Significance

The utilisation of Human Resources adequately in terms of fitting the right person in the right profession, is becoming a focal theme in most of the developing countries. The preparation for this, starts much earlier in the life of an individual. Vocational maturity is essentially a developmental process. Parameters which relate to the development of vocational maturity should form the perview of psychological research. An understanding of the concept of vocational maturity ultimately provides a basis for a better understanding of human behaviour in relation to their level of personality, abilities (intelligence and aptitudes) and academic achievement. It would also help to understand the vocational behaviour patterns that emerge during adolescence.

The present study probes into the factors associated with the development of vocational choices. It aims at studying the role played by personality, abilities and academic achievement in making a vocational choice. One of the tasks of guidance is to help individuals increase their understanding of implications of various choices and likewise make choices. The present research is an attempt to study personality, abilities and academic achievement of IX, X and XI class students in relation to their vocational maturity.
Since the process of vocational maturity is essentially developmental (Gingberg et al., 1951 and Super et al., 1957), a study highlighting the vocational maturity growth curve over developmental stages of adolescence is called for. Present investigation has special significance for its impacts on educational and vocational guidance at the IX, X and XI class levels. Vocational maturity may be intimately related to the ability and personality variables in an individual. Findings of the present research may be helpful in the implementation of the new educational policy system in India, because vocationalization and vocational adjustment are an integral parts of this policy. Knowledge of parameters of vocational maturity will help in better career development and preparation of school children in the developmental task of vocational decision making. To achieve this goal, more knowledge is required to be gained from researches of developmental sequence and the determinants of vocationally mature/immature behaviour. The students must possess the knowledge of variables which will provide them with better environment to produce vocationally mature behaviour as well as properly adjusted individuals. The most effective approach is to convert the factors in to objectives making a large number of students capable of achieving it. This approach finally enables them to determine the form in which such objectives will be cast so that the students of both sexes can be guided properly by vocational guidance counsellors for the proper selection of their future career.
Emergence of the Problem

As already pointed out, there is consistency in relationship between environmental, psychological and vocational maturity variables. Moreover, while conducting research in these aspects, the researchers have not paid due attention to the school students' personality in terms of extraverted/introverted and neurotic tendencies, differential abilities, family's professional background in terms of Armed Forces or Civilian in relation to vocational behaviour. It was decided to take up above said variables along with academic achievement, intergrade and sex differences. It can be pointed out that the environment in which an individual lives as a potent variable may be expected to play a significant role in determining his or her vocational choice and prior to that the process of vocational maturation. For instance, if a child lives in a home which has a particular vocational bias, it is likely to influence the subsequent vocational choice process of the child. The children pass through a number of different occupational orientation experiences such as personal, educational and vocational during school period which resultantly influence later development of vocationally mature behaviour. The existing research is hoped to provide valuable theoretical understanding of the patterns of vocational development and maturation in terms of vocational maturity particularly at the IX, X and XI class level. The school students belonging to the Armed Forces
personnel and civilians are exposed to different educational courses, which in turn make them competent for different occupations, and on the other hand each occupation also requires specific type and level of education. Consequently, vocational maturity of IX, X and XI class students from different fields is likely to be different.

**Hypothesis**

The main thrust of the present study was to study the differences in vocational maturity of the children of both sexes belonging to Armed Forces personnel and Civilians in relation to their personality, intelligence, aptitudes and academic achievement. However, the data generated would also provide for some secondary information in terms of interlinkages among various variables of personality, intelligence, aptitudes, academic achievement, educational class levels, background and sex. The ensuing deduction of hypotheses would weave around these developmental progressive changes and interrelationships. The hypotheses of the present study are envisaged under five broad areas viz. developmental trends, background differences, sex differences, interrelations and predictive efficiency of independant variables.

