CHAPTER II

ATTITUDES, SEX, AGE, SES AND OTHER VARIABLES

The present chapter, according to the natural emergence of the process of analysis and synthesis within and about the data, has to cover the descriptions of the differential levels and qualities on which the student groups have been matched. It is inevitable to show that the groups under consideration differ with each other on the basis of the level of achievement and aptitudes tested. So far, general variables like age and sex have not been discussed, which is necessary to create the picture of the group.

SEXI

The 'personal data sheet' developed to accompany the test answer sheets, where the respondents reported about the factor of sex as part of the raw data shows some interesting information about sex distribution in various groups. As already noted there were cases of 'cancellation' of data in some groups notably the Law, Languages and Commerce. Leaving these cases out of consideration, the present sample is constituted as follows with regard to the sex distribution. The total group shows that there are 614 male and 102 female students. They distribute themselves amongst various study areas in the following manner: Engineering - Total 30. All male i.e. 100%.
male population: Physical Sciences - Total covered 72, 69 male and 3 female, i.e. 95% male and approximately 5% female; Education - Total covered 104, 91 male and 13 female, i.e. 87.5% male and 12.5% female; Pharmacy - Total covered 60, 57 male and 3 female, i.e. 95% male and 5% female; Commerce - Total covered 53, all male, i.e. 100% male; Social Sciences - Total covered 54, 69 male and 15 female, i.e. approximately 82% male and 18% female; Languages - Total covered 45, 32 male 13 female, i.e. approximately 70% male and 30% female; Law - Total covered 66, male 65 and 1 female, i.e. 99.4% male and 0.6% female; Medical - Total covered 149, 94 male and 54 female i.e. approximately 62.5% male and 37.5% female.

The above data shows that within the professional groups female do not study engineering and mostly go for medicine. Very few join Pharmacy. Amongst the non-professional groups more girls go for Languages, Social Sciences and Education courses. Commerce, Law, Physical Science groups do not seem to attract the female sample. It seems that probably the high achievers at Intermediate examination amongst the female sample go for medical and low achievers for non-professional courses. Commerce and Law courses are probably not preferred because they imply business and private practice while as the job situation indicates that low achieving females generally take up routine office clerical or receptionist jobs.
Table No. 15 attached here shows some expected and other unexpected results. It shows that in the present sample of 614 male and 102 female students available for analysis they do not differ on Tests 1—the none comparison test—the clerical speed and accuracy test in the battery. It should be mentioned here that on studies of this aptitude using the Minnesota clerical test which has name and number matching it has been found necessary to develop two sets of norms, one usable for males and the other for females because as a whole female norm scores and percentiles are higher than the male norm and percentiles. Form studies on B.A.T. also indicate that girls in senior high school grades on the average score higher than their corresponding male population. It should be pointed out that these studies did not cover post-graduate samples like the present study also. Considering that female samples on the whole do better than male on these type of tests, it is slightly surprising to note that the mean of female sample is slightly lower than the male though it is not significantly different.

The same trend is maintained by these groups for test 2—the computations tests. These two tests combined form a part of the pattern for jobs which are classified under office, clerical jobs. On the basis of these, it can be hinted that the two sex groups do not differ in these respects though the results are contrary to other studies on younger and less literate samples, specially from American population.
Test 3 - the three dimensional spatial relations list - which is loaded with 3 and 6 shows the expected results. Male group mean score is higher than that of the female group. The differences between the two mean scores are significant both at .05 and .01. It can be pointed out that 5 factor or space visualization factor tends decisively to differentiate the activity between mechanical and clerical, practical and bookish, working with three dimensional objects generally out of doors and working with abstract literary ideas generally indoors. Doctors, engineers, pharmacy students show higher average scores on this test. The engineering group shows a highly significantly different mean score on this test. Generally, it can be said that as expected the test decidedly differentiates between the sex groups. Considering that about half the female group is constituted by medical and pharmacy female students - the brighter of the female students, it could be deduced that girls on the whole do not seem to grow this aspect of ability too well. It may be because from the beginning few girls come in contact with the mechanical objects and also tend to stay away from courses which imply apparatus, laboratory work. Only those who take inter-science biology with a view to go for medical course - usually the high achievers have a chance to develop this aspect of general ability.

