculptures. Such criteria as technical skills, fantasy, originality, independence in art work, self-activation and achievement motivation were used for the selection of these subjects. Cut off point on the N-dimension was made at the score of 20 which is the mean score for 'Normal British' as indicated in MPI manual. For the gifted group mean N-score was higher than cut off point (t - ratio significant at .001 level). Again, among the already nominated gifted students (N=50), 15 highly gifted were identified. Their score on neuroticism was markedly higher as compared to the remaining 35 less gifted students.

Belcher (1975) and Rollins and Calder (1975) observed inverted-U relationship between stress (which may indicate anxiety) and creativity i.e. both too much and too little stress appears to have a delibilitating effect on creative production while creativity appears to be greatest at an optimal level of stress.

Arora (1976) working on 200 teacher-trainees gave a test of creative thinking and Dutt personality inventory to measure anxiety. Results indicate that for male trainees moderate or normal anxiety appears to be an essential prerequisite for optimum functioning of creative potential.
Among women trainees creativity is negatively related to anxiety.

Marrone (1978) working on 275 undergraduates had three sessions of testing. In session 1, the trait form of the state-trait anxiety inventory (STAI) and Brean’s (1960), manifest rigidity inventory (MRI) were administered. In session 2, the state form of the STAI as well as tests of convergent thinking and divergent thinking (three each) were given. In session 3, form AA of Jackson’s (1974) personality research form (PRF) was given. Results confirmed the anticipated superior performance of low anxiety subjects. They found significant A-state effect in all analysis of variance and co-variance of all three divergent thinking tests.

Upmanyu et al. (1982) conducted a study on 110 male university students using Cattell’s anxiety and neuroticism scale questionnaires, Eysenk’s personality questionnaire and Torrance’s test of creative thinking. They found the originality index of TTCT to be negatively correlated with derived factor of neuroticism.

Reidel, Taylor and Melnyk (1983) working on undergraduate students found that divergent creative problem-solving did not significantly increase state anxiety. The
results are consistent with findings describing creative persons as less anxious.

Saxena and Kumar (1985) in a study on 100 male and 100 female high school students administered Mehdi's verbal test of creative thinking and Sinha's anxiety scale. They found that there exists a low negative relationship between creativity and anxiety.

Mathews (1986) administered the 16 PF, the eight state questionnaire (Curran and Cattell, 1974), four creativity tests selected from the comprehensive ability battery (Hakstian and Cattell, 1976) spontaneous flexibility (Fs), ideational flexibility (Fi), word fluency (W) and originality (Or) on 80 male university students and postgraduate students. The results indicate that O anxiety primary factor was significantly negatively correlated with creativity (r=-.24)

Okebukola (1986) in a study on 245 high school students found a negative correlation between anxiety and creativity.

The brief review given above reveals that the relationship between creativity and anxiety is not yet clear. While some studies have found a negative relationship (Ward, 1968; Marrone, 1978; Saxena and Kumar, 1985; Mathews, 1986) others have reported inverted-U relationship between the two. (Belcher, 1975 and Rollins & Calder, 1975; Arora,
Creativity and aggression

Review of literature reveals that relatively little empirical work has been reported on the relationship between aggression and creativity. A few studies which have been available are described below:

Mackinnon (1961) reported that on the California psychological inventory highly creative architects emerged as self-confident, aggressive, flexible, self-accepting, little concerned with social restraints or other's opinions and strongly motivated to achieve primarily in those situations where independent thought and action rather than conformity were required.

Getzels and Jackson (1962) found that creative subjects tended to use humor and violence much more in their writings and drawings than the intelligent subjects. They attributed it to the concept of flexible ego or Kris's concept of regression in the service of ego.

Barron (1968) similarly, analyzing the relationship between creativity and aggression found creative people (adults) to be relatively higher on aggression scale of MMPI. Barron (1968), in an attempt to understand the relationship between creativity and aggression has pointed out that
violence and vitality have common roots. However, the vitality in order to be channelized into creative, instead of violent and destructive ones, must be governed by a controlling mechanism like high ego strength. Aggression does not determine creativity but creativity does require a groundswell of vital energy.

Smith and Carlsson (1986) conducted an experiment to study the problems of identification in a group of 28, 16 year old boys and girls. The first stimulus (A) was the word I shown subliminally. The second stimulus (B) depicted an aggressor and a victim facing each other. To manipulate the subjects identification, (A) was flashed either on the victim or on the aggressor, or was completely withheld. The subjects also completed a perceptgentic (PG) test measuring creativity, a test of anxiety and defensive strategies using the meta-contrast technique (MCT). It was found that creative subjects identified more openly with the aggressor than noncreative ones. The creative subjects were more self reliant and believed in the value of private impressions & ideas.

Besides the few empirical studies as described above there are available some theoretical observations on the relationship between aggression and creativity. They are briefly presented as under:
Jung, among the neo-Freudians grouped life and death instincts into a single drive, libido. This single, all encompassing drive become differentiated in its manifestations into polar opposites e.g. life-death, love-hate. Since libido is dynamic when one aspect does not operate, its opposite must function: when it cannot create, it must destroy.