A. Developmental Trends

1. Educational Class Levels and Vocational Maturity

The developmental theories of Ginzberg et al. (1951); Super (1957) and Crites (1973) suggest that vocational behaviour develops more rapidly during adolescence. A
number of studies conducted by (Gribbons and Lohnes, 1968; Pendleton, 1976; Alexander, 1977; Kelso, 1977; Seik, 1978; Chand, 1979; Dillard and Perin, 1980; Mahy, 1980; and Josan, 1983) showed that there was a progressive development in vocational maturity as an individual moved from pre-adolescence to adolescence.

Hence, it was hypothesized that "Vocational maturity would improve as we move from Class IX to XI".

2. Educational Class Levels and Intelligence

According to Jenson (1973) intelligence is that aspect of mental ability which consolidated learning and experience in an integrated and organized way. Vernon (1979) wrote that mental power vary in amount or in rate of growth or decline. It is essentially innate, hence it develops or matures with age irrespective of the environment. It has been found by various researchers that general mental ability in terms of intelligence develops more rapidly with increase in age till about the age of seventeen (Jalota, 1952 and 1964; Pandey, 1961; Shah, 1964; Singhal, 1965; Kaul, 1966; Pandey, R. N., 1970; Nair, 1972; Rao, 1975 and Duari, 1976).

"It can be hypothesized that the scores on intelligence would increase as we progress from Class IX to XI".

3. Educational Class Levels and Aptitudes

Intelligence is not a unitary trait - it is composed of many abilities, which are present in different individual's
in varying amounts (Bennett et al., 1966). Intellectual abilities become more differentiated with increasing age (Garrett, 1946 & Piaget, 1950). Several researchers found that various abilities in terms of aptitudes develop with increase in age and educational class levels, particularly at the high and secondary school stage (Rao, 1962; Sharma, A., 1967; Sharma, B.C., 1967; Bhavsar, 1971; Pai and Jeyapaul, 1974; Kale and Danke, 1976; Saddiqui, 1979; Sharma, N., 1980; Vega and Prieto, 1980; Banker, 1981 and Bhatt, 1981).

In the light of above, it was hypothesized that "Verbal reasoning, numerical ability, abstract reasoning, mechanical reasoning, space relations, clerical speed and accuracy, language usage spelling and language usage sentences would show a developmental trend from class IX to XI".

4. Educational Class Levels and Academic Achievement

Each examination conducted in school was a test to select students for the next higher rung of the educational ladder. The content of syllabus in terms of various academic abilities e.g. English, Hindi, Mathematics, Science, Social Studies varies in the hierarchy based on achievement. Age or grade differentiation in academic performance due to progressive development in one's basic abilities was found by various researchers (Lele, Patel and Parikh, 1963b; Purohit et al., 1972; Kale & Danke, 1976 and Patel, 1977).

In view of above, a consistent pattern permits to expect developmental progress in academic performance. Therefore, "It may be expected in the present study that English, Hindi, Mathematics, Science, Social Studies and total academic achievement would show a progressive increase in academic achievement from IX to XI classes."
5. **Educational Class Levels and Personality**

One of the important determiner of human behaviour is known as personality. It is mainly concerned with traits in terms of various characteristics of an individual. Each person develops in his or her own way and there may be some expected developmental variations in personality traits in comparison to others. It is generally accepted that person's growth of personality development modifies due to changes in maturation and learning processes. An attempt was made to differentiate these developmental changes pertaining to personality in terms of Eysenkian personality modal of Extraversion/Introversion (E/I) and Neuroticism (N) dimensions. The hypotheses for E/I and N were framed separately as under :-

a) **Educational Class Levels and E/I**

Eysenck (1960) maintained that the extraverted patterns of behaviour are the outcome of the tendency to generate Ir quickly and dissipate it slowly; and that the introverted behaviour is the result of the tendency to generate Ir slowly and dissipate it quickly. This difference in an individual's regarding the proportion of excitatory and inhibitory balance in the cortical activity affects performance especially with regard to conditionability. Behaviour patterns become more introverted with increasing age (Lynn, 1964; S.B.G. Eysenck, 1965 and Gutman, 1966). Mohan (1976) reported that extraversion was found to be significantly and negatively
related for the age levels 10 to 15 and 20 to 25 years.

