The choice for an occupation is crucial not only for getting a particular satisfactory job but also for overall happiness in one’s life. It has been repeatedly mentioned in the studies reviewed in this work that the success or happiness or the failure or dejection that one may get in life will be sufficiently related to this decision. However, the results of many studies indicate that in many cases young people have unrealistic approaches to their vocational preferences (Lockwood, 1958; Mohan & Banth, 1977). It has been pointed by Education Commission (1966), Chandrakant (1971), Damodaran Committee (1971), Rao and Arunagathi (1971) that the students are admitted to vocational course (Technician Education) without the use of systematic or scientific procedure. This decision of joining the courses is taken accidently. Reddy (1973), Mohan & Banth (1977) have reported that majority of the students in India do not make realistic choices of the occupational courses.

Mehta (1970) concluded most often the decision to join the vocational courses are determined or influenced by desires of the parents of the children. Parents are equally ignorant of the various potentialities and their suitability to the various educational vocational courses - such as technician courses. Meand (1972) reported that only 21.4% students planned their careers while they were at higher secondary stage.
Aims of the Present Study

The review of the literature in the previous chapter suggests that environmental and psychological factors are important in adequate vocational choice, and its success in life. The effects of environmental factors in the occupational choice have been sufficiently investigated. Some of the psychological factors and their effects on the vocational choice have been studied by various investigators. The interrelationship of all the important psychological factors such as Intelligence, Aptitude, Personality and Academic Achievements in vocational choices and their success needs thorough investigation. The success of the student in technician courses may be dependent on some psychological variable. This study is aimed to investigate the relationship of Intelligence, Aptitude, Personality, Academic Achievements and the Occupational Choices of the polytechnic students in India. The study may bring out the degree of relationships for the success of the students in such courses.

Each of the aforesaid factors play significant role in the performance on the job. The general intelligence of the individual i.e., his ability to comprehend and use symbols and logical reasoning are important not only in every educational and vocational situation but also in his daily life situations. Special aptitudes make significant contribution on the performance of the person in a job like technician. Most of the work situations require specific level of adjustment on it which will be determined by the individual's personality patterns. Needless
to say that force underlying the performance of any activity may be educational or vocational - is the interest of the person.

The new scheme of 10+2 education at the school level has been introduced wherein academic and vocational streams are thought of. The general stream up to 10th standard will then be bifurcated into vocational and academic courses. If the unplanned vocational education continues as today, it may lead to more wastage and heavy burden on Indian economy. In this context, the investigation holds special significance at this crucial period in the history of Indian Education System.

In the present study it is proposed to investigate the relationships of Intelligence, Aptitude, Personality, Academic Achievement and Occupational Choice of the polytechnic students. These relationships may bring out the correlates of the students in such technical courses. It may be then possible to find some clusters of correlates which go together in the success of polytechnic students. On the basis of these clusters, the classroom teachers may be able to give guidance to the students. This information may also prove useful for the selection of the students in the polytechnic courses.
HYPOTHESIS

(1) Occupational Choice of the Polytechnic Student

The problem of choice of an occupation in modern society involves the need for matching the resources of the individual with various kinds of jobs. The studies of Rao (1971), Reddy (1973), Mohan and Banth (1977) show that majority of students do not make realistic choices of the educational or vocational areas, i.e., they do not match their personal characteristics with the requirements of the occupations.

Madaus and O'Hara (1967) reported that interests are more important determinants of stated vocational choice than personality values and aptitudes. Nelson (1963) and Tyler (1965) said that interests provide information about an individual's characteristics pattern of choice and rejection of the occupation. Interests have been considered to be the motivating force. Vocational Interests emerge as one of the best systematic of data in differentiating between occupational choices made during high school. Interest at high school sufficiently get stabilised (Sharma, 1971), so the occupational choice made at this stage will be sufficiently stable.

Ginsberg, Axelrad and Harma (1951) reported that at the age of 16 years or so, the pupils are nearer the 'realistic' stage of their occupational choices. Herr (1970) while highlighting Super's theory of occupational choice points that the individual chooses occupations whose characteristics will allow him to function in a role that is consistent with his self concept. Tiedman (1963) sees career development as a process of evolving
and of acting upon self concept. He emphasizes the formation of 'self' in relation to educational experiences. By the age of 16 years the student has formed the self concept, so it is likely that the polytechnic students who are in age range of 16 years to 20 years may give a definite pattern of career choices.

Most of the students joining the polytechnics are in the age group of 16-20 years, which is realistic period of occupational choices.

It may be hypothesized that in the present case where students have chosen engineering courses at diploma level in the polytechnics, their choice should likewise be more realistic hence they should give maximum preference to technology group.