Lengyel (1971) in the book "The Creative Self" writes that if one looks closely one may see in an artist's work traces of his efforts to sublimate darker elements in his psyche: Craft and treachery in Homer; Malice and revengefulness in Dante; Neurotic misanthropy in Shakespeare; Demonic pride and arrogance in Milton. "I have never heard of a crime I might not have committed". Goethe himself remarked. Hints of extraordinary tension and sublimated violence eminate from certain works of Michelangelo, Beethoven, Tolstoy. Though seemingly objective to the point of selflessness, the artist himself harbours the passions and character he projects: He himself is the hero, the villain, the lover, the lunatic; Faust and Mephistopheles. He possesses their natures in essence. He could play any part in reality.

Humour and loneliness

Enders (1927), Kenderdine (1931), Ding and Jersild (1932), Brackett (1933, 1934), all found more frequent
laughter in nursery school age children in social situations than when alone.

Valentine (1942) after reviewing the literature and making personal observations of his own, did discover a number of occasions for children’s laughter in non-social situations. These included sight of a bright or pleasing object, jogging, mild shock or surprise, repetition, the incongruous or surprise repetition, recognition, accomplishment of some new task or activity, incongruity in words or ideas, and coincidental events.

Young and Frye (1966) found that where subjects heard jokes both alone and in a group overt laughing significantly increased under group conditions.

Humour has been relatively a neglected area of human psychology (Pettifor, 1982). Loneliness is also a new field (Mijuskovic, 1988). Therefore, relatively little is reported on the association between the two constructs: Very broadly humour seems to be more clear in social situations. But then it can have unique manifestations in loneliness also. Only systematic empirical research can unveil the reality.

According to McGhee (1971 b) no systematic attempt has been made to determine the nature of those stimulus situations that tend to evoke laughter when the child is alone.
Humour and anxiety

Allport (1950) states that "the neurotic who learns to laugh at himself may be on the way to selfmanagement, perhaps to cure" pp.92.

Wolfenstein (1954) noted that the types of jokes used by children varied with age and were directly tied to the critical issues that characterize each developmental stage. The joke contents reflected the characteristic anxiety that accompanies a particular developmental challenge. A child must find some way of dispelling anxiety while disclaiming responsibility for these feelings.

Fine (1977) in a study on adolescent girls found that humour was frequently used as a measure of coping with relevant fears and anxieties.

Ribordy, Holmes and Bucksbaum (1980) in a study of male undergraduates (N=126), with either low, medium or high levels of experimentally induced anxiety were exposed to either no distracting material, non-humorous or humorous distracting material (jokes). Jokes were more effective in reducing anxiety than either quotations or no distractions.

Deffenbacher, Deitz and Hazaleus (1981) found that manipulated humour did not decrease state anxiety or improve performance among college students who scored high or low on the test anxiety questionnaire. Townsend and Mahoney (1981)
administered the state-trait anxiety inventory and an achievement test to 106 undergraduates. Half of whom received additional humorous items in the achievement test. Analysis revealed that highly anxious subjects had lower achievement on the humorous test than did subjects with low anxiety. Blank, Tweedale, Cappelli ad Ryback (1983) working on 87 undergraduates administered the state-trait anxiety inventory. An inverse relation between anxiety and appreciation of humor emerged.

Martin and Lefcourt (1983) working on 40 male and 32 female students administered the life events of college students (Sandler and Lakey, 1982), profile of mood states (Nair, Lorr and Droppleman, 1971) situational humour response questionnaire (Martin and Lefcourt, 1981), sense of humour questionnaire (Svebak, 1974), coping humour scale. The results reveal that as negative life events increase, low-humour subjects report higher levels of disturbed moods than do high-humour subjects. In a second study they administered to 27 male and 33 female undergraduates a mood scale, the life experiences survey (Sarason, Johnson and Siegel, 1978) and the situational humour response questionnaire (Martin and Lefcourt, 1981). To assess the subjects’ ability to produce humour, a technique described by Turner (1980) was used. The subjects were instructed to make up a 3-minute comedy routine by describing the objects on the table in as humourous a
manner as they could. If unable to think of any witty comments, they were simply to describe the objects. Results further provide evidence for the stress-moderating role of humour. Individuals who demonstrated an ability to produce humour showed a lower relationship between life stressors and disturbed moods.

In a third study, 25 students (14 men and 11 women) were shown a film subincision which was described as stressful (Lazarus, 1966). Results indicated that subjects' use of humour in stressful situations produced a moderating effect.

Porterfield (1987) attempted to replicate Martin and Lefcourt's (1983) study. In a study on 125 female undergraduates he administered tests measuring sense of humour, negative life events and depressive and physical symptomatology. Multiple regression analysis revealed no evidence that humour moderated the impact of negative life event on either depression or physical illness.

As is clear from the brief review given above the relationship between humour and anxiety is not yet clear while some studies point out to a moderating effect of humour on negative mental states or anxiety. Others fail to replicate the results (Ribordy, Holmes and Bucksbaum, 1980; Tweedle et al. 1983; Deffenbacher, Deitz and Hazaleus, 1981; Porterfield, 1987). One fact of the present study is to high-
light the nature of relationship existing between humour and anxiety.

**Humour and aggression**

In their attempt to understand the relationship between humour and aggression some researchers have tried to study the effect of humour or humour appreciation on aggressive mental state or mood and vice versa. Results obtained have not been equivocal.

Hamees and Wiggins (1962) and Berkowitz (1970) found that aggressively aroused subjects demonstrated no decrease in their aggressive mood following the presentation of humour. Dworkin and Efron (1967) measuring mood by means of a mood adjective check list, angered subjects and did find a reduction of aggressiveness following appreciation of humour.

