CHAPTER - IV
RESULTS AND DISCUSSION

'Intercorrelations are effective statistical measures to examine the reliability of marks obtained in different subjects or in different examinations by the same examinee. Since the students appearing for B.Ed. examinations were very large in number, through random sampling technique effective sample for the study was finalized. For example, effective sample of Amravati University during 1986 was only 81. Marks obtained in different nine examinations or papers were taken into consideration to examine the consistency in evaluation. The nine examination marks referred hereafter as variables are, marks obtained in written or theory examination (TOWE) marks in practical examination (MPE); marks in practice teaching (MPT); marks in cultural activities (MCA); marks obtained in assignment (MOA); marks in teaching aids (MTA); marks in test examination (MTE); total of marks in internal assessment (TMIA); and grand total of marks (CTM).

If the internal consistency is better, the inter-correlation between the nine variables must be positive and significantly high.' When the data of 1986 examination conducted by Amravati University were treated separately, the mean and standard deviation values of the nine variables were observed as follows:
Table 4.1: Means and Standard Deviations of Nine Measures.

<table>
<thead>
<tr>
<th>COL</th>
<th>TOWE</th>
<th>MPE</th>
<th>MPT</th>
<th>MCA</th>
<th>MOA</th>
<th>MTA</th>
<th>MTE</th>
<th>TMIA</th>
<th>GTM</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>251.25</td>
<td>75.51</td>
<td>92.96</td>
<td>65.86</td>
<td>55.48</td>
<td>29.46</td>
<td>20.70</td>
<td>274.46</td>
<td>584.06</td>
</tr>
<tr>
<td>S</td>
<td>43.65</td>
<td>13.03</td>
<td>33.27</td>
<td>27.15</td>
<td>21.20</td>
<td>9.12</td>
<td>9.13</td>
<td>65.13</td>
<td>129.26</td>
</tr>
</tbody>
</table>

Values displayed in table 4.1 denote mean and standard deviation of effective sample used for the year 1986 in Amravati University. At this stage these means and standard deviations do not carry much weightage. However, the range of dispersion can be understood from the mean and standard deviation values. Column one represents marks obtained in theory or written examination. These are denoted by TOWE. The mean marks are 215.10, while the standard deviation is 43.65. If we take plus minus three deviation then the minimum marks are likely to be less by about 130; while to obtain maximum marks in the mean 130 are to be added. Thus the variations are very large. It becomes more clear when we take into consideration the last column. It is a column of grand total marks. It is denoted by GTM. The mean GTM value is 584.06 and the standard deviation is 129.26; definitely the variations are very large. Column 8 represents total marks of internal assessment obtained in the internal assessment. It was expected that the variations are to be poor. However, examination of mean and standard
deviation of all the tests and activities involving internal assessment reveal that even the internal assessment carries high variability.

Thus, large variability in both internal as well as external assessment indicates that neither internal nor external assessment is reliable to the mark.

To be on the safer side further intercorrelations between the nine variables were computed. These values are displayed in following table.

Table 4.2: Showing Intercorrelation Between the Nine Variables

<table>
<thead>
<tr>
<th></th>
<th>TOWE</th>
<th>MPE</th>
<th>MPT</th>
<th>MCA</th>
<th>MOA</th>
<th>MTA</th>
<th>MTE</th>
<th>TMIA</th>
<th>GTM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>x</td>
<td>0.58</td>
<td>0.11</td>
<td>-0.04</td>
<td>-0.01</td>
<td>0.21</td>
<td>0.12</td>
<td>0.26</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>x</td>
<td>0.29</td>
<td>0.20</td>
<td>0.24</td>
<td>0.26</td>
<td>0.24</td>
<td>0.34</td>
<td>0.27</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>x</td>
<td>0.88</td>
<td>0.93</td>
<td>0.71</td>
<td>0.80</td>
<td>0.98</td>
<td>0.73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>x</td>
<td>0.83</td>
<td>0.65</td>
<td>0.70</td>
<td>0.90</td>
<td>0.66</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>x</td>
<td>0.71</td>
<td>0.71</td>
<td>0.95</td>
<td>0.70</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>x</td>
<td>0.51</td>
<td>0.73</td>
<td></td>
<td>0.51</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>x</td>
<td>0.31</td>
<td>0.62</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>x</td>
<td></td>
<td>0.75</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>
Correlation coefficients between the nine variables sometimes seem very high, while in some cases they are very poor. The highest correlation is found between MFT and TMIA. It is 0.98 and the poorest correlation is between TOWE and MTA. It is worth noticing that the remaining eight factors associated with TOWE showed very poor relationships, only the correlation between TCWE and MPE is positive and high. It is .58, but all the remaining correlation coefficients are negligible and in some cases even negative relationship is observed. For example, correlation coefficient between TCWE and MCA is -.04 and between TCWE and MTE it is -0.01. Thus, there do not appear reliable co-ordination between marks obtained in theory or written examination and the marks obtained in internal assessments or activities.

Similar fact is observed even in case of strength of association between marks obtained in practical examination and the marks obtained in other variables. Second row of the matrix indicates that, of the seven correlation coefficients none is significantly high; thus, there is poor relationship between the marks obtained in practical examination and other variables.

From the third variable that is MFT onward the strength of association in the marks obtained is found positive and
high. It means that there is considerable reliability in the marks allotted by the teachers for internal and external assessment. Almost all the correlation coefficients are positive and significantly high. In order to test the possibility of predicting the marks obtained in other variables, the data were further subjected to Regression Analysis. The first such relationship between TOWE and MPE is shown here. TOWE is denoted as $X$ while MPE is denoted as $Y$. Two equations were obtained. They are,

\[
\hat{Y} = 0.17X + 32, \text{ and} \\
\hat{X} = 1.94Y + 104.53
\]

On the basis of these equations regression lines were drawn. However, the slope is not very sharp. These regression lines are shown in figure 4.1.