**Intelligence and Occupational Choice**

Wrenn (1935) reported on various occasions that high and low Intelligence groups indicate marked differences in their vocational choices. High IQ (95th percentile) people more often chose occupation at professional level which is the highest. Marello and Marell (1945) reported the 'averages' and the range of Intelligence of people in various occupations. They found that the accountant, engineers and such professional are at the top level in this order. These are followed by others such as technician, draftsman and so on. But on the Indian sample Mohan and Walia (1976) reported that intelligence came out to be an independent factor in vocational choices.

It can be expected that intelligence may stand out as independent factor in relation to vocational choices of the polytechnic courses. The overall intelligence scores may not be very high in this level of vocational courses.
Aptitude and Occupational Choice

Studies reported by Leffel (1939), Stanton (1935), Bennette (1945) suggest that there is a positive relation between Aptitude and Occupational Choices. According to Bennette, Seashore and Wesman (1966) students who are superior in Numerical Ability, spatial relations, besides Mechanical Reasoning will do better in engineering courses. Seashore and Odgers (1959) conducted study on students of machine shop and automechanics, the ratings of the teachers correlated well with the performance of students on Abstract Reasoning and NumericalAbility. It is found that the engineers are decidedly superior on all tests, particularly on Numerical Ability, Abstract Reasoning and Mechanical Reasoning. The success of a person in a job or vocational setting depends on his special abilities and his motivations. Jackson and others (1949) reported that engineering students are clearly best on Numerical Ability, Space Relations, Mechanical Reasoning and followed by non-degree courses. It is, therefore, hypothesized that Aptitudes (Space Relations, Numerical Ability, Mechanical Reasoning and Abstract Reasoning) may influence the Occupational Choice. Therefore, it is further expected that aptitudes may have positive correlation with the Occupational Choice of polytechnic students.

Personality and Occupational Choice

The adjustment and efficiency of the person on the job is related to the personality of the individual. The personality traits, i.e., mode of behaviour and adjustments in various situations will determine his success or failure. Eysenck (1947, 1960, 1971) claims that Extraversion and Neuroticism are the two personality dimensions which may be influencing the various aspects of human
endeavour.

Eysenck's theory (1947) defined personality dimension as a continuum for a type which in turn is defined, "as a group of correlated traits in the greater inclusiveness of the concept cognitive ability was perceived to be independent of the major dimensions of personality, i.e., Introversion, Extraversion and Neuroticism.

According to Eysenck (1964), "the typical extrovert is sociable, needs to have people to talk to, crave excitement, is generally impulsive, easy going, optimistic and likes to laugh, be merry, his feelings are not kept under tight control". On the other hand an introverted individual is "quiet, retiring sort of person, reserved and distant except to intimate friends; he does not like excitement, keeps his feelings under tight control, seldom behaves in an aggressive manner, is reliable and somewhat pessimistic".

On the causative side, Eysenck (1957) traces differences in Pavlov's (1927) experiments, that all dogs do not condition equally well due to differences in excitation - inhibition - balance both positive molar cortical processes. The excitatory kind of dogs developed stable conditioned responses and the inhibitory ones developed poor conditioned responses which may be easily extinguished. Pavlov (1927) said that these two cortical activities in animals were, "comparable to the two forms of neurosis- neurasthenia and hysteria - the first with exaggeration of the excitatory and weakness of the inhibitory process and the second with predominance of the inhibitory and weakness of the
excitatory process. Eysenck (1955) extended Pavlovian views to the typological field of personality. He explained this on the basis of the Hullian concepts of reactive inhibition - based on Hull's (1943) first submolar principle, all responses have in the 'physical structure --- a state which acts directly to inhibit the evocation of activity --- this inhibitory substance manifests through reaction potentials. This negative action is called 'Reactive Inhibition' (Ir), an increment of which is assumed to be generated by every repetition of the response whether reinforced or not and these increments are assumed to accumulate except as they spontaneously disintegrate with the passage of time" (Mohan, 1976).

Eysenck (1955, 1955a) then took a step forward to extend Pavlov's and Hull's concepts to relate these to Jungian typology of Extroversion - Introversion and connected it to the predisposition of introverts to psychasthenia and extraverts to hysteria. Individual in whom Ir is generated quickly and dissipates slowly are predisposed to develop extroverted patterns of behaviour and to develop hysterical disorders in case of breakdowns. Whereas, the individuals in whom Ir is generated slowly and is dissipated quickly are thereby predisposed to introverted patterns of behaviours and to develop dysthymic disorders in case of breakdown (Mohan, 1976). Introverts have weaker central nervous system (CNS) and may be aroused easily by a weaker stimulus. Gray (1972) stated that Introversion is dependent on the frontal cortex media sceptal area. The degree of Introversion is determined by the level of activity of ascending reticular activation system.
Neuroticism is a second major dimension of Personality attributes. Claridge (1960) in his review on the excitation-inhibition balance of neurotics, concludes that the low and unpredicted level of Extraversion in the hysterics group indicates the possibility that drive differences between hysteric and dysthymic may have accounted for the difference in performance. Neuroticism by which Eysenck implies various drive levels, this complements the Introversion/Extraversion in explaining various behavioural patterns. By Neuroticism, Eysenck refers to the emotional lability or over responsiveness of a person and likelihood of breakdown under stress. The general nature of Neuroticism is assessed as instability, unadaptability, depressive moods, weak dependable attitude, narrow interests, symptoms of nervous breakdowns. The basis of Neuroticism is taken to be neurophysiological and elaborated from the Hullian theory of drive. Neuroticism is thus considered as a general factor in motivation or striving. Eysenck is of the view that differences between people in emotionality of neurotics are mediated by inherited difference in the lability and excitability of the autonomic nervous system. Some people are constitutionally predisposed to react strongly with their sympathetic nervous system towards incoming stimuli of various kinds whereas other people are predisposed to react much less strongly.