"From the above stated facts, it may be expected in the present research that there would be a decrement in scores on extraversion with the advancement in educational class levels i.e. from IX to XI".

b) Educational Class Levels and Neuroticism

According to the theory of Eysenck (1947), there is a decrease in the scores of neuroticism with age since neuroticism is taken as autonomic drive. There is a decline in the reactivity of the sympathetic nervous system with ageing (Gelborn, 1956). Eysenck (1965) reported significantly higher scores on neuroticism for early adolescents linking on set of adolescence with greater anxiety and hence greater increase in neuroticism. Neuroticism tended to decrease from early adolescence to late adolescence (Collard & Goodfellow, 1952; S.B.G. Eysenck, 1955; Gutman, 1966 and Pandey, 1978).

"In the light of above cited research, it may be suggested that scores on N would show a decrease as we proceed from class IX to class XI".

B. Background Differences

1. Background (Armed – Civilian) and Vocational Maturity

Cattell (1950) pointed out that the cultural environment was taken for granted as far as its detailed variations are concerned. According to Spiro (1951) a great deal of variability in human behaviour has been found to be related to cultural variation. Students preparing
for Military career are different from students preparing for Civilian career (Reed and Loman, 1975). Card (1977) found that college ROTC (Reserve Officers Training Corps) Cadets scored higher on career development than college non-ROTC students (Civilians).

"In view of above, there will be differences between children belonging to Armed Forces personnel and Civilian on vocational maturity measures, in favour of the former".

2. **Background (Armed - Civilian) and Academic Achievement**

Card (1977) reported that there were no significant differences in the academic grades of JROTC and non-JROTC high school seniors. However, ROTC college students reported lower high school and college grades than their non-ROTC classmates.

"In view of the literature available on Defence and Civilian differences, a lack of consistent pattern permits to expect background differences in academic achievement, though no clear direction can be predicted".

3. **Background (Armed - Civilian) and Intelligence**

In the absence of research referred to above, the following null hypotheses were framed:

"There would be no differences in intelligence between children belonging to Armed Forces personnel and Civilians".

4. **Background (Armed - Civilian) and Aptitudes**

In the absence of research regarding professional background of parents and its relation to aptitudes, the following null hypotheses was framed:
"Children from Armed Forces parentage would not differ from those of Civilian parentage on verbal reasoning, numerical ability, abstract reasoning, mechanical reasoning, space relations, language usage (spelling & sentences) and clerical speed & accuracy".

5. **Background (Armed - Civilian) and Personality**

The following null hypotheses was framed:

a) There would be no differences in E/I between children belonging to Armed Forces personnel and Civilians.

b) There would be no differences in Neuroticism between children belonging to Armed Forces personnel and Civilians.

C. **Sex Differences**

1. **Sex and Vocational Maturity**

Vocational behaviour differs in males and females because of differences in their social roles and maturational process. It has been found that females belonging to the school samples (IX, X and XI) scored significantly higher in vocational maturity measures than males (Rhodes, 1973; Mintzer, 1976; Boder, 1977; Marganoff, 1978; Utairat, 1981; Alvi and Khan, 1983; Josan, 1983; and Super and Nevill, 1984).

"In the light of above cited research findings, it may be expected in the present research that girls would score higher in vocational maturity in comparison to boys".

2. **Sex and Intelligence**

D'Andrade (1966) pointed out that sex hormones have something to do with the development of sex differences in
behaviour of human beings. There are different developmental patterns of males and females which have been advanced as one of the casual factor of sex differences in performance and intelligence. Females mature faster than males due to pubertal changes and being superior to males in psycho-social, emotional and physical development. Usmani (1981); Magotra (1982) and Rao (1982) found that females were significantly higher in intelligence than males.