The second strength of association was examined between MFT and MCA. The correlation coefficient between the two variables is 0.88. The regression equations obtained are as follows:

\[
\hat{Y} = 0.72X + 0.50, \text{ and} \\
\hat{X} = 1.08Y + 20.94
\]

This relationship is depicted in figure 4.2. It is clear that MFT can be predicted when MCA values are given and vice versa.
Relationship between MFT and MOA is very high. The value of correlation coefficient is .593. Obviously the regression lines shown in figure 4.3 are very close to the linear relationship between the two variables. These lines were drawn on the basis of following two equations:

\[ \hat{Y} = 0.59X + 0.39 \]
\[ \hat{X} = 1.46Y + 11.99 \]

MPT and MTA had brought out high positive correlation. The value is .71 which is positive and high also. When the two regression equations were developed, they read as,

\[ \hat{Y} = 0.19X + 11.37 \]
\[ \hat{X} = 2.59Y + 16.66 \]

This relationship is presented graphically in figure 4.4. Here MPT is taken on the base line while MTA is taken on ordinate. From the slope of regression line it could be asserted that when the values of MFT are known values in MTA can be predicted successfully. Further all the associations with MPT were examined. The correlation coefficients between MPT and MTE is .80, between MPT and TMIA it is .98, and between MPT and GTK it is .73. All these correlation coefficients are positive and significant beyond .01 level. For these three relationships regression equations were developed. They read as -
MPT and MTE:
\[ \hat{Y} = 0.22X + 0.29, \text{ and} \]
\[ \hat{X} = 2.92Y + 32.61 \]

MPT and TMIA: Here the correlation coefficient of 0.98 is almost equal to perfect correlation of one. The two regression equations are as follows:
\[ \hat{Y} = 1.92X + 96.12, \text{ and} \]
\[ \hat{X} = 0.50Y - 44.44 \]

In the third relationship between MPT and GTM, the correlation coefficient is 0.73. The regression equations are,
\[ \hat{Y} = 2.84X + 320.41, \text{ and} \]
\[ \hat{X} = 0.19Y + 16.78 \]

In all these three, prediction of other variable is fairly correct, when the scores on first variable are known.

The fourth variable studied relates to marks obtained in cultural activities. This is denoted by MCA. This factor was also found closely associated between the other marks obtained in internal assessment. The correlation coefficient between MCA and MOA is 0.83, between MCA and MTA is 0.65, between MCA and MTE is 0.70. Of all the possible correlations with MCA, the highest correlation is between
MCA and TMIA which is .90. It is very high, positive and significant beyond .01 level. However, the correlation coefficient between MCA and GTM is not so encouraging; it is only .66. It is because GTM includes not only internal assessment but also marks obtained in external assessment. It is probably because of this the correlation coefficient is not so very high.

For the five relationships with MCA, regression equations were developed. They are:

**MCA and MOA:**

\[ \hat{Y} = 0.65X + 12.80, \text{ and} \]
\[ X = 1.06Y + 6.89 \]

**MCA and MTA:**

\[ \hat{Y} = 0.22X + 15.0, \text{ and} \]
\[ X = 1.93Y + 8.85 \]

**MCA and MTE:**

\[ \hat{Y} = 0.23X + 5.20, \text{ and} \]
\[ X = 2.08Y + 22.77 \]

**MCA and TMIA:**

\[ \hat{Y} = 2.16X + 105.27, \text{ and} \]
\[ X = 0.37Y - 37.18 \]
MCA and GTM:

\[
\hat{Y} = 3.14X + 317.77 \\
\hat{X} = 0.14Y - 15.11
\]

On the basis of these equations the relationships were presented graphically. These relationships are shown in figures 4.8 through 4.12. In each of these figures MCA is considered as the X variable and the other variables were taken on the Y axis.

Examination of these figures makes it clear that the strength of association between marks obtained in internal assessment activities is relatively high. It is because of the personal observation of the teacher the taught is evaluated more consistently and there is a high reliability, but when the association of marks obtained through external assessment is examined the relationship is not so reliable as it was expected.

The next relationships under examination were between MCA and the other four variables. The relationship between MOA and MTA is denoted by correlation coefficient of .71; with MTE also the relationship was .71, but the correlation coefficient between MOA and TMIA was found to be highest, that is .95. It is interesting to note that GTM and MCA had shown a correlation coefficient of .70. All these four
correlation coefficients are highly significant and hence they were subjected to regression analysis. In searching the strength of association between MOA and MTA the correlation coefficient was found to be .71. Considering means and standard deviation of these variables two regression equations were developed. They are,

\[ \hat{Y} = 0.30X + 12.51, \text{ and} \]
\[ \hat{X} = 1.65Y + 6.86 \]

Examination of regression lines shown in figure 4.13 denotes that more accurately the values of MTA can be predicted when the values of MOA are known; more or less similar possibilities could be observed in figure 4.14, where the regression lines depict relationship between MCA and MTA. The lines are drawn on the basis of following two equations:

\[ \hat{Y} = 0.318X + 3.73, \text{ and} \]
\[ \hat{X} = 1.65Y + 21.3. \]

The most remarkable regression lines are shown in figure 4.15 which are drawn on the basis of following two regression equations.

\[ \hat{Y} = 2.92X + 112.54, \text{ and} \]
\[ \hat{X} = 0.31Y - 29.39 \]
The regression lines are drawn to depict the relationship between MOA and TMIA. The last relationship with MOA is shown in figure 4.16. These regression lines are drawn on the basis of the following two regression equations:

\[
\hat{Y} = 4.178X + 347.27, \quad \text{and} \\
\hat{X} = 0.11Y - 11.57
\]

This relationship is just like the first two among the four dealt with MOA.