Singer (1968), Lamb (1968) and Landy and Mettee (1969) demonstrated that the appreciation of humour with aggressive content could produce a reduction of the aggressive mood state.

Toney (1974) in a study of 120 male college students found that a person with an internal locus of control is more likely to express his aggressive feelings directly through a preference for highly aggressive humour, on the other hand, a person having an external locus of control expresses his aggressive feelings indirectly by preferring mildly aggressive humour.
Prerost (1975) working on 90 male and 90 female university students found that humour is a natural vehicle for the expression of an aggressive mood. Under states of aggressive moods both males and females demonstrated greater humour appreciation.

Grody (1976) found that among male juvenile delinquents, humour is effective in reducing aggressive impulse strength.

Studies investigating the hypothesis that persons in an aggressive mood will prefer aggressive humour, have also yielded inconclusive results. Strickland (1959) and Rosenwald (1964) found that persons in an aggressive mood prefer aggressive humour. Byrne (1961) and Young and Frye (1966), on the other hand did not find that subjects in an aggressive mood preferred aggressive humour.

Prerost (1976), Mueller and Donnerstein (1977) and Baron (1978) found that non-hostile humour and sexual humour has been effective in diminishing a hostile mood. However, Prerost and Brewer (1977) found non-hostile humour to be ineffective in diminishing a hostile mood.

Prerost (1983) in a study on 144 undergraduates found locus of control to be a significant variable in the effectiveness of aggressive humour to reduce aggressive mood.
Nevo and Nevo (1983) working on 250 male XII grade students used a modified version of Rosenwig's picture frustration study. They were asked to answer this questionnaire twice: (a) ordinarily (as if they were present in the situation) and (b) humorously (as amusingly as possible). When the two answers were compared it was found that humorous answers contained more expressions of high aggression and fantasy. Ordinary answers contained low aggression and rational denials.

McCauley, Coolidge and Kulick (1983) obtained independent rankings of humour and aggressiveness for sets of cartoons drawn randomly from two different magazines. The correlation of median humour and median aggressiveness rankings ranged from .49 to .90 subjects, including children and adults.

Czwartkowski and Whissell (1986) studied 4 to 9 years old children (N=116) who rated the funniness of five cartoon drawings depicting each of three types of humour (aggressive body and incongruous). Incongruous and body humour were rated higher than aggressive humour.

The brief review cited above does not present a very clear picture regarding the relationship between humour and aggression. Whatever little empirical work has been reported, has yeilded inconsistent results (Harmes and Wigins, 1962; Singer, 1968; Toney, 1973; Prerost, 1976; Mueller and
Donnerstein, 1977; Baron, 1978; Nevo and Nevo 1983). One merit of the present study is that it hopes to throw some light on the relationship between the two constituents using psychometric tests.

**Personality and creativity**

Cattell and Drevdahl (1955), Drevdahl and Cattell (1958), and Cross, Catteland Butcher (1967) using the 16 PF inventory have demonstrated that the creative are high on ego strength, dominance, self sufficiency, sensitivity, introversion, desurgence and radicalism.

Rivlin (1959) stated that high school students nominated as highly creative by teacher ratings, emerged as socialable and more popular with their peers.

Reid, King and Wickwire (1959) with McCandlers anxiety scale, found creative children less anxious than the non-creatives.

MacKinnon (1961) reported that on the California psychological inventory highly creative architects emerged as self confident, aggressive, flexible, self accepting, little concerned with social restraints or other's opinions and strongly motivated to achieve primarily in those situations where independent thought and action rather than conformity were required. Other instruments revealed their perceptiveness, intutiveness and introversion. Despite their
introverted nature they demonstrated marked social poise, dominance and a desire to control others when they did interact.

Helson (1961) with creative mathematicians, Barron (1963) with creative writers, Ray Chaudhari (1966) with creative musicians reported essentially consonant findings though specific differences were also found for different groups.

Identifying the highly creative by measures of self report questionnaire’s (Holland, 1961; Rees and Goldman, 1961), ratings (Drevahl, 1956; Parloff and Datta, 1965) and psychometrically, the investigators submitted essentially similar findings: high creatives as compared to the low creatives manifested greater independence, dominance, autonomy, unconventionality, broad interest and openness to feelings.

For Getzels and Jackson (1962) the highly creative adolescents portrayed the outsider, the rejected and rejecting spectator, rather than the welcome and committed participant. Torrance (1962, 1964) also observed that creative elementary school students were isolated from their peers in the classroom situation and seemed less accessible psychologically.
Garwood (1964), Parloff and Datta (1965), Cashdan and Welsh (1966), found that creative students display social poise and adequacy.

Parloff and Datta (1965) in comparing high and moderate creatives, found that they were both below the norms on the sense of well-being and self-control scales of CPI, it was the moderate creative who showed greater defensiveness, self-doubts and irritability.

Ray chaudhuri (1965) sought to analyse and compare the biographical data of Indian and American musical artists and found unhappy home environment, feeling of isolation, alienation and loneliness pointing to ego centricity, experience of parental discord as crucial factors in their lives.

Paramesh (1969) found creative high school students to be stable in personality organisation and characterised by high theoretical and aesthetic values. They were found to be low on economic values.

Goyal (1972) in a study on creative high school children found them to be more introverted, energetic, independent, open minded and tolerant than the low creative children.