"In the light of above stated studies, it may be expected in the present study that there would be differences between males and females in intelligence point of view, in favour of females".

3. Sex and Aptitudes

The cleavage between the sexes testifies the success of role socialization. It is simply the case that the play activities, valued qualities and vocational aptitudes differs so widely between males and females. Sex differences were related to different rates of physical maturation, females being early maturers and males being late maturers. Abilities are a product of maturation and learning. The stage of development of an individual limits what he/she can learn. Abilities develop at different rates from birth through adolescence. Sex differences in rate of development are substantial. This may lead to psychological differences in mental abilities.
a) **Sex and Verbal Reasoning**


"In the light of above stated research findings, it may be expected in the present study that females would score higher than males in verbal reasoning".

b) **Sex and Abstract Reasoning**

Amester and Wiegand (1972) found that females scored higher in abstract reasoning in comparison to males.

"In the light of above cited research, it may be expected in the present study that females would be higher in abstract reasoning in comparison to males".

c) **Sex and Clerical Speed & Accuracy**

Satyamurthy (1965) found that females were higher in clerical speed and accuracy as compared to males.

"In the light of above said investigation, it may be expected in the present study that there would be differences between males and females in the test of clerical speed and accuracy, in favour of females".

d) **Sex and Language Usage Spelling & Sentences**

Various researchers found that females were superior to males in English language skills (Traxler and Spaulding, 1954; Dave, 1958 and Agnihotri, 1979).

"In the light of above stated research, it may be expected in the present study that females would be better in language usage spelling and sentences as compared to males".
e) **Sex and Numerical Ability**

Males were found to be superior to females in numerical ability (Nayar, 1971; Ojha, 1975; and Lalithamma, 1975).

"In the light of above cited research, it may be expected in the present study that males would score higher in numerical ability than females".

f) **Sex and Mechanical Reasoning**

It was found that males scored significantly higher in mechanical reasoning than females (Jo^hi, 1960; Mohan and Kumar, 1975; and Sariwat, 1981).

"In the light of above stated evidence, it may be expected in the present study that males would be superior in mechanical reasoning as compared to females".

g) **Sex and Space Relations**

Males were found to be significantly superior in spatial task than females (Havighurst and Breese, 1947; Waber, 1979; Sharma, N, 1980 and Block and Block, 1982).

"In the light of the above stated research, it may be expected in the present study that males would be better in space relations than females".

4. **Sex and Academic Achievement**

a) **Sex and Academic Achievement (English)**

Acharyulu (1978) found that females were significantly superior in English in comparison to males.

"In the light of above, it may be expected in the present study that females would be better in English as compared to males".
b) **Sex and Academic Achievement (Hindi)**

Patel (1977) reported that females were significantly better in Hindi in comparison to males.

"In the light of above cited investigation, it may be expected in the present study that females would be superior in Hindi as compared to males".

c) **Sex and Academic Achievement (Mathematics)**

Tyler (1965); Lalithama (1975) and Pandey, M.M. (1960) found that males were superior to females in Mathematics.

"In the light of above cited investigations, it may be expected in the present study that males would be better in Mathematics in comparison to females".

d) **Sex and Academic Achievement (Science)**


"In the light of above, it may be expected in the present study that there would be no sex differences in Science".

e) **Sex and Academic Achievement (Social Studies)**

Acharyulu (1978) found that there were no sex differences in achievement in Social Studies.

"In the light of above, it may be expected in the present study that there would be no sex differences in achievement in Social Studies".

f) **Sex and Total Academic Achievement**

Studies of school achievement agree that females
consistently make better school records than males. Differences in this sort have been reported from a wide variety of investigations, using various criteria of school success (Bokil, 1956a; Patel, 1977; Sharma, V.S., 1976; Dhillon, 1979; Sharma, H.R., 1981 and Shah, 1982).

"In the light of above cited investigations, it may be expected in the present study that females would be doing better in total academic performance as compared to males".