Eysenck (1953, 1957) claims of orthogonality of Neuroticism and Extraversion has to be considered, if any independent predictions are to be made on the basis of the two dimensions. Unless Neuroticism...
and Extraversion are two independent dimensions of personality, their effects on any response function will not be a function of one above but of both. Similar to Eysenck's Extraversion and Neuroticism, Cattell (1956), Guilford (1934, 1959) extracted factors which closely resembled those postulated by Eysenck. In an extensive review of Introversion/Extraversion Carrigan (1960) says that "It is seen that almost every analysis which has produced an Extraversion like factor, has also yielded a factor identifiable with some aspects of adjustment. The later factor variously known as Ego-strength, General Adjustment, Neuroticism and Anxiety etc. appear to be essentially independent of Introversion/Extraversion. Extraversion has been extracted by Thurstone (1951), Drowden and Taylor (1955), Guilford and Zimmerman (1956) who found their principal loading on factors resembling extraversion. Taylor's (1955) Manifest Anxiety is similar to Neuroticism. Eysenck contends that these two factors contribute to a description of Personality more than any other set of factors in the non-cognitive field.

Relation of Extraversion/Introversion and Neuroticism to Occupations

Jessup & Gilbert and Helen (1971) reported that the trainees at a pilot training programme, the potential candidates who had been selected had mean score of 14.10 (12.07) on Extraversion and 7.85 (9.08) on Neuroticism. Those who passed the training programme successfully had mean score of 13.85 on Extraversion and 7.22 on Neuroticism. Whereas those who took more time to complete the course or failed in successive attempts had far high score of 9.32
on Neuroticism. Listing the characteristics of Introverts and Extraverts, Shanmugam (1977) commented that factory supervisor will do better on his job if he has the qualities more of the introverts.

Task of the sample in this study is one of supervisory level positions in Industry or Vocational set up. It may be recalled that technician is person who bridges the gap between the skilled craftsman and the top engineer or technologist at the other. He has to be well conversant with machine operations as well as the human arrangements. He is at the middle level supervisory cadre of a small organisation.

Gupta (1971) reported that those scoring high on Neuroticism preferred sedentary type of professions, like teaching, writing, painting. On the other hand extraverts preferred outward oriented occupations like salesman, commerce, trade, press correspondent, army and foreign service.

Mohan and Mohan (1977) reported that executives and administrators in police score high on Introversion. Eysenck (1967) and Mohan (1977) found that executives in general business organization score high on Neuroticism.

Rao (1966) found that nurses, teachers and medical students show a comparatively high score on Neuroticism while engineering and science group showed least score on Neuroticism.

Mohan (1976) reported the typical findings that extroverts are as efficient as the introverts but after a period of time their
their performance drops more quickly. The general indication is that on tasks of sustained attention, the extroverts are likely to show much more work decrement than introverts. The job of a technician demands sustained and long hours of efforts to manage his work. He is a supervisor in charge of units of technology and has to maintain human relations and motivate people to work. He is required to erect, construct, install the machinery and look into the production and maintenance aspects of the same. Successful technicians have to do a lot of hard training on machinery for long durations in practical classes. In many cases they are attached to industry for full time work on job in the sandwich courses so a person having qualities of doing well on jobs demanding long hours of hard work and maintain human relations may be more successful in these areas. So, it needs to be seen whether the personality pattern (Introversion, Extraversion and Neuroticism) has correlation with the Occupational Choice of the students.