Halpin, Payne and Ellett (1973) used the university of Georgia biographical questionnaire and the what kind of person are you? test on gifted high school students. They
isolated five significantly different factors for girls and five for boys. The significant factors for girls were cultural-literary interest, scientific, artistic interest, academic attitude, popularly with opposite sex and maladjustment and for boys were athletic interest, academic attitude, independence-dominance, parental control and socio-economic status.

Davis and Rimm's (1977) review of personality and biographical traits of creative persons reported that creative persons are characterized as being high in self-confidence, having awareness of their non-conformist and creative traits, possessing a high energy level, preferring complexity, a good sense of humour and having well developed artistic/aesthetic interests.

Kumar (1978) working on 9th class science students (N=86) administered the Torrance test of creative thinking, Jalota's test of general mental ability and a Hindi version of Eysenck's introversion-extraversion measure, a test of achievement motivation and a Hindi version of the Allport Vernon Lindzey study of values. Findings show that highly creative subjects were introverted, possessed theoretical values and were highly motivated towards achievement.

Singh (1979) in a study on 158 boys and 162 girls found that girls had higher levels than boys in word
association, ideational and expressional fluency, spontaneous flexibility, originality, autonomy in thinking, non-conformity to conventions and less rigidity in their belief system.

Hlavsa and Viewegh (1979) with 38 creative and 38 non-creative 7th and 8th graders, found that creative subjects preferred a rational openness towards the world, problems solving approach to problems, inner independence, and self-control whereas non-creative subjects stressed subordination as a positive value and physical energy in dealing with problems.

Stone (1980) working on 154, II graders, administered Torrance test of creative thinking and a 9-item sociometric type instrument. Their teachers completed the Walker Problem behaviour identification checklist for each child. Results show that subjects high in elaboration and in originality were more likely to be described by peers as exhibiting creative behaviour.

Jarial and Sharma (1980) administered to 200 high school students measures of creativity, mental ability and also the Maudsley personality inventory. Introverts and extroverts differed on originality.

Dehlavi (1980) working on 36 undergraduates and 18 professors gave the what kind of person are you? test. The analysis gave support to the belief that the self of a
creative person is a composite of several personality dimensions e.g. self-strength, self-confidence, intellectivity.

Rosenthal and Conway (1980) in a study on 10 graders administered the Minnesota counselling inventory, the unusual uses and non-verbal circles tests of the Torrance tests of creative thinking. They did not find any difference between problem behaviour group and the well adjusted group on creativity.

Gopal et al. (1980) gave 80 intellectually gifted 4th, 5th and 6th graders, Divergent thinking and problem solving tasks, the Rydall-Rosen tolerance of ambiguity scale, Bealer-Cromwell children locus of control scale and the Coopersmith self esteem inventory. Higher fluency subjects were more tolerant of ambiguity, internally oriented, positive self esteem and better problem solvers and school achievers.

Singh (1981) found a low but positive relationship between creativity and adjustment.

Hlavsa and Komarova (1981) working on 8th and 9th class students, found creativity to be positively related to energetic activity and extraversion and to a lesser degree to dominance and stability.

Barron and Harrington (1981) while reviewing empirical work of the past 15 years on the personality
characteristics of creative people found a fairly stable set of core characteristics: High valuation of aesthetic qualities in experience, broad interests, attraction to complexity, high-energy, independence of judgement, autonomy, intuition, self-confidence, ability to resolve antimonies or to accommodate, apparently opposite or conflicting traits in one's self-concept, and finally a firm sense of self as "creative".

Agarwal and Bohra (1982) administered a verbal test of creative thinking to 80 Indian children. They found high creative subjects to be more outgoing, cooperative, attentive to others, adaptive, quick to harm, emotionally mature, submissive and spontaneous. The low creative subjects were more reserved, rigid, slow to learn, unstable, assertive and shy.

Alter (1984) made comparisons of 28 conservatory dance majors, 51 university dance majors and 92 English majors on the Barron Welsch revised art scale, the adjective check list, a drawing task and an action preference test. Results showed that dance students were creative and had distinct personality characteristics. They were more intelligent, positive, flexible, achieving and dominating than average college students.

Schiener (1985) working on 21 gifted 7th and 8th graders administered Something about myself portion of the
Khatena-Torrance creative perception inventory and an overexcitabilities questionnaire. Findings indicated that high creative subjects showed significantly higher levels of imaginational emotional and intellectual over excitabilities than did low creative subjects.

Saxena and Sharma (1986) while studying 80 male high school students gave the high school adjustment inventory (Sinha and Singh, 1971) and verbal test of creative thinking (Mehdi, 1973). Results indicated that high creatives scored higher on emotional and social adjustments but lower on educational and overall adjustments.

Kundu (1987) in a study on 252 Indian high school students administered the Torrance tests of creative thinking, the Eysenck personality questionnaire and the Bender Gestalt test. Results indicated that creativity was positively related to ego-strength and introversion. Creativity is negatively related to psychoticism. The relationship between creativity and extraversion was curvilinear.

It is clear from the review given above that a number of studies have contributed fairly consistent insights into the personality of the creative (Cattell and Drevedahl, 1955; Rivlin, 1959; Reid, King and Wickwire, 1959; Mackinnon, 1961; Getzels and Jackson, 1962; Paramesh, 1969; Halpin,
Payne and Ellet, 1973; Davis and Rimms, 1977; Kumar, 1978; Stone, 1980; Barron and Harrington, 1981; Alter, 1984; Kundu, 1987). The present study making use of Cattell’s HSPQ hopes to throw more light on the personality structure of the creative among the lonely, aggressive and anxious children.