The next variable MTA and the remaining three relationships that were examined were with MTE, TMIA and GTM. Of these three relationships, the first and the third are relatively poor. In both these cases the correlation coefficients are .51, but the correlation coefficient between MTA and TMIA is the strongest one. It is .73. To depict this relationship graphically two regression equations were developed.

\[
\hat{Y} = 5.21X + 120.88, \quad \text{and} \\
\hat{X} = 0.10Y + 1.40
\]

The relationship is shown in figure 4.18. It is clear that when the scores on MTA are known it is possible to predict scores on TMIA accurately.
The seventh factor was MTE. The factor of MTE relates to marks obtained in test examination. Both MTE and TMIA are strongly associated to each other. The correlation coefficient is .81. With GTM, however, the MTE was not so strongly associated, the coefficient of correlation being just .62.

The last relationship examined was between TMIA and GTM. The value of correlation is .75. It is positive and high. It is also presented graphically in figure 4.22. Here the x axis shows TMIA values and the y axis shows GTM values. The regression lines depict steep slope (see figure 4.22).

The overall picture of the internal and external assessment of B.Ed. examination conducted in 1985 by Amravati University shows that there is good internal consistency and high reliability among the marks given in varied examinations conducted internally. In other words, among the internal assessment there was relatively more reliability while the relationships between external assessment and internal assessment were found to be poor.

During 1986, Nagpur University also conducted B.Ed. examination. Since the total sample was large, the effective sample consisted of 120 subjects. Here also nine different variables were used which were the same
FIG. 4.21

$Y = 0.78X + 492.36$

$Y = 0.04Y - 4.88$

$X = MTE$

FIG. 4.22

$Y = 1.43X + 175.53$

$Y = 3.8X + 53.74$

$X = TM1A$

FIG. 4.23

$Y = 0.26X + 10.51$

$Y = 0.93X + 6.51$

$X = MCA$

FIG. 4.24

$Y = 0.20X + 10.99$

$Y = 1.01X + 6.29$

$X = MPT$
as used for Amravati University. It is because Amravati University had adopted the pattern of examination that is being used in Nagpur University. Mean and standard deviation values of the nine variables are shown in following table.

Table 4.3 : Showing Means and Standard Deviation of Nine Different Variables

<table>
<thead>
<tr>
<th>COL</th>
<th>TCWE</th>
<th>MPE</th>
<th>MFT</th>
<th>MCA</th>
<th>MCOA</th>
<th>MTA</th>
<th>MTE</th>
<th>GMI</th>
<th>GTM</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>247.51</td>
<td>66.06</td>
<td>21.82</td>
<td>16.34</td>
<td>15.37</td>
<td>15.87</td>
<td>4.71</td>
<td>148.02</td>
<td>361.33</td>
</tr>
<tr>
<td>S</td>
<td>48.64</td>
<td>17.78</td>
<td>6.33</td>
<td>3.38</td>
<td>2.82</td>
<td>3.00</td>
<td>2.00</td>
<td>14.94</td>
<td>125.93</td>
</tr>
</tbody>
</table>

Values given in table 4.3 bring out relatively different results. In theory examination the mean obtained marks is 247.51 whereas the standard deviation is 48.64. When the grand total is considered the mean score is 361.33 and the standard deviation is 125.93. If these values are to be considered as the true representatives of total sample and the means and standard deviations are observed carefully, one finds that here also the variations are very large. Secondly, in some cases, there is better consistency but on the whole the reliability is not so strong in these data. Also internal consistency is relatively more with the marks given by the teachers in the form of internal assessment but as a whole, discrepancies are quite large.
Instead of drawing inferences on the basis of means and standard deviations, the data were further subjected to cor relational test. The intercorrelations are given in the following table:

Table 4.4: Showing the Correlation Coefficients Between Nine Variables (Nagpur, 1986)

<table>
<thead>
<tr>
<th></th>
<th>TOWE</th>
<th>MPE</th>
<th>MPT</th>
<th>MCA</th>
<th>MOA</th>
<th>MTA</th>
<th>MTE</th>
<th>TMIA</th>
<th>GTM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>x</td>
<td>0.23</td>
<td>0.17</td>
<td>0.23</td>
<td>0.27</td>
<td>0.28</td>
<td>0.25</td>
<td>0.34</td>
<td>0.29</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>x</td>
<td>0.07</td>
<td>0.26</td>
<td>0.03</td>
<td>0.07</td>
<td>0.17</td>
<td>0.42</td>
<td>0.25</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>x</td>
<td>0.50</td>
<td>0.45</td>
<td>0.56</td>
<td>-0.02</td>
<td>0.36</td>
<td>0.04</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>0.55</td>
<td>0.64</td>
<td>0.16</td>
<td>0.44</td>
<td>0.17</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>0.69</td>
<td>0.42</td>
<td>0.43</td>
<td>0.06</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>0.25</td>
<td>0.37</td>
<td>0.09</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>0.37</td>
<td>0.29</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>0.42</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>

While examining the correlations among the nine variables of Amravati University 1986 examination, very high correlation coefficients were observed. There the highest correlation coefficient was .98 and some of the correlations were negative also, but in case of present
data of which correlation coefficients are given in table 4.4, poor relationships were observed. However, there is a bright side, that is, extreme relationships are absent. The first factor that is marks obtained in theory examination is on the whole poorly associated with the remaining eight variables. Highest correlation coefficient is found between marks obtained in theory examination and TMIA. It is only .34 which is positive but not very high. All the remaining six correlation coefficients have values which are less than .30.