**Personality and Academic Achievement**

Eysenck (1960) maintains that the extraverted patterns of behaviour are the outcomes of the tendency to generate Ir quickly and dissipate it slowly, and the introverted behaviour patterns are the resultant of the tendency to generate Ir slowly and dissipate quickly. This difference in individuals regarding the proportion of excitatory and inhibitory balance in the cortical activity

*Ir - Reactive Inhibition.*
affects the performance especially with regard to conditionability. In Eysenck's viewpoint, the ease of conditioning is clearly determined by the growth of excitatory potential while difficulty in forming conditioned reflexes, is clearly related to the presence of strong inhibitory potential and relative weakness of excitatory potential. The ways which these differences might affect achievements are quickness in the establishment of learning responses and slowness of work decrement, also due to differences in preference for speed and accuracy and in setting up higher level of aspiration. The introverts show quicker rate of conditioning, lesser work decrement, because of slower generation of Ir and its faster dissipation.

It is so expected that Introversion may show positive correlations with the academic achievements of the polytechnic student. Further, it may be hypothesized that there may be negative correlation between Academic Achievements and Extroversion.

**Neuroticism and Achievement**

The effect of drive as manifested through Neuroticism, on academic achievements, is more complex than that of extraversion on achievements. The investigators who used drive (as anxiety or Neuroticism) as a variable with Psychomotor Performance or with other simple tasks (Lynn, 1959; Lynn & Gordon, 1961) predicted that there could be a positive association between Neuroticism and the size of vocabulary as index of achievement.

But these results were based on only one index of Achievement and not the whole gamut of Educational attainments. At the same time distribution of Neuroticism definitely showed,
the subjects being significantly much higher on Neuroticism than
the norms provided in the Manual of MPI (Eysenck, 1959). Savage
(1962) predicted that 'the higher the academic success of the
students, the lower the Neuroticism score and he found that
Neuroticism was negatively correlated to examination results.
Child (1964) too found that stable subjects performed better in
Edn. attainment.

Taking examination results as index of academic
achievement it can be predicted that the subjects
scoring high on Neuroticism would show poorer
performance than the subjects scoring low on
Neuroticism. Technician curriculum is a complex
task so too much of drive will have disrupting
and disorganising effect on their achievements.
It is expected that the academic scores may have
negative correlation with Neuroticism.

Personality and Aptitude:
The review of literature indicates that personality and
aptitude are quite significant for the success of the person on the
vocational situations. Jessup and Gilbert (1971) reported that
introverts do better on pilot aptitude training. Numerical ability
was reported to be negatively related to the Extraversion on
polytechnic students (Entwistle, Nisbet, Entwistle and Cowell, 1971).
Mohan and Kumar (1976) have found that stable introverts do better
on the Mechanical Reasoning tests. Both the tests on Numerical
Ability and Mechanical Reasoning are the subtests of the Differential
Aptitude Test Battery.

It is expected that Extraversion and Neuroticism
dimensions of the personality EPI may be negatively
correlated to scores on Space Relations, Numerical
Ability, Mechanical Reasoning, Abstract Reasoning.
The major bulk of investigations are in consonance with the original standpoint of Eysenck that temperamental aspects of personality (Extraversion and Neuroticism) are independent of the cognitive one (Intelligence). This viewpoint leans in favour of Intelligence and Extraversion being unrelated, Lynn and Gordon (1961), Collard and Goodfellow (1962), Child (1964). If the revised view of Eysenck (1964) is taken into account then the Intelligence Tests would be regarded as a form of task performed under massed practice and are expected to produce greater Ir and therefore greater work decrement in the Extroverts subjects as compared to introverts. Extraversion has been found to have no consistent relationship to intellectual ability for Science. Ravens Progressive Matrices (1956-60) has been used as a measure of Intelligence and Speed of performance requiring lot of persistence.

Accordingly, it may be expected that introverts would do better on SPM than extroverts. On examining the various studies listed here it may be expected that the relationships between the various variables influencing the occupational choice will be brought out. On the basis of these relationships it may be possible to explain the performance and adjustment of the polytechnic student with their occupational choices and the academic performances. Further it will be possible to fix indications of success on technician courses.
Ability and Achievement

The achievement in the academic fields have been sufficiently based on the abilities of the learners. These abilities may be general ability Intelligence and special abilities aptitudes.

Philip Vernon (1958) reported that the Intelligence Test score correlate .86 with the achievements in the schools and for success in college achievement the correlation was .75. The Intelligence tests correlate from .42 to .87 with the scores on Academic Achievements (Dececco, 1970). The correlations between scores on general intelligence tests and measures of academic success generally fall in the range of .40 to .70 (Brown, 1970). The efficiency of Progressive Matrices as a tool for diversification at the higher secondary was sought to be established by Dosajh (1958). The results indicate that a high score on Progressive Matrices can safely be taken as one of the criteria for selection of students for the groups where a knowledge of science and mathematics play an important part and in such groups as Technical and Science. The studies mentioned bring out clearly the relationship between aptitude and the performance in academic achievements.

It is expected that there will be positive correlation between ability (Intelligence and Aptitude) and Academic Achievements of the polytechnic students. Students having high scores on Intelligence and Aptitude tests may have high scores in their achievements.