**Personality and humour**

"Men show their character", said Goethe, "in nothing more clearly than in what they think laughable". Brill found that an effective way of gaining insight into a person’s personality was to get him to tell his favourite joke. Invariably, the patients preferences provided a clue to motivational conflicts.

Kambouropoulu (1930) found extraversion and a preference for humour going together. Murray (1934) found a positive relationship between the possession of "ego-centric" individualistic aggressive sentiments and the enjoyment of derisive humour. Eysenck (1943) demonstrated that extraverted persons preferred "funny and simple" jokes while those persons rated as introverted favoured clever and complex (impersonal) items.

Wilson and Petterson (1969) studied the personality variable of conservatism in relation to preference for various types of humour. Results showed that conservative subjects preferred humour that was low in affectively laden
content, whereas, liberal subjects expressed greater appreciation of 'libidual' types of humour, that is, humour involving the transparent expression of sex and aggression.

Verinis (1970) in a study on high school and college students employed as psychiatric aids, secretaries or activity therapists found a positive relationship between the enjoyment of cartoons high and low in aggressive and sexual content and the extraversion scores.

Gidynski (1972) in a study among pre-adolescent, middle class boys found that flexibility in associative shift facilitated appreciation and comprehension of all types of humour studied. Peer rejection alone, as estimated by self report was found to be unrelated to appreciation and comprehension of humour. Anxiety about peer rejection and actual peer rejection estimated by sociometric ratings, facilitated appreciation of all humour but did not affect humour comprehension.

Weinberg (1974) in a study of 140 subjects found that students scoring low on anxiety and high on intelligence benefitted from humour. The opposite group, students high on anxiety and low on intelligence, however, did not.

Toney (1974) in a study on 120 male college students asked them to rate sixty cartoons on a ten point scale of humour. The findings indicated that a person's appreciation of aggressive humour was dependent upon at least two factors
viz. i) his level of felt control’ - the degree to which his expectations of control are consistent with the external control cues available to him; and ii) the levels of aggressive humour to which he can respond.

Brodzinsky (1975) presented six, eight and ten year old boys with cartoon pictures in individual sessions. These subjects had previously been categorised according to their typical response style on the matching familiar figure task (i.e. reflective, impulsive, fast-accurate, slow-inaccurate). Reflective subjects displayed greater comprehension of cartoon humour in comparison to impulsive and slow inaccurate subjects. This relationship held only for visual cartoons with high affective salience and conceptual cartoons with low affective salience. In contrast impulsive children displayed the greatest spontaneous mirth to the cartoons, particularly in relation to stimuli containing high affective salience.

Janus (1975) studied the intelligence, educational level, family background and personality structure of 55 nationally known comedians in America. Data were collected from case studies, clinical interviews early memories, dreams, graphological analysis and psychological tests. Results indicated that comedians tended to be superior in intelligence, angry, suspicious and depressed. They used humour as a defence against inescapable panic and anxiety and
they converted their rage from physical to verbal assault. Many of the comedians were also shy, senseless and empathetic individuals who accurately perceived the fears and needs of their audiences.

It is evident from the review given above that not much systematic work has been reported on humor and personality (Wilson and Patterson, 1969; Verinis, 1970; Janus, 1975). This would seem to call for further explorations in this area. One side advantage of the present study is that it will help provide insight into the relationship between humour and personality.

Humour and creativity

Weisberg and Springer (1961) found that children who excelled in Torrance’s test of creative thinking ability were rated by a psychiatrist as having a sense of humour more often than children who scored low on Torrance’s test of creativity.

Torrance (1962) found that primary school children who excelled in divergent thinking tests of creativity tended to produce wild and silly ideas and made drawings which were judged as playful and humourous.

Getzels and Jackson (1962) found that the creative subjects tended to use humour and violence more in their writings and drawings than the intelligent subjects.
Treadwell (1970) in a study on 83 junior and senior level undergraduates gave the cartoons test, self report of humour use and appreciation and 3 creativity tests namely remote associates test, Gestalt transformations and need for variety test. He found that scores on all the three creativity measures significantly correlated with the cartoons test scores.

Hauck and Thomas (1972) working on 80 elementary school children completed an intentional and an incidental associative learning task. Each of the three groups stratified on intelligence and creativity made either humorous, unusual or usual associations among common objects. Intelligence, creativity and humour were correlated. Sense of humour correlated highly with both creativity (r=.89) and intelligence (r=.90).

Babad (1974) found significant positive correlations between creativity measures and a number of cartoons captions produced by college students. The relationship between creativity and the funny or 'original' productions was not significant.

Rouff (1975) supported the results that comprehension of humour and creative thinking are related and have a common basis in the ability to link disparities.

McGhee (1976, 1980) found that creativity indices for 6 to 11 years old children predicted teachers and observers
ratings of humour production.

Lieberman (1977) found that teachers ratings of humour of kindergartan children correlated with scores on three short creativity tasks.

Gillbert (1977) in a study on first grade children gave the Torrance test of creative thinking, matching familiar figures test and a cartoon test comprising of 16 cartoons pictures and 4 buffer pictures. He found no relationship between humour appreciation and creativity.

Avner (1980) conducted 3 studies, 2 with high school students (with a total of 234 subjects) and one with 80 students in a teacher training programme. The results clearly demonstrated the relationship between humour and divergent thinking.