The sex groups in this sample do not show a significant difference on the mean scores on the English verbal ability test which is also partially loaded with
the G factor, though the mean for male group is slightly higher than that of the female group. It can be suggested that to start with English vocabulary on the whole is no more of a higher standard. It should be mentioned though, that in the criteria group sample, the mean score is fairly high, almost equal to that of general American sample and this ability is found highly correlated with 'pay' in the criteria group. It seems that as a whole sex differentiation is not feasible on the basis of the English verbal ability test.

Contrary to all expectations the mean score of female group on tool matching test which is loaded with two dimensional space perception factor, is significantly higher than that of the male group. It seems that probably the higher achieving female population overdevelop this aspect of mechanical comprehension. The test is found related to the skilled mechanical jobs and probably the girls specially those going for medicine and those more nature in age develop this aspect of perceptual ability to successfully adjust themselves in every day tests of mechanical nature. There does not seem to be any other explanation for this difference between the two groups.

Arithmetical reasoning test which is partially numerical ability and partially general ability test again shows a higher mean score for male students compared to the female group. The difference between the two mean scores is highly significant. The fact,
most high achieving girls belong to the medical group, the training of which does not expose the students to tests involving numerical or numerical reasoning, probably can account for part of the situation. On the other hand in the engineering group there are no female students and this student group on the average scores higher than many other groups. In fact score on test 6 for engineering is highest achieved by any other group. Also, it can be noted that girls from the beginning tend to have negative attitude towards numerical work and prefer pursuits involving more dexterity and artistic talent. There may be a general cultural bias in this respect which accounts for low score on this test.

On test 7, the groups means do not differ significantly, though again the female group has a slightly higher mean score. This test again is loaded with perceptual ability in which form matching is the main task. Generally this ability is found to be related with skilled mechanical tasks involving precision work as in watch repairers job. It is also quite similar to tailoring, crafting jobs in which two dimensional forms are to be accurately so precisely matched in order to successfully do the task.

Of the academic examinations, contrary to general expectations both the groups do not differ in achievement score at the earlier two examinations - the High School and Intermediate. However, the trend
is unmistakable. As a group, the female group at both the examinations achieves about 2 percent points higher than that of male group. It should be mentioned that differences in source content at those levels of examinations is lesser than at later examinations. Also, on the basis of the scores on tests loaded with G factor it has been noted that except for test 4, the scores of female group are on the average lower than that of male group. In other words, the male group scores higher on general ability tests and achieves lower at academic examinations at earlier stage than the female group. This is a case of over compensation at a large scale. Probably the girls are better supervised in their home work more for examinations, read regularly or all of these combined. The net result is that they show slightly lower scores on tested general ability and slightly higher academic achievement than the male students. Generally they are over achievers as a whole.

At the graduate examination level female group shows a significantly higher mean score than the male. It is possible that by this level the girls have already chosen the courses showing hisedal distribution. Those going to professional courses and those going to non-professional degree courses have one way or other decided and joined up while the boys are still drifting, undecided yet to go for a post-graduate degree. It can be visualized that more boys are taking a wider variety of courses at this
at this level than girls. The net result is that efforts of boys are still not as well goal directed as those of girls at this stage.

As will be expected, when the boys have finally stopped drifting, decided on a choice by the post-graduate level their achievement level comes up and catches up with that of the female group. The mean of the academic examination percent of marks for the two groups are slightly different but they are not significantly different, even though again the girls have low on the average tested general ability.