With TPWE, the poorest correlation was found when MPT were associated with it. It is .17. These findings are more or less similar to the findings observed with the data of Amravati University 1986 examination.

Marks obtained in practical examination that is denoted by MPE were also found poorly associated with most of the other variables. A significantly high relationship was found between MPE and TMIA. It is .42, but some of the other correlation coefficients are very poor. Among some variables the correlation coefficients are almost zero. For example, between MPE and MPT it is .07, between MPE and MCA it is .03 and between MPE and MTA it is .07.

Considerably large correlation coefficients are four with the MPT. For example, MPT and MCA had shown correlation
coefficient of .50. This relationship is graphically presented in figure 4.23. The regression lines drawn in this figure are based on regression equations, which are given below.

\[
\hat{Y} = 0.26X + 10.51, \text{ and } \\
\hat{X} = 0.93Y + 6.51
\]

Examination of figure 4.23 shows that though the slope of the curve is considerably good, prediction of the other scores accurately is not a simple task. It is because, though the correlation coefficient of .50 is sufficiently high, it is not very high as expected. Still the high strength of association cannot be ignored. Another relationship between MPT and MCA is \( r = .45 \) which is also presented graphically and shown in figure 4.24. Here also on x axis MPT scores are taken while on y axis MCA scores are taken. It could be seen that to a considerable extent MCA could be predicted when the scores on MPT are known. Of all the possible correlation coefficients, the highest correlation was found between MPT and MTA. It is .56 which is positive and significantly high. This relationship is depicted in figure 4.25, where the x axis represents MPT while y axis denotes MTA. The two regression lines are drawn following the regression equations -

\[
\hat{Y} = 0.26X + 10.07, \text{ and } \\
\hat{X} = 1.18Y + 3.06
\]
Both these regression lines show considerably linear relationship between MPT and MTA. The remaining correlation between MPT and other variables are so poor that they are not worth to be considered for regression equation.

The fourth variable was MCA. It is related to evaluation done regarding cultural activities between MCA and MCA. A correlation coefficient of .55 was obtained. It is considerably high correlation coefficient. It means, strength of association is better between the two variables. This relationship is shown by two regression lines in figure 4.26. There are two regression lines, of which one is based on the following regression equation,

\[ \hat{Y} = 0.45X + 7.87, \]

and other is based on a second regression equation which reads as,

\[ \hat{X} = 0.65Y + 6.20. \]

If these two lines are considered, it is possible to predict MOA, if the values of MCA are known. The next relationship examined was between MCA and MTA. The correlation coefficient is .64 which is very high and positive. It means, as the MCA increases the MTA also increases. Two regression equations were developed to indicate and explain this relationship which is graphically
presented in figure 4.27. Here the base line represents MCA value while the x axis represents MTA values. A considerably sharp slope could be observed in the regression lines. Obviously prediction is relatively more accurate.

With the same factor MCA, the factor of TMIA was found closely associated. However, the correlation coefficient is just .44 which is positive and significant at .05 level, but when tested by regression equation, the possibility of accurate prediction was found to be very poor (see figure 4.28). Finally the relationship between MCA and MTA was examined. The correlation coefficient between them was .69 which is positive and significantly high. In figure 4.29 relationship between MCA and MTA is presented graphically. In this figure the two regression lines are drawn on the basis of following two equations:

\[ \hat{Y} = .73X + 4.58, \text{ and} \]
\[ \hat{X} = .64Y + 5.70 \]

Examination of regression lines reveal that MTA could be predicted well if the scores of MCA are made available.

From the account of correlation coefficient, means and standard deviation of the data treated here, it could be said that there is absence of internal consistency and thereby reliability in the external and internal valuation.
To some extent, internal consistency is observed in the internal assessment, but there is an absence of co-ordination between marks obtained in theory papers given by the external examiner and those given by internal examiner.

Data collected for 1987 from Amravati University and also from Nagpur University were analysed. Extreme differences were observed in the data of 1986 and data of 1987. The earlier nine variables were used for analysing 1987 data. Means and standard deviation of the nine variables are displayed in the following table.

Table 4.5: Showing Means and Standard Deviation of Nine Different Variables
(Amravati, 1987)

<table>
<thead>
<tr>
<th>CCL</th>
<th>TDWE</th>
<th>MPE</th>
<th>MPT</th>
<th>MCA</th>
<th>MCA</th>
<th>MTA</th>
<th>MTE</th>
<th>TMIA</th>
<th>GTK</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>246.98</td>
<td>73.69</td>
<td>107.16</td>
<td>71.03</td>
<td>58.48</td>
<td>29.78</td>
<td>25.76</td>
<td>288.39</td>
<td>602.71</td>
</tr>
<tr>
<td>SD</td>
<td>54.90</td>
<td>10.02</td>
<td>9.28</td>
<td>10.82</td>
<td>7.072</td>
<td>4.56</td>
<td>10.56</td>
<td>29.30</td>
<td>54.09</td>
</tr>
</tbody>
</table>

It could be seen that in case of marks obtained in theory examination the variations are much larger than what were observed during 1986.
In 1986 the mean score was 251.25 and the standard deviation was 43.65, but in 1987 the mean score is 246.95 while the standard deviation is 54.90. It shows that mean marks obtained in TOWE has been reduced, but the standard deviation is increased. It is clearly an indication of reduced reliability in the marks allotted to theory papers. In other cases on the other hand the marks obtained remained more or less similar but the standard deviations were reduced. It shows that in some part internal consistency was better in 1986 data while in some cases internal consistency was better in 1987 data.

Further these data were subjected to correlation coefficients. The correlation matrix is given below.