Collell and Domino (1980) used the remote associates test, similies test, Barron-Welsch revised art scale, Frank drawing completion test, and adjective checklist scored with the creativity scale and a 60 cartoon test. They found that high creative group preferred the incongruity cartoons.

Townsend, Torrance and Wu (1981) in a study on 29 graduate students gave the demonstrator Form of Torrance tests of creative thinking (Torrance, 1979) and sounds and images test (Torrance and Khatena, 1973), measures of creative style included: "Somethings about yourself, What
kind of person are you?, Torrance creative motivation scale and Form 'C' of your style of learning and thinking". They found that both creative style of thinking and creative thinking abilities play important roles in both the quantity and quality of humour production.

Couturier, Mansfield and Gallagher (1981) administered two humour tests; the remote associates test, the Barron Welsch revised art scale, and the Lunzer quiz (a measure of formal operations) to 117, VIII grade children. They found a significant correlation of .25 between remote associates test and joke test.

Verma (1981) working on 170 high school children, administered a creativity test (Wallach and Kogan) and humor test (Kaha's) to 25 creative and 29 non-creative subjects. Results showed that creative subjects had a better sense of humour than non-creative subjects.

Bleedorn (1982) states that the mental processes of humour and creativity are inseparable and that integrating the study of humour in class-room is one method of recognizing and developing creative talent.

Fabrizi and Pollio (1987) in a study on early and late adolescents used direct observation of humorous events as well as teachers, peers and raters judgements of humour and creativity. They were also administered the Torrance test of creative thinking and Piers-Harris self concept
scale. Results indicated that early adolescents who were high on humour were neither the most creative nor most self-satisfied. Humour among them was a sign of low self-esteem. However, late adolescents who were humourous tended to score well on tests of creative ability as well as on teacher’s rating of creativity.

It is clear from the brief review given above that there exists a positive association between constructs of creativity and humour (Weisberg and Springer, 1961; Torrance, 1962; Treadwell, 1970; Hauck and Thomas, 1972; 1976; Couturier, Mansfield and Gallagher, 1981; Fabrizi and Pollio, 1987). This is in line with the theories of Freud (1960) and Koestler (1964). The present study using psychometric tests of creativity and humour will provide a replication of the above findings in the Indian settings.

**Loneliness and anxiety**

Frieda Fromm-Reichmann (1959) was among the first to acknowledge the intrinsic relation between loneliness and anxiety. According to her, the most unpleasant and at the same time the most universal human experience is anxiety and this is caused by separateness. Freud’s psychoanalytic investigations revealed that the original feeling of separation anxiety occurs in early infancy and it involves a traumatic experience through which each individual
Throughout the course of an individual's life he continually remains vulnerable to the same constellation of fears and feelings, which originally arose in the initial moments of infant consciousness, in those first instants of the child's recognition that he and the mother are not one being but rather separate and alien consciousness.

Mijuskovic (1980; 1986) writing at length on the theme of loneliness has shown that loneliness, hostility, anxiety and the inability to communicate are intrinsically connected. He observes, "There is no loneliness without anxiety and the greater the degree of loneliness, the more intense will be the sense of fear."

At the empirical level various writers have reported findings obtained through psychometric investigations:


Moore and Schultz (1983) in a study of 45 male and female adolescents administered the UCLA loneliness scale, the self-esteem scale, the state-trait anxiety inventory etc. They found loneliness to be positively related to state and trait anxiety.

Russell, Cutrona, Rose and Yurko (1983) working on
college students administered the UCLA loneliness scale, the social provisions scale, depression and anxiety scale and assessed the social network. Loneliness appeared to lead to feelings of anxiety and depression.

Vitkus and Horowitz (1987) administered the UCLA loneliness scale on university students. He found that lonely subjects rated themselves as socially inept. They rated their task performance to be inferior and they reported feeling more depressed, more hostile and somewhat more anxious than the non-lonely subjects did after the task.

More recently, Solana and Koester (1989) used the UCLA loneliness scale, the personal report of communication apprehension scale (McCrosky, 1978) and the differential loneliness scale (Schmidt and Sermat, 1983) on undergraduates. They found loneliness to be strongly associated with anxiety over social skills, for both males and females and for a variety of social relationships.

Empirical research on loneliness and anxiety is relatively meagre. Whatever studies are available tend to point to: positive association between the two constructs. This might be due, in part, to the specific (and negative) way loneliness has been operationalised by the researchers. Some writers read a positive meaning in loneliness as solitude which may provide basis for enhanced self-perception, inner orientation and even some revelations.
(Suedfied, 1982; Larson, 1990). If this were to have some meaning, loneliness might not look merely to be a cause or consequence of anxiety. Present study represents a very modest attempt to have a fresh look at the relationship.

**Loneliness and aggression**

The first study investigated loneliness as a psychiatric concept "in its own right" and as a distinct and definable category of individual human experience was reported by the psychoanalyst Gregory Zilboorg (1938). He argued that hostility is a derivative and direct consequence of pathological states of loneliness. Clark Moustakas (1961) connected hostility with loneliness as well as anxiety. Often accompanying this feeling of loneliness, anxiety is a smoldering but helpless rage and a desire for revenge for being 'left out' of life. Loneliness anxiety (i.e. aggression) is a defence (and a reaction) against an unloving world, the pain of isolation and the yearning for tenderness and security. Mijuskovic (1980b, 1983) claims that loneliness, anxiety and hostility always accompany each other; and the aggression is either directed towards others or toward the self as it expresses itself in varying degrees through criticism of others, cynicism, mental cruelty, physical violence and homicide or through self depreciation,
feelings of inferiority, self mutilation, psychiatric disorders and suicide.