Age

In the preliminary study done prior to the field study proper, it was noted that there were some striking trends in age distribution of various student groups. Also it was noted that there was a suggestion of hierarchy existing with regard to scores on aptitude tests by young and older students. In the preliminary study there were many step intervals for age distribution and they could not yield stable results. In the present final study only four step intervals have been framed. There have been two broad considerations regarding these. First, it has been seen that any group which has a lesser frequency than of 30 cases is not likely to yield statistically stable and reliable results. Secondly, it was seen at the preliminary study that the very young students between 15 and 20 years, few in number showed significantly higher aptitude test scores compared to other higher age groups. Also
these tended to come from engineering college which usually has a very highly selected sample. In order to offset such a biased composition of age groups, it seemed reasonable to have larger groups with step intervals having broader age coverage even though each interval may be unequal. Therefore it has been decided to form step intervals – four in all. The youngest group covers the age from 230 to 250 months, i.e. 19 years 2 months to 21 years 2 months. This group covers all students who do not quality to appear in the central and state competitive examinations held to select for central and state services in various areas of work. The next group covers from 251-300, i.e. 21 years 9 months to 25 years, the age within which most competitive examinations are taken. The next interval spreads between 25 years and 30 years. This is generally considered the period of adult maturity and the last interval covers all cases above the age of 30 years, generally regarded the period of retarded maturity and beginning of the decline of aptitudinal efficiency. It will be seen that though these intervals are unequal both in respect of age distributions as well as number of cases belonging to each group. The efficacy of these groupings is seen in recognising the validity of distributions and their model distributions.

Table No. 16 clearly indicates the trend existing in the distribution of students in various study areas. The proportion of students in the
youngest age step interval is far greater for medical, Engineering and the two physical and social science groups. Education, Law and language groups have in contrast a very small proportion of students of this age. It can be therefore indicated that most full time students since the very beginning go for these courses while as few such students go for law, language and education.

The mode of the student age lies between 21 and 25 years. This period of 3 years has the largest number of post-graduate students. Almost half the total sample of the students are in this group.

The proportion of students in later two age groups i.e. in the 25 years + groups indicates that Commerce, Languages, Law and Education and to a certain extent Social Science specially the Labour Welfare subgroup seen to be popular with advanced age students. It will be further seen that most part time working students also belong to these student groups. It can be suggested that probably large number of the part time, not so bright or below average students go for these areas of study, though few in Pharmacy or those who fail in medicine seen to belong to this age group also.

The table No.17 attached showing the various parameters of variability and centrality and significance indicates the same trends as were noticeable in the preliminary study. Analysis of
scores on test 1 shows that the youngest group Mean score is significantly higher than the rest of the groups. The Mean of the second higher age group is significantly higher than the third higher age group. It should be noted here that the age group 30 years + has a sample number only 49 which varies again due to some incomplete data. This has affected the size of the 3, i.e. for all tests and examinations scores for this group. This has in its turn resulted in bringing down the size of the t in most cases. Taking the youngest group first it is clearly indicated that it is the top group in almost all Mean scores on all tests and achievement examination percentage of marks. These Mean scores are significantly different at .01 or .05 and are higher than those obtained by the second group 261-300 months and the 3rd group - 301-360. The Mean of this and the 4th group - 361+ are not significantly different on tests 2, 3, 4, 6, 7 and then on the postgraduate examination marks.

It is to be seen that in the aptitude tests the youngest group differs from the oldest on the clerical test. In the achievement examinations it differs on all examination Mean percentages of marks except the Postgraduate examination. On the basis of these the result emerges that probably those older students who could not finish their academic training due to other reasons than lack of ability seem to form this group. It is also possible that due to the wider experiences of the older group most probably in their
work, they have built up an efficiency level which slightly below that of the youngest group, yet matches favourably with that of the youngest group. On the other hand the achievement scores, with the exception of the post-graduate examination show that they probably only managed to get through the earlier examinations. Also probably, they are seen to do as well at the post-graduate level so that they may improve their chances for better or higher paid jobs. If levels of achievement are accepted to be related with motivational levels, it can be seen that at the post-graduate level the differences between these two groups disappear. Incidentally, there are two tests, one of clerical perception and the other two dimensional perception, the test matching test on which the two groups have significantly different Mean scores. It should be pointed out that one is a test of matching verbal alphabetical elements and the other is physical two dimensional element matching. One is found to be related with clerical office work, the other with skilled mechanical routine work as done in machine repair shops. The younger group shows higher scores on these. It seems to show in the younger group more versatility which, if need be, can lead to more successful and flexible placement in the group.