5. Sex and Personality

In the present study, the hypotheses of sex differences regarding Eysenck's personality model of E/I and N dimensions was framed separately as under:

a) Sex and Extraversion / Introversion

Krishna (1973) found that males showed greater predisposition to introversion than females. Mohan and Kumar (1975) found significant sex differences in E/I, girls scored higher in extraversion.

"In the light of above stated research, it may be expected in the present study that scores of females would be higher in extraversion as compared to males".

b) Sex and Neuroticism

Females have higher scores in N than males (Eysenck, 1959; 1964; Gutman, 1966; Mohan et al., 1968; Mohan and Kumar, 1975 and Mohan 1976).

"In the light of above stated investigations, it may be expected in the present research that females would score higher in neuroticism in comparison to males".
D. Inter-relations amongst the Abilities (Intelligence and Aptitudes), Academic Achievement, Personality and Vocational Maturity Variables

This part of the present study was dealt with the inter-correlations among independent and dependent variables. Hypotheses were framed as under:

1. Intelligence and Vocational Maturity

Intelligence is known to influence vocational development. Vocational maturity evolves through a process of learning and imbibing social norms. A more intelligent person is therefore likely to develop vocational maturity faster. Scheri (1973); Seaward (1977); Chand (1979); Somers (1981); Simpson (1983) and Saxena (1984) found intelligence test scores to correlate positively with vocational maturity.

"In the light of above mentioned research findings, it may be expected in the present research that there would be significant positive correlation between intelligence and various parameters of vocational maturity".

2. Aptitudes and Vocational Maturity

According to Bennett et al. (1966) intelligence is not a unitary trait - it is composed of many abilities. Garrett (1946) has pointed out that intelligence in children becomes differentiated with increasing maturity and constitute in reality special aptitudes rather than aspects of general ability. Mohan (1978) mentioned about the unitary abilities or special aptitudes which may be independent in
nature or in some cases may be grouped in hierarchical theories of Vernon. He called verbal, numerical and abstract aptitudes as verbal educational of 'g' factor. Whatever be the structuring of the specific aptitudes, it is an accepted fact that they have developmental potential. Therefore, vocational maturity too is developmental and is based on the acquired and learnt behaviour. Aptitudes too are indicative of vocational potential. As such, it is worthwhile to study the two in juxtaposition to each other.

The ensuing framing of hypotheses will evolve around seven differential aptitudes as enumerated by Bennett et al. (1966) :-

a) **Verbal Reasoning and Vocational Maturity**

Ashley Foster (1979) found that verbal aptitude was significantly related to each of the four vocational maturity measures (attitudes, self-appraisal, planning and problem solving).

"Therefore it may be expected that there would be significant and positive correlations between verbal reasoning and all the measures of vocational maturity".

b) Since there is a relative paucity of research on vocational maturity and its relationships with numerical ability, abstract reasoning, mechanical reasoning, space relations, clerical speed & accuracy, language usage spelling and sentences, the following null hypothesis was framed :-

"There would be no relationship between the aptitudes as referred above and vocational maturity".
3. **Academic Achievement and Vocational Maturity**

The role that education plays in the learning processes forms the basis for future vocational opportunities. This indicates close association between academic performance and world of work. The marks in academic subjects do influence the choice of vocational courses to be pursued later in life. Analysis of academic achievement in vocational behaviour has been frequently studied. Academic achievement is positively and significantly related to vocational maturity (Brandt, 1976; Karayanni, 1977; Osgood, 1978; Chand, 1979 and Robinson, 1981).

"In view of above, it was hypothesized that there would be significant and positive correlations between academic achievement and vocational maturity".