Table 4.6 : Showing the Correlation Coefficients Between Nine Variables (Amravati, 1987)

<table>
<thead>
<tr>
<th></th>
<th>TOWE</th>
<th>MPE</th>
<th>MPT</th>
<th>MCA</th>
<th>MOA</th>
<th>MTA</th>
<th>MTE</th>
<th>TMIA</th>
<th>CMT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>x</td>
<td>0.411</td>
<td>0.46</td>
<td>0.385</td>
<td>0.20</td>
<td>0.36</td>
<td>0.215</td>
<td>0.515</td>
<td>0.47</td>
</tr>
<tr>
<td>2</td>
<td>x</td>
<td>0.330</td>
<td>0.240</td>
<td>-0.051</td>
<td>0.06</td>
<td>0.105</td>
<td>0.243</td>
<td>0.31</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>x</td>
<td>0.39</td>
<td>0.35</td>
<td>0.552</td>
<td>0.084</td>
<td>0.75</td>
<td>0.362</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>x</td>
<td>0.241</td>
<td>0.402</td>
<td>-0.025</td>
<td>0.57</td>
<td>0.180</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>x</td>
<td>0.442</td>
<td>0.10</td>
<td>0.57</td>
<td>0.24</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>x</td>
<td>0.195</td>
<td>0.67</td>
<td>0.284</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>x</td>
<td>0.15</td>
<td>0.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>x</td>
<td>0.445</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Here the results are somewhat different than what were observed for 1986. Marks obtained in theory examination were found moderately related to marks obtained in the other tests. Correlation coefficients between TCWE and TMIA was found to be positive and high among all the eight possible correlation coefficients. Its value is .515. It shows that as the marks in theory or written examination increase total marks obtained in internal assessment also increase. In view of this fact two regression equations were developed as below.

\[
\hat{Y} = 0.27X + 221.16, \text{ and }
\hat{X} = 0.95Y - 28.60
\]

The two regression lines drawn on the basis of above two regression equations are shown in figure 4.30. The x axis represents TOWE while the y axis shows TMIA. Examination of regression lines clearly shows that prediction of TMIA is moderately possible when the score on TOWE are known. In other words there is a good co-ordination in TCWE and TMIA.

The other correlation coefficients were found moderately high; in other words, relationship between marks obtained in theory or written examination are considerably related to marks obtained in internal assessment.
Somewhat disheartening results were obtained when the relationship was examined with marks obtained in practical examination. Some of the relationships are even negative. For example, MFE and MOA are negatively related though the relationship is negligible. Similarly negligible relationship was observed between MFE and MME. There is not a single correlation coefficient which is equal to or larger than the value of .50.

MPT on the other hand was found strongly associated with MTA and TMIA. The correlation coefficients are .55 and .75 respectively. These two relationships were examined by regression analysis. Of these two the first one between MPT and MTA is represented by following two regression equations:

\[ \hat{Y} = .27X + .81, \text{ and} \]
\[ \hat{X} = 1.11Y + 73.82. \]

This relationship is depicted in figure 4.31. Here x axis represents MFT values whereas y axis represents MTA values. Both the regression lines have good slope nearer to the diagonal, indicating that prediction is fairly correct. The other relationship is the superior most among all the eight correlation coefficients associated with MFE. The relationship between MFT and TMIA is
represented by correlation coefficient of .75. It is significantly very high and positive. Obviously, prediction of one score when the other is made available is relatively more correct. This could be visualised from figure 4.32. The regression lines shown in the figure are based on the following regression equations:

\[ \hat{Y} = 2.36X + 34.63, \]
\[ \hat{X} = 0.23Y + 38.65 \]

Here regressions are much near to the diagonal suggesting that more accurate prediction of the other score is possible when one of the two scores is available. In fact this relationship is represented by the highest correlation coefficient.

MCA is the next factor with which strength of association of other measures were examined. Conflicting results were obtained. For example, MCA and MTE were found negatively related to each other. While MCA and TMIA had shown correlation coefficient of .57. This is the highest relationship among the possible eight correlation coefficient. This is shown graphically in figure 4.33. In this figure the two regression lines were drawn on the basis of the following two regression equations:

\[ \hat{Y} = 1.54X + 178.75, \]
\[ \hat{X} = 0.21Y + 10.32 \]
FIG. 4.33

$y = 1.54x + 78.75$

$y = 0.24x + 10.32$

FIG. 4.34

$y = 2.36x + 150.24$

$y = 0.13x + 23.81$

FIG. 4.35

$y = 1.85x + 240.50$

$y = 0.24x + 43.87$

FIG. 4.36

$y = 0.12x + 4.36$

$y = 2.83y + 27.61$
x Axis on this curve shows MCA values while y axis shows TMIA values. Here also it is possible to predict MCA values if the values of TMIA are available.

Most of the remaining correlation coefficients given in table 4.6 are not very high. There are only two relationships, one between MCA and TMIA and the second between MTA and TMIA which are worth consideration. The first one is represented by a correlation coefficient of .57 and second one is represented by correlation coefficient of .67. These two relationships are presented in figure 4.34 and 4.35. These two figures were drawn on the basis of following regression equations. Regression equations related to figure 4.34 are:

\[ \hat{Y} = 2.36X + 150.24, \text{ and} \]
\[ \hat{X} = .13Y + 29.81 \]

The second one shown in figure 4.35 is based on following two equations.

\[ \hat{Y} = 1.85X + 240.50, \text{ and} \]
\[ \hat{X} = .24Y - 43.87 \]

On the basis of analysis of correlation coefficient, it is clear that internal consistency of the marks obtained in internal assessment as well as external assessment is not very strong, still some moderate relationship
in the assessment could be observed.

Like Amravati University 1987 data, Nagpur University 1987 data were analysed. Incidentally, comparison had been made between 1986 and 1987 data. The findings are given in the following table.