At the empirical level relatively little work has been reported on the relationship between loneliness and aggression. This seems to call for a more systematic exploration in this area.

**Anxiety and aggression**

Sarason et al. (1960) found on the basis of clinical impression from parent data that the anxious child has greater difficulty in expressing hostility to the father than to the mother.

Knoepfel (1971) discussed the important functions of anxiety and aggression - to warn us of threatening danger to mind or body and to induce us to take corrective action - and compares them to the pathological reactions which occur when these basically healthy instincts are uncontrolled, overcontrolled or suppressed.

Middleton (1972) working on undergraduates administered the mainfest anxiety scale and did not find trait anxiety to be related to physical aggression.

Vanderploeg, Van Buuren and Van Brummelen (1985) administered the Dutch state-trait anxiety inventory and the Dutch state-trait anger scale. Hypertensives showed higher
levels of anger and anxiety than controls but they tended to avoid showing anger.

Anderson and Ford (1986) conducted two experiments on undergraduates. In experiment 1, one game was highly aggressive and the other was only midly so. In experiment 2, each of the subjects played one of the games, as was assigned to a no game control condition. Later they were given the multiple affect adjective check-list. Subjects who had played the high aggression game were significantly more anxious than the other subjects.

Wass (1987) by using sociometric rating procedure found that the non-aggressive subjects were more anxious than aggressive subjects.

Mohanty (1988) in a study on 200 university students using multiphasic personality questionnaire (Murthy, 1964) found a significant positive correlation between anxiety and aggression.

The brief review given above reveals that empirical findings on the relationship between anxiety and aggression are quite inconsistent and equivocal (Sarason et al., 1960; Middleton, 1972; Anderson and Ford, 1986; Wass, 1987). This calls for further exploration. The present study is an attempt in this direction.
Intelligence in relation to personality, creativity, humour, loneliness, anxiety and aggression.

Intelligence and personality

Investigators studying the relationship between intelligence and extraversion have reported divergent type of findings. Hundal et al. (1972) and Hundal (1977) reported low and insignificant correlations. A number of other studies especially Broadbent, 1958; Lynn and Gordon, 1961; Child, 1964; Ley et al., 1966, Madan, 1967; Eysenck, 1971; also found extraversion and scores on intelligence tests as unrelated. However, Entwistle and Welsch (1969) found a positive correlation. In this context, Eysenck and Cookson (1969) reviewed the evidence and provided some new data to suggest that in primary school there is a positive correlation between extraversion and I.Q. while in secondary school this relationship becomes reversed, so that gradually introverts show higher I.Q as well as greater achievement.

Regarding the relationship between intelligence and neuroticism again various types of findings have been reported. Jensen (1973) reported correlations to be consistently small and negative. Hundal (1977) found low and insignificant correlation between the two (-.040). A number of other studies (Lunzer, 1960; Hallworth, 1961; Callard and Goodfellow, 1962; Butcher et al., 1963; Madan, 1967; Entwistle and Cunningham, 1968) also reported negative
correlation between emotionality or neuroticism and performance on ability tests.

Eysenck (1965), however, found neuroticism to have a slight negative correlation with verbal I.Q. in children, while the non-verbal raven matrices showed no correlation at all with neuroticism. In a later investigation, Eysenck (1971) found the correlation to be low and insignificant. Number of studies (Payne, 1960; Lynn and Gordon, 1961; Eysenck and White, 1964; Savage, 1966) found evidence for 'inverted' U-type of relationships between neuroticism and scores on two intelligence tests with high neuroticism and low neuroticism doing better than average neuroticism. In this context, Eysenck (1967a, 1967b) observed that neuroticism probably did not exert its influence unless the situation was perceived as anxiety-producing by the subjects.

**Relationship between intelligence and creativity**

a) Studies suggesting low correlations between intelligence and creativity:

Systematic research in the field of creativity started after 1950. In line with his structure of intellect model, Guilford (1950), believed convergent and divergent production abilities to be relatively independent. His assertion was supported by his subsequent research work as well as by other studies. Getzel’s and Jackson (1962) studied
highly gifted adolescents and found the correlation between I.Q. and Guilford derived creativity measures to be in the order of .3. Using his own tests in a replication of the Getzel's and Jackson work at the elementary school level. Torrance (1962) obtained essentially similar results, his correlation with various intelligence tests ranged from .16 to .32. Guilford and Hoepfner, (1966) reported a mean correlation of .32 between 45 divergent production test scores of the ninth grades and the California test of mental maturity. Yamamoto (1964) working on adolescents found a correlation of .3 between Torrance creativity test scores and scores on the Lorge-Thorndike measures.

Keer and Abraham (1962), Cline, Richards and Needham, (1963), Jacobsen and Asher (1963), Richards, Cline and Needham (1964), Seitz (1964), Clark and others (1965); Cripey (1966); Torrance (1967); Riaz (1979); Joshi and Joshi (1986) also found similar results.

b) Studies suggesting significant correlation between intelligence and creativity.