4. **Personality and Vocational Maturity**

a) **Extraversion/Introversion and Vocational Maturity**

Chauhan (1975) found negative correlation between extraversion and vocational maturity for males, the opposite was the case for females. Ahuja (1985) found that goal selection and total competence test (CMI) were significantly and positively correlated with extraversion. Tancredi (1977) found that introverts were vocationally more matured than extraverts. "On the basis of Eysenck's theory (1960) which associates extraversion with slow arousal, faster accumulation of reactive inhibition and its slower dissipation, it is the introverts with quicker arousal, slower accumulation of reactive inhibition and its faster
dissipation, who should be better in learning". (Mohan and Dhingra, 1985). Since introverts learn faster, it may be deduced that they are required social learning. The process of socialization is also an outcome of learning when we talk of vocational maturity we are in a way talking of social learned responses.

"In view of above, it may be expected that there would be significantly negative correlations between extraversion and vocational maturity measures".

b) Neuroticism and Vocational Maturity

Research evidence regarding relationship of neuroticism to vocational maturity is very scanty. The traceable efforts included relationships of neuroticism to vocational choices rather than vocational maturity. Madan (1984) found that the personality factor N was significantly and consistently related to vocational choices of Science and Arts students at the post graduate level. Vohra (1978) reported that correlation between N and choice for technology groups levels 1, 2 and 3 (Roe's classification) is very low. Thus these studies may prove to be an insight in to possible relationships of vocational maturity and neuroticism so as to provide some direction in formulation of related hypotheses. Although, considerable research has been carried out in the area of vocational spectrum, yet as far as the direct relationships between neuroticism and
vocational maturity is concerned, it appears to warrant further investigation.

"Therefore, a lack of consistent pattern referred to above, warrants a null hypotheses regarding relationships between neuroticism and vocational maturity".

E. Conjoint Effect of Personality, Abilities and Academic Achievement Variables on Vocational Maturity

This part of present research is related to variables of personality, abilities and academic achievement as predictors of vocational maturity. Some of the researchers have applied multiple regression analysis in order to predict vocational behaviour in relation to different abilities and personality characteristics or traits in terms of performance in various directions and fields. It is valuable to provide some evidence of accurate assessment beyond simple correlational investigation. Harkness (1973) found that IQ scores appeared as the most significant single predictor of a child's occupational knowledge. Lawrence and Brown (1976) concluded that intelligence was a significant predictor of career choice attitudes (CMI). Intelligence emerged as one of the best predictors of vocational maturity (Super and Overstreet, 1960; Agarwal, 1981 and Chodzinski, 1983). Pavlak (1981) concluded that grade point average (GPA) along with other variables were the best predictors of IX grade vocational attitudinal maturity (CMI). Phillips and Strohmer (1982) found that only a combination of the scholastic achievement variable and a lack of
dependent decision style was even moderately predictive of vocational maturity. Saxena (1984) concluded that intellectual and personality variables conjointly contribute better towards the prediction of vocational maturity than their separate predictions. The total percentage of contribution, attributed by the conjoint effect of intellectual and personality variables for the prediction of vocational maturity, is higher for the variance of career choice competencies than of career choice attitudes.

"In the light of above scientific research findings, it may be expected in the present study that: -

a) Personality variables viz. E/I and N would be significant predictors of vocational maturity (Career choice attitudes and career choice competencies total);

b) Differential abilities namely, verbal reasoning numerical ability, abstract reasoning, mechanical reasoning, space relations, language usage I spelling, language usage II sentences, clerical speed & accuracy and intelligence would be significant predictors of vocational maturity (Career choice attitudes and career choice competencies total);

c) Academic achievement measures viz. English, Hindi, Mathematics, Science, Social Studies and total academic achievement would be significant predictors of vocational maturity (Career choice attitudes and career choice competencies total);
d) The contribution of personality, differential abilities and academic achievement variables would be higher of predicting career choice competencies total than of predicting career choice attitudes in their separate and combined strength; and 
e) It could not be predicted that out of personality, abilities and academic achievement variables which would be the most significant predictor of career choice attitudes and career choice competencies total".

Aims and hypotheses of the present study were briefed in the previous pages. Method and Procedure applied for testing present hypotheses (as referred above) are reported in the forthcoming Chapter - IV.