Table 4.7: Mean and Standard Deviation of Nine Different Variables (Nagpur, 1987)

<table>
<thead>
<tr>
<th>COL</th>
<th>TOWE</th>
<th>MPE</th>
<th>MPT</th>
<th>MCA</th>
<th>MCA</th>
<th>MTA</th>
<th>MTE</th>
<th>TMIA</th>
<th>GTM</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>246.86</td>
<td>73.37</td>
<td>24.49</td>
<td>15.85</td>
<td>15.78</td>
<td>16.14</td>
<td>5.35</td>
<td>151.23</td>
<td>382.25</td>
</tr>
<tr>
<td>S</td>
<td>34.73</td>
<td>9.65</td>
<td>2.47</td>
<td>2.78</td>
<td>2.02</td>
<td>2.52</td>
<td>1.95</td>
<td>16.82</td>
<td>95.15</td>
</tr>
</tbody>
</table>

Values given in table 4.7 show that compared to 1986, in 1987 there was relatively more internal consistency in the internal as well as external evaluation. The difference is much large. For example, in TOWE during 1986 the mean score was 247.51 and standard deviation was 48.64, while in 1987 the mean score is 246.86 and the standard deviation is 34.73. This is a very large difference in the standard deviation values while the mean values are more or less similar. Even in the marks of practical examinations remarkably large difference is observed. For example, in
1986, the mean marks were 66.06 and the standard deviation was 17.78, while during 1987 the mean marks are 73.37 and the standard deviation is 9.65; thus here the mean marks are more and the standard deviation is less. It means that in 1987, internal consistency in the evaluation is superior. Obviously the reliability is more. In other cases also similar differences in means and standard deviation could be seen.

Since the best measure of internal consistency is correlation coefficient, these data were subjected to correlational methods. The possible intercorrelations between the nine measures are given in table 4.8.

Table 4.8: Showing the Correlation Coefficients Between Nine Variables (Nagpur, 1987)

<table>
<thead>
<tr>
<th></th>
<th>TCWE</th>
<th>MPE</th>
<th>MPT</th>
<th>MCA</th>
<th>MCA</th>
<th>MTA</th>
<th>MTE</th>
<th>TKIA</th>
<th>GTM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>x</td>
<td>0.39</td>
<td>0.365</td>
<td>0.305</td>
<td>0.274</td>
<td>0.17</td>
<td>0.25</td>
<td>0.43</td>
<td>0.470</td>
</tr>
<tr>
<td>2</td>
<td>x</td>
<td>0.45</td>
<td>0.35</td>
<td>0.610</td>
<td>0.433</td>
<td>0.560</td>
<td>0.87</td>
<td>0.513</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>x</td>
<td>0.584</td>
<td>0.502</td>
<td>0.284</td>
<td>0.371</td>
<td>0.611</td>
<td>0.335</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>x</td>
<td>0.33</td>
<td>0.23</td>
<td>0.35</td>
<td>0.55</td>
<td>0.18</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>x</td>
<td>0.60</td>
<td>0.54</td>
<td>0.75</td>
<td>0.275</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>x</td>
<td>0.354</td>
<td>0.56</td>
<td>0.080</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>x</td>
<td>0.65</td>
<td>0.43</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>x</td>
<td>0.48</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In spite of the fact that TCWE is related to other eight measures, the relationships are not very strong. The highest relationship was found between TCWE and GTM. It is \( r = .47 \). This is a good indication. Similarly, relationship between TCWE and TMIA is also somewhat considerable. It is \( .43 \), but the other correlation coefficients are not high. Marks obtained in practical examination on the other hand were found highly associated with other factors. Of the possible eight correlation coefficients, the following four were positive and high.

\[
\begin{align*}
r \text{ between MPE and MOA} &= .61 \\
r \text{ between MPE and MTE} &= .56 \\
r \text{ between MPE and TMIA} &= .87 \\
r \text{ between MPE and GTM} &= .51
\end{align*}
\]

Among these four correlation coefficients, the most remarkable is correlation between MPE and TMIA. All these four correlation coefficients were treated by regression analysis. The regression equations depicting these four relationships are as follows:

\[
\begin{align*}
r \text{ MPE and MOA} &= .61 \\
\hat{Y} &= .12X + 6.36, \text{ and} \\
\hat{X} &= 2.89Y + 27.61 \\
r \text{ MPE and MTE} &= .56 \\
\hat{Y} &= .11X - 2.95, \text{ and} \\
\hat{X} &= 2.77Y + 58.54
\end{align*}
\]
\[ r \text{ MPE and TMIA} = 0.87 \]
\[ \hat{Y} = 1.51X + 39.97, \text{ and} \]
\[ \hat{X} = 0.49Y - 2.11 \]

\[ r \text{ MPE and GTM} = 0.51 \]
\[ \hat{Y} = 5.02X + 13.29, \text{ and} \]
\[ \hat{X} = 0.05Y + 53.59 \]

These regression equations are represented graphically in figures 4.36 through 4.39. In all these four figures the slopes of regression lines are nearer to diagonal, but among these four the most effective are those regression lines which depict the correlation coefficient between MPE and TMIA. In general, the measurement of MPE was found strongly associated with other measures.

The third measure was MPT. It was found moderately better associated with only three measures, namely, MCA, MOA and TMIA. The respective correlation coefficients are 0.58, 0.50 and 0.61. Only for these three, for the probability of predicting one measure when the marks of other measures are given, regression equations were developed. On the basis of these regression equations as given below, regression lines were drawn.

\[ \hat{Y} = 0.66X - 0.28, \text{ and} \]
While drawing the regression lines in figure 4.40 the above two equations were used.

\[
\hat{X} = 0.50Y + 16.34
\]

\[
\hat{Y} = 0.34X + 7.41, \text{ and}
\]

\[
\hat{X} = 0.60Y + 14.87.
\]

The above two equations give the relationship between MPT and MOA.