As has been pointed out that the age group 261-300 months is the largest and seems to indicate the mode of the students age. It may be pointed out that those group has lower mean scores than the youngest.
yet the mean scores achieved by this group on most tests and achievement examination are higher than those of the next higher age group. Significantly higher mean scores are achieved by this group on test 1, 5 and all the achievement examination marks. It could be pointed out that the achievement scores are significantly higher than the next higher age group and the aptitude scores though higher but not to a significant level. This fact seems to point at least two points. The younger age students either make better use of their talents towards better academic achievement than their equally talented elder counterparts. Also it can be said that probably the older group do not make optimum use of their aptitudes and this fact differentiates them from the younger students of almost equal talents. There does not seem to be any other reason to account for the above fact.

The same is true when we compare the 361+ and this second group. Except for a test of two dimensional perception and three earlier examination score, other mean scores are not significantly different for the two groups. As has been pointed out that the size of the 361+ group is small and it is likely that they are slightly more experienced or mature to be able to achieve higher at the postgraduate examination.

The comparison between the 300-360 and 361+ age groups brings out some facts very clearly. It emerges that mean scores of the 361+ age group are
generally higher than the 300-360 group but they are not significantly higher except for arithmetical reasoning test and postgraduate examination. In other words the picture emerges that there is little difference between the level of talent between students after the age of 25 years i.e. in the present sample 25-30 year old students show the same level of aptitude scores as 30+ year olds. They are similar on their High School, Intermediate and graduate achievement also. The higher age group probably because of more experience do slightly better at the postgraduate level.

Some of the conclusions emerge are that there is a hierarchy of students on factor of age and level of aptitude. The youngest show higher aptitude and achievement scores. The second best is the second youngest. After the age of 25 years probably the low achievers and low talent students come for postgraduate study and do no more than slightly below average work resulting in average achievement. The background of these as regards educational achievement is concerned shows that they were average second class students at High School, deteriorated to high third class at Intermediate and graduate level and came up to below average second class at post-graduate level. Elderly of these, specially those above the age of 30 years are slightly more mature or adjusted or motivated or all of these combined and they show average second class achievement.
at the postgraduate examination. The hierarchy shows three distinct stages both on the factor of age and on the factors of aptitude and achievement scores. The first group is the youngest which shows in all respects top results. It is also the third largest and is generally composed from students of medical, engineering and a small proportion from other groups. The second group is the next old group which shows the same trends in all respect as the first but at a lower level. They seem to be the norm of the student group. The third tier of hierarchy is formed by the students aged 25 years or more. They show poorest aptitude and achievement scores. To lay down a general impression, it can be stated that the 261-300 month group is the average, 230-260 is generally advanced group and 300+ group is the retarded group in the sample under study.

**Aptitude levels**

One of the main problems of this study is to find differential scores of study areas at the postgraduate level. In order to bring out differences between various groups, tables have been prepared for each aptitude and examination marks giving mean, s.d., 9.95 and t. These tables will tend to show the levels of magnitude of various variables under study irrespective of their relevance for predictive purposes. This method of presentation is adopted to show some of the outstanding trends
existing in the distribution of scores of the student samples for each variable under study.

Table 18 shows the various parameters derived on different student and other groups. As was suggested in the preliminary study that there may be some level hierarchy within the student groups, the inspection of Table 18 brings this out very nicely. On the test of clerical perception, it emerges that there are three levels of significantly different mean scores. As expected engineering, Medical, Pharmacy, criteria and commerce groups show mean scores, which are slightly different than each other yet are not significantly different. The second level can be ascribed to the Total, Education and Law groups. They differ from the first level groups but not from each other on their mean scores. There are Physical Sciences, Social Sciences and the Languages group who can be clustered together as the third ranking groups. The one fact which can be noted is that within the third ranking group are also the students who are office workers. It is rather difficult to accept that the very aptitude test in which they will be expected to do well shows scores at the lowest level. Only exception to this seems to be the Commerce group which seems to live up to expectation on this test.