Other studies have, however, found a positive relationship between creativity and intelligence. Hasan and Butcher (1966), Ginsberg and Whittemore (1968) found coefficients of correlations between intelligence and creativity to be as high as .74 and .60 for the Scottish and Australian samples respectively. Springbelt et al. (1957),
Edward and Tyler (1965), Lovell and Shields (1967), Haddon and Lytton (1968), Shouksmith (1970); Moreno and Alonso (1983), Kreshner and Ledger (1985) also found positive correlation between intelligence and creativity.

c) Studies suggesting I.Q. threshold for creativity:

Yet another group of studies (Taylor and Holland, 1962) Taylor, 1964; Yamamoto, 1964, 1965; Torrance, 1966; Dacey and Madaus, 1971; suggest a threshold I.Q. (generally 120 I.Q.) beyond which measured intelligence seems to play a negligible role in creativity.

d) Studies providing evidence not in favour of threshold hypothesis:

There is some empirical evidence which is not fully consonant with the above mentioned studies favouring threshold hypothesis.

Ginsberg and Whittemore (1968) reported a positive linear relationship throughout the ability range. Wallach (1970) has suggested that the threshold theory is not quite tenable since the decrease in relationship between I.Q. and creativity scores as I.Q. increases is, according to him, simply a function of the restricted distribution of I.Q. scores.
Intelligence and humour

Cunningham (1962) reported a low correlation between sense of humour and intelligence.

Hauck and Thomas (1972) found a correlation of .91 between humour and intelligence in a study on elementary school children.

Weinburg (1973) in a study on 140 college students found that low anxious students of high intelligence benefitted significantly by humour and high anxious students of lower intelligence did not benefit from humour.

Janus (1975) studied the intelligence, educational level, family background and personality structure of 35 nationally known comedians in America. Results indicate that comedians tended to be superior in intelligence.

Intelligence and loneliness

Review of available literature reveals that little empirical work has been reported on the relationship between intelligence and loneliness.

Intelligence and anxiety

Waite et al. (1958) matched high and low anxious children on the basis of intelligence and found that the low anxious subjects still learned more rapidly than the high anxious. Broen (1959) found, with intelligence held constant,
the TASC scores of V grade boys did not predict current achievement test performance or changes in it during the school year (Spielberger, 1972).

Davidson (1959) found a significant negative relationship between grades in school and anxiety with intelligence held constant. It was further found that in male subjects matched for intelligence, low anxious did significantly better than the high anxious on total score performance.

Spielberger et al. (1959) reported that for high, middle and low groups on intelligence, correlations between anxiety (MAS) and grades vary inversely with anxiety level for the average ability group. They further concluded that high aptitude subjects tended to obtain good grades irrespective of their anxiety level.

Sarason (1960) on the basis of three studies concluded that the child who scored high on anxiety scales manifested greater interference in problem solving than his peer who scored low despite the fact that both scored the same on intelligence tests, thus supporting the contention that anxiety is not a function of or consequence of I.Q. level.

Feldhusen and Klausmeier (1962) studied 120 children belonging to low, average and high I.Q. groups. The results indicate that the correlations between anxiety, intelligence
and achievement were negative for low and average I.Q groups and not so for the superior group of children.

Phillips (1962) reported that the level of intelligence plays an interactive role in relationships between anxiety and educational achievement.

A study by Spielberger and Weitz (1964) also presented evidence of interactive effects of anxiety and intelligence on academic achievement. Results indicated that for upper class men high anxiety facilitated performance of subjects at the highest level of ability but had detrimental effect on students of low and average ability.

Sarason et al. (1964) have reported that changes in test anxiety across the elementary school years are accompanied by predicted changes in intelligence and achievement test performance (Spielberger, 1972).

Denny (1966) reported that anxiety facilitates performance at upper levels of intelligence and it is associated with poor performance at the lower level of intelligence. The interactive effect of anxiety and ability on the performance of a moderately difficult task was also observed by Katochn (1966).

Speilberger (1966) suggested that for persons with high intelligence, high anxiety facilitates performance on simple tasks and on most tasks with moderate difficulty. In
contrast high anxiety will lead to decrements in performance for individuals of low ability, except on very easy tasks.

Kanekar et al. (1976) failed to find support for the hypothesis that there would be a positive relationship between anxiety and academic achievement for the more intelligent student and a negative correlation for the less intelligent.

Kanekar (1977) with a sample of 172 under-graduates found support for the hypothesis that there should be a larger correlation in the positive direction for the more intelligent than for the less intelligent. Correlation of -.03 was found between the high intelligent group, and -.39 for the low intelligent. The differences between the two correlations were significant.

Linnman (1979) for a sample of 428 V grades, obtained results that indicated that an increase in test anxiety resulted in lower achievement especially in mathematics for more intelligent boys.

**Intelligence and aggression**

Lowenstein (1977) and Olweus (1978) have shown that bullies in school are generally below average in academic skills.

Hirschi and Hindelang (1977) suggested that childhood school experience mediates the relationship between I.Q. and
delinquency, that is, lower intellectual ability makes success in school more difficult and leads to poorer achievement. Poor achievement in turn probably reduces self-esteem, social esteem and frustrates the child. When faced with difficult social situations such a child is more likely to respond aggressively. In addition, the child with diminished intellectual abilities probably finds it more difficult to devise alternative, less direct strategies to obtain his or her goals. Such behaviour will tend to be repeated if the child cannot learn and retain alternative strategies.

Huessman, Eron and Yarmel (1987) in a 22 year study collected data from more than 600 subjects, their parents and their children. They found that aggression and intellectual functioning are reasonably stable in a subject's lifetime and perpetuate themselves across generations and within marriage pairs. Aggression in children was shown to interfere with the development of intellectual functioning and to be predictive of poorer intellectual achievement as an adult.