Relationship between MPT and TMIA is shown in figure 4.41. Here the formulation of following two equations was taken into consideration.

\[
\hat{Y} = 4.20X + 48.58, \text{ and}
\]

\[
\hat{X} = 0.08Y + 11.02
\]

In these three relationships, it is seen that prediction of other's scores is not so reliable but to a considerable extent MPT can be predicted, if the scores of MCA, MOA and TMIA are known.

The four measures related with MCA are the marks given by internal examiner to the cultural activities. Of the eight possible relationships, one was already discussed and other worth mentioning is the relationship between MCA and TMIA. The correlation coefficient is 0.55. It is shown
graphically in figure 4.42. The two equations used in drawing the two regression lines are -

\[
\hat{Y} = 3.32X + 98.48, \text{ and }
\hat{X} = 0.09Y + 2.01
\]

It shows that as the marks obtained in cultural activities increase, the TMIA scores also increase.

The fifth measure, MOA was found strongly related to MTA, MTE and TMIA. The correlation coefficients showing these three relationships are .60, .54 and .75. Since these correlations are positive and high, possibility of prediction was tested. The relationship is shown graphically also in figure 4.43; using two regression equations, \( Y = .74X + 4.32 \), and \( X = .48Y + 8.01 \), the regression lines were drawn. Error in the prediction of MTA score, when MOA is given, is likely to be around 50%.

MOA and MTE were found strongly associated with each other. This relationship could be examined from the regression lines drawn in figure 4.44. These regression lines were drawn on the basis of following two equations.

\[
\hat{Y} = .52X - 2.87, \text{ and }
\hat{X} = .55Y + 12.78
\]
The third important relationship is between MOA and TMIA. It is shown in figure 4.45. For drawing the regression lines in figure 4.45, following two regression equations were developed:

\[ Y = 6.24X + 52.26, \]  
\[ X = .09Y + 2.15 \]

Among the three relationships examined here, the most promising in prediction is the relationship between MOA and TMIA.

Finally, only two relationships were found relatively strong and positive. They are between MTE and TMIA, and between TMIA and MTA. The correlation coefficient between MTA and TMIA is .56. It shows that as the scores in MTA increase scores on TMIA also increase. Related to this, regression lines are shown in figure 4.46 along with the relevant equations.

The final relationship is examined in between MTE and TMIA. The correlation coefficient is .65 which is high and positive. In figure 4.47 both the regression lines and the equations are given. It appears that prediction among these two measures is relatively better.

In sum, it could be said that strength of association between marks obtained in different nine measures
is better. In most cases the internal consistency was high and the reliability was little better than that of 1986 results.

In the year 1988, many students appeared in B.Ed. examination. However, effective sample for this year in Amravati University for the present study was 105 only. Mean and standard deviation of scores of these students obtained in the nine measures are given in table 4.9.

Table 4.9: Mean and Standard Deviation of nine Different Variables
(Amravati, 1988)

<table>
<thead>
<tr>
<th>COL</th>
<th>TOWE</th>
<th>MPE</th>
<th>MPT</th>
<th>MCA</th>
<th>MD</th>
<th>MTA</th>
<th>MTE</th>
<th>TMIA</th>
<th>GTM</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>255.73</td>
<td>72.00</td>
<td>109.21</td>
<td>73.69</td>
<td>59.47</td>
<td>32.00</td>
<td>22.68</td>
<td>293.77</td>
<td>62.15</td>
</tr>
<tr>
<td>SD</td>
<td>33.70</td>
<td>11.23</td>
<td>17.09</td>
<td>8.22</td>
<td>8.38</td>
<td>4.06</td>
<td>6.94</td>
<td>34.45</td>
<td>5.85</td>
</tr>
</tbody>
</table>

From the standard deviation scores, it is clear that in most cases there is a good consistency in the valuation. Here, a little modification was made as CGPA scheme was introduced; hence the total marks in each category were varied. This change appeared to be favourable in the assessment of the candidates though it reveals that in the absence of consistency in performance the candidate has to lose his
grade or division even when the percentage of marks are more than sixty.

In order to test consistency in the evaluation, the data were further subjected to correlation coefficient test.

Table 4.10: Showing Correlation Coefficient Between Marks Obtained in Different Examinations (Amravati, 1988)

<table>
<thead>
<tr>
<th></th>
<th>TOWE</th>
<th>MPE</th>
<th>MPT</th>
<th>MCA</th>
<th>MOA</th>
<th>MTA</th>
<th>MTE</th>
<th>TMIA</th>
<th>GTM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>x</td>
<td>0.30</td>
<td>0.04</td>
<td>0.35</td>
<td>0.31</td>
<td>0.20</td>
<td>0.61</td>
<td>0.35</td>
<td>0.78</td>
</tr>
<tr>
<td>2</td>
<td>x</td>
<td>0.26</td>
<td>0.89</td>
<td>0.273</td>
<td>0.11</td>
<td>0.263</td>
<td>0.255</td>
<td>0.42</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>x</td>
<td>0.211</td>
<td>0.312</td>
<td>0.39</td>
<td>0.204</td>
<td>0.521</td>
<td>0.37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>x</td>
<td>0.58</td>
<td>0.49</td>
<td>0.128</td>
<td>0.610</td>
<td>0.57</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>x</td>
<td>0.71</td>
<td>0.29</td>
<td>0.70</td>
<td>0.63</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>x</td>
<td>0.23</td>
<td>0.66</td>
<td>0.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>x</td>
<td>0.474</td>
<td>0.57</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>x</td>
<td>0.68</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Here it is necessary to mention that the ninth column depicts grand total in percentages where decimals were omitted. Marks obtained in theory examination failed
to show strength of association with the marks obtained in internal assessment. The correlation values show that only two associations are worth consideration and they are between TOWE and MTE, and between TOWE and GTM. The correlation coefficients denoting these relationships are .61 and .78 respectively. These associations are shown in figures 4.48 and 4.49 respectively. The regression equations developed for drawing regression lines in the first case are,

\[ \hat{Y} = 0.12X - 9.44, \text{ and} \]
\[ \hat{X} = 2.96Y + 188.54 \]