2. Table 19 gives the various parameters of the groups for test 2. The test is computational
ability test with loading of III factor. In our sample, it should be understood that this type of activity is encouraged right from the school-going ages. The table shows some interesting statistics. The level of mean scores of various groups lead to draw the following picture of the distribution. Engineering group outshines them all by a wide margin. On the basis of this it may be pointed out that the engineering group becomes distinctly different from others. Second order of Mean scores not too different from each other are achieved by Criteria, Medical, Pharmacy, Education and Commerce groups. On the basis of the level of Mean, differences can not be made specially when the distinctions are made between Medical and Pharmacy or Education and Commerce.

Third ranking groups are the Physical Sciences and the Total group. This only points that in this respect Physical Sciences group is the middle most, nearest to the norm of the student's sample. Social Sciences, Law and Languages are the fourth ranking. These groupings emerge by taking the mean score of a group and comparing it with mean scores of other groups and seeing the t, whether the means differ significantly.

3. Inspection of table 20 provides a picture of group differences on the three dimensional space perception test - a combination of G and S factors. Engineering group score ranks as a class by itself. In the next higher group are Medical, Pharmacy, Physical Sciences. The mean scores of these groups
are not very impressively high but within the student
groups they go together. Third ranking groups are
Total criteria, education and law. For our samples,
they will be considered the average or mean groups for
this test. The fourth ranking groups are Social
Sciences, Commerce and Languages. These four groups
point to both types of deductions. There are very
few students in other groups who are likely to score
at the level of the mean of engineering group. Also
within other groups clustered together, it can be
suggested that students can be easily exchanged. These
however do not lay down any limits towards this
exchange except with due consideration of other
factors. They do show quantitative nearness to
each other in the sense that their mean scores within
the rank do not differ significantly from each other.

4. Verbal aptitude and a part of general
intelligence are tested by test 4. There are
four levels of the mean scores of the groups. Criteria
group mean score is too high and becomes a class
by itself. Second rank is achieved by Medical
and Engineering groups. This will improve beyond
doubt that the special area of postgraduate study
has less to do with aptitudinal development of our
samples. General alertness, probably the ability
to learn better, faster and accurately seems closely
associated with scores on aptitude tests, otherwise
these students would not be scoring highest on the
mean on English verbal reasoning test. Third ranking
groups are Total, Pharmacy, Physical Sciences, Social
Sciences, Of these groups it should be noted again that two are science groups. Social Sciences are the only art group. The picture is fairly obvious. It seems to point that within the science groups where students of above than average native ability go generally, the ones who are of average level have English vocabulary equal to the highest had by arts students. Another interesting point emerges from the inspection of table 21. Physical sciences group has a mean score which is not significantly different than any student group mean score. They are the norm group of the sample on this test. Also, it should be mentioned that of the fourth ranking groups - Education, Commerce, Law and Languages; the Languages group shows significantly lower mean compared to criteria; Medical, Engineering and Social Sciences only. Of those the student group mean scores are significant at .05 only. From this statistics it can be indirectly shown that Languages - though seen to be independent of English, in fact are imagined to be weak (Gujrati and Hindi students at least) in English show that as a group they are not too weak in this respect. They improve their position on this test compared to other tests. Generally they are supposed to be weakest of all students as far as English is concerned. Probably they are lowest in general intelligence and aptitudes but seem to do as well as others on the test.

5. In our student samples tool matching test
seems to measure the ability to perceive peripheral similarities of objects. It seems to be a measure of habit of perceiving details in two-dimensional forms. Inspection of table 22 shows some expected trends of distributions of the mean scores of student groups. There are three student groups which can be classified in first rank. Medical, Engineering and Pharmacy. These groups have intensive laboratory and workshop or clinical laboratory work in common and are expected to be using this type of factor in their special training to a larger extent. The Physical Sciences and Total groups get second rank. They are the average groups as usual. Criteria and Commerce group go together to form the third ranking groups. Education, Social Sciences, Law and Languages form the fourth rank. The groups in the fourth rank have one factor common to all. None of these groups have any laboratory work as part of their training. Also, it should be noted that generally mean scores on this test for most groups are not too widely distributed though they are significantly different in many cases. Distinctions for purposes of differential placement will be difficult to make on the basis of score on this test. However, some estimate of liabilities and assets can be made by finding the group to which a student belongs and relevantly using the table.

6. Inspection of table 23 shows that virtually engineering group again outranks them all again. The criteria group has been elicted with it as this
group does not show any significantly lowered mean score. Second rank is achieved by Total, Medical, Pharmacy, Physical Sciences, Education and Commerce groups. The mean scores of these vary between 11.0 and 12.00. These are all to be considered average groups. It should be pointed out that this type of dispersion of mean score is more due to the nature of the items of the test. It is known that almost all study groups have to do certain amount and type of work involving numerical reasoning. Only the frequency of this type of work changes with groups yet it cannot be said that any study does not make use of this aptitude. On the basis of available data it will be difficult in this middle order to differentiate between various groups, yet it shows itself to be the most meaningful ability towards academic achievement. Third ranking groups all score below 10.00 on the mean. These are all below average groups in all respects and are easy to differentiate in terms of mean levels. There are other qualitative indicators like uninterest, hiding away from this type of work, which can be used as guide posts for diagnostic purposes.

7. Figure matching test of the GATB is found by our samples to be a very novel type of test because it implies perception and matching of similar figures presented in two places. Figures are distributed all over a page. It seems that the test implies finding the figures and corresponding
number and letters to correctly answer the question. This type of activity is near to the tasks of goldsmiths, watchmakers, surgeons etc. It is two dimensional perception where similarities are to be perceived from a larger number of forms - a type of ability of discrimination. Table 24 shows a four tier level for the present sample of students. First ranking groups are Pharmacy, Medical and Engineering. In these groups laboratory work is common as part of learning. Second rank groups are criteria, Physical Science, Social Sciences. It is hard to explain how the Social Sciences group get together with these more mature groups. Probably a large number of labour welfare students show higher scores on this test. Third rank groups are Total and Education group. This seems to be the norm rank. Fourth rank groups are Journalism, Law and Languages. The four levels of mean scores show that discriminative diagnosis is possible for the students on this test. The chances of the fourth ranking group to get into a second ranking group are fewer as they are for third ranking group to get in with first rank.

6. Inspection of table 25 brings out some striking points. The mean scores at High School examination for Engineering, Medical, Physical science groups are radically different from each other and other groups as well. They can not be put together in any reasonable classification and have to be assigned separate ranks in the above order. Criteria group mean is between these
and other groups but again is distinctly different from any of the groups. It should be noted that this group represents the desirable mean achievement as it is related to earning of pay. Also the present mean represents the mixture of arts, science, marks. It seems that it is the middle link between the higher and labour achieve group. The next category - rank fifth. Pharmacy from the science group and Education, Social Sciences, Commerce, Law, Languages go together in this respect. It is rather disconcerting to note that as a whole about no more than approximately the top 40% of this rank shall average equal to the mean score of the criteria group, the rest 60% have at best very low probability of making the grade. The structure seemed very broad based but at the same time linearly steep towards the vertex. This type of structure suggests that there is something wrong about the distribution of students.

9. Table 26 brings out the result that there is general deterioration of achievement for all groups under study. The common factor in these samples is that this examination is taken during the period of adolescence - the period of widest and highest emotional disturbance. Because all samples show this trend, therefore, it can be easily made a generalization. Secondly, the positions of the groups do not change significantly. Engineering, Medical get the first two ranks. Physical Sciences
and Pharmacy group from the third tier of this hierarchy. Pharmacy students change their rank radically compared to their performance at High School examination. They seem to show maturity. Criteria group retains the fourth rank, so do the education, Social Sciences, Commerce, Law and Language retaining the fifth.

10. Table 27 seems to point out the beginnings of the anomalies of the scoring system at the graduate level examinations. 'Last final' examination applies to the professional degree courses only—Medical, Pharmacy and Engineering. The table shows the groups to be again distributed in five levels. Medical takes first rank, engineering loses one and Pharmacy gains. Both these share the second rank with Physical Sciences group. These changes within the science group are interesting. It seems that the percentage of ranks in the three groups are no more indicative of the levels of achievement of these vastly different groups. They show the averaging tendency. Criteria group becomes the middle ranking group. Within the arts background group Social Sciences, Commerce and Language form the fourth ranking some looking trio. It seems that within these groups the choice of subjects has been decided finally and stability seems to develop. Fifth rank is achieved by Education and Law groups. These two group students seem to be still undecided about their final choice. It should be understood that
that these studies can be taken by anybody with any background. It seems that low achievers are also the ones who are unable to decide even at this level.

11. Inspection of table 29 and earlier three tables tends to show the result that this sample of student retains fairly well the group positions at the earlier two examinations. The average percentage of marks starts being rather an unstable statistics at the university levels. The groups change their position too radically to show any consistency. Pharmacy gets first rank. Criteria group, Medical Engineering, Physical Sciences, and Education form the second ranking groups. The mean of the percentages in these cases are not significantly different. The means were distinctly different for these groups at earlier examinations. Top professional and lowest professional group seem to go together. Third rank is achieved by the lowest achieving groups - Law and Languages. Only Commerce and Social Sciences group seem to retain their low mean percentage of marks.

In the last it can be pointed out that students samples have a hierarchy in the area of achievement to start with but at later levels it seems to disappear. The overall record based on the mean scores on various tests and examination marks tends to show the following rankings for each group. Two types of ranks - one based on the average rank achieved for aptitude test scores and the other for achievement examination marks have assigned. Thus T.R. means rank achieved on test scores and A.R. - rank achieved on academic scores.

Norms and cut-off score profiles for study areas:

Table 29 provides norms based on scores of the student sample covered for final study. The table shows that for some of tests the minimum is reached within -2.5 3.0. from the mean. Test 3 and 4 show skewed distributions and the norms seem to be slightly affected by this factor. In the case of the examinations scores below the prescribed minimum necessary for passing the examination has not been reported by the sample. It should be pointed out that failure at earlier examinations has not been considered. This is because it is found to be true in only very few cases in the criteria group that early failures are selected. Generally, no more than 10% of cases included in the criteria group show that they passed the four examinations in more than the expected number of years for various courses of study. It
is possible in the student samples that about the same
percent or slightly more students have failed earlier
for which data is not available. It will be suggested
that for more accurate interpretation of scores on
examination, in cases of failures, the average
achievement percentage be calculated as has started
becoming the practice in a number of public selections.
Some deduction may be made for each failure but not
for those who drop.

In order to arrive at a cut-off score with
which some satisfactory estimate may be made regarding
the chances of minimum success at least two different
types of independent arguments can be considered.
First, it can be mentioned that as a whole the
percentage of 'pass' students in all courses except
B.Ed. hovers around 70% i.e., about 30 percent
students do not achieve a satisfactory 'pass'
standard. Secondly, the tables of generally show
that achievement level generally tends to go along
with aptitude scores level as far as exam scores
are concerned. Thirdly, it can be noted that the
mean score of any group at any achievement examination
does not go below the level of -.5 i.e., of the total
student group at the respective examinations. It
will also that if it is assumed that about 30 percent
of the postgraduate students as a rule do not come
upto satisfactory standards, then it is indicated
that the cut-off score be placed at that level for
making the aptitude score meaningful to the University examinations. It will further tend to indicate that each of the student group has at least 20 to 25 percent students who tend to decidedly achieve lower than the satisfactory level. On the basis of this, it will mean that a reorganization of the study groups should be recommended. The lowest achieving students should be transferred to the next low achieving group where they can achieve average satisfactory grade. It is necessary that this be done soon after the terminal examinations for various professional courses are conducted. This transfer will also tend to raise the standard of study, and gradually the course teaching and curriculum.

It will further mean that about one-third of the students from the low aptitude, achievement groups like Languages, Law, Commerce, Education and Social Sciences will have to be placed in other productive pursuits equal to their talents. Considering these figures it is stipulated to have cut-off scores at -5 3.9. of each test and examination average of marks for the sample. The same is stipulated for each study group - .5 3.9. of their mean score in relation to their 3.9. be considered the score below which the score will indicate scores not considered satisfactory for that area of study.

It should be mentioned here that the discussion of each study area contains correlation tables indicating the concurrent validity of the tests with various examination marks. These indices
can be used by comparing the Taylor-Russell tables (16). They will provide the proportion of students likely to be found satisfactory when the value of $r$ is given. They will also indicate the heightened value of $r$ when the proportion of satisfactory students is given.

The norm scores have not been rounded up so it or normalized is understood that this procedure will tend to disturb the percentages of student scores in various groups specially for those tests and examinations the distributions on which are slightly skewed.

The aptitude profiles of the different study areas were stipulated to be made because it was conceded in the preliminary study that factorial loadings achieved in various aptitude tests will be permissible for our samples. The inspection of the table 32 will however tend to show that the level of parameters available are not comparable with the American sample parameters. Since, the present study does not extend itself to undertake factorial analysis and American loadings do not seem to favourably compare, it is found feasible to give the profiles in terms of test raw scores. Already the tables have been provided showing the parameters of various groups on each test giving the measures of variability and centrality also the difference between the mean scores and the significance between them. Here it is proposed,
for each group, to give the combination of tests the corre-
lations of which have been found to be significant
to indicate the concurrent validity with the achievement
examinations in different groups.

Table 30 shows the cut-off score of tests
and examinations forming differential profile for
each of the groups under study. In Table 30 it can
be noted that some of the unexpected tests have been
found to have relevance with study areas. Criteria
group has a profile of tests which have loadings on
6 factor. On the other hand the professional groups-
Medical, Pharmacy and Engineering show 2, no forming
a part of profile while as Education, Commerce,
Languages show relevance with test 3 and 7. Test 4
seems to be a rather important test in a number of
areas of postgraduate study.

There is one other point to be noted th
that some very strongly negatively correlated areas
of study and tests exist which have been omitted
because of the heterogeneity of the sample and tar
background. These have however been discussed
in relevant context.

Part time work, pay and attitudes.

The criteria group has been included in
the study to match student groups to a level of
professionals which students in post-graduate
courses aspire to achieve. Table 31 has been
prepared to show the difference in the level of
scores of students who have worked or are working part or full time. These students have been divided in two groups - those who got total income up to 5.145/- per month and those who got higher than this income but not more than the criteria group average income. There are a total of 109 in the lower and 71 in the higher income group. Out of a total of 716 in the sample 190 students report to have experience of work. This is an impressive number and it can be said that a large number of non-professional course students have work experience. Education, Languages, Law and Social Sciences have most of these.

Inspection of the table 31 shows that as far as aptitude test scores and achievement examinations are concerned there are no significant differences between these two student groups. Only on test 6 is the higher income group score on the mean, higher than the other group. Comparison of those with the Total student group shows that the three groups are alike with respect to aptitude test scores. High School, Intermediate and Graduate examination mean scores differ significantly - are higher for the Total student groups than either of these groups. The conclusion emerges that low achieving students tend to take up jobs or vice versa. It is probably the lowered academic achievement which causes the student to start earning. Later on, perhaps part time work leads to lowered achievement. In any case the two go together
except at the postgraduate examination level.

Compared with the criteria group, it may be pointed out that higher mean scores for criteria group exist on all tests and achievement examination marks. Significantly higher mean scores for criteria group exist on test 3, 4, 6, High School, graduate levels. The two groups are similar in that they also earn. They differ entirely on the factor of general intelligence and two crucial examinations as well as an amount of income. It emerges that, whole time, more able students achieve higher and become professionals. Less able, low achieving students become part time low paid workers.