Both the regression lines shown in figure 4.48 denote that prediction is fairly better. Considering \( Y = 0.13X + 27.52 \) and \( X = 4.49Y - 23.53 \), the other regression lines shown in figure 4.49 were drawn. Compared to the earlier relationships, this relationship is more effective in the prediction.

MPE brought out very poor correlation coefficients with all the variables except two namely, with MCA and GTM. MPE showed very strong association with MCA the value being .89, and with GTM the same showed a moderate association, the correlation coefficient being .42.

The scores on MPT had shown strong associations only with TMIA. It is .52. This is presented graphically in
The measure of MCA had shown positive and high correlation with MOA, TMIA and GTM. The correlation coefficients are respectively .58, .61 and .57. These three relationships along with the relevant regression equations are shown in figures 4.51 through 4.53. In all these three figures the slopes of the lines are considerably good, suggesting that prediction of scores is accurate to considerable extent. With MTA, TMIA and GTM the MOA was found strongly associated. The other relationships were poor. Hence, only these three relationships were examined using regression analysis. Figure 4.54 depicts the relationship between MOA and MTA (r = .71). There along with the regression lines regression equations are presented. In figure 4.55 and figure 4.56, relationships between MOA and TMIA, and between MOA and GTM are presented. Among the two figures, the former one suggests better strength of association than the latter one.

Eight possible correlations were computed involving MTA. However, only two relationships had shown strong positive association. They are between MTA and TMIA (r = .66) and between MTA and GTM (r = .50). These relationships could be observed from figure 4.57 and 4.58.
The last two strong associations were observed between MTE and GTM, and TMIA and GTM. These relationships are presented along with regression equations in figures 4.59 and 4.60.

No doubt that in the internal and the external assessment of 1988 B.Ed. Examination in Amravati University relatively better reliability was observed.

Mean and standard deviation values of different types of measures related to Nagpur University 1988 B.Ed. examination are given below.

Table 4.11: Mean and Standard Deviation of Nine Different Variables (Nagpur, 1988)

<table>
<thead>
<tr>
<th>COL</th>
<th>TOWE</th>
<th>MPE</th>
<th>MPT</th>
<th>MCA</th>
<th>MOA</th>
<th>MTA</th>
<th>MTE</th>
<th>TMIA</th>
<th>GTM</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>229.97</td>
<td>68.36</td>
<td>23.28</td>
<td>13.65</td>
<td>15.10</td>
<td>15.00</td>
<td>4.72</td>
<td>140.55</td>
<td>369.22</td>
</tr>
<tr>
<td>S</td>
<td>37.54</td>
<td>10.69</td>
<td>3.41</td>
<td>2.88</td>
<td>2.14</td>
<td>2.53</td>
<td>1.96</td>
<td>16.12</td>
<td>47.73</td>
</tr>
</tbody>
</table>

Since the number of students appeared in the examination were large, the effective sample selected consisted of 178 subjects. It means that the mean and standard deviation data given in table 4.11 are based on
sample size 178. Though the mean scores are less than what were observed in 1987, the standard deviation scores seemed larger in some cases and poor in other cases. Standard Deviation values show that there is moderate consistency in the evaluation of different activities and examination incorporated in B.Ed. Examination.

Data when subjected to correlation analysis, the following results were obtained.

Table 4.12: Intercorrelationship Between Nine Different Measures (Nagpur, 1988)

<table>
<thead>
<tr>
<th></th>
<th>TOWE</th>
<th>MPE</th>
<th>MPT</th>
<th>MCA</th>
<th>MOA</th>
<th>MTA</th>
<th>MTE</th>
<th>TMIA</th>
<th>GTM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>x</td>
<td>0.39</td>
<td>0.111</td>
<td>0.31</td>
<td>0.05</td>
<td>0.18</td>
<td>0.46</td>
<td>0.43</td>
<td>0.93</td>
</tr>
<tr>
<td>2</td>
<td>x</td>
<td>0.22</td>
<td>0.55</td>
<td>-0.08</td>
<td>0.16</td>
<td>0.43</td>
<td>0.83</td>
<td>0.59</td>
<td>0.59</td>
</tr>
<tr>
<td>3</td>
<td>x</td>
<td>0.19</td>
<td>0.34</td>
<td>0.45</td>
<td>0.24</td>
<td>0.56</td>
<td>0.28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>x</td>
<td>-0.05</td>
<td>0.16</td>
<td>0.55</td>
<td>0.67</td>
<td>0.48</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>x</td>
<td>0.50</td>
<td>-0.02</td>
<td>0.25</td>
<td>0.11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>x</td>
<td>0.21</td>
<td>0.47</td>
<td>0.29</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>x</td>
<td>0.58</td>
<td>0.55</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>x</td>
<td>0.68</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A heuristic view of correlation coefficients displayed
in table 4.12 makes it clear that in most cases the internal consistency is very poor but surprisingly a few correlation coefficients are very high. For example, correlation coefficients between TOWE and GTM was found to be extremely high. It is .93, which is very near to the perfect correlation of 1.00. It is presented graphically in figure 4.61. Here x axis represents TOWE while on the y axis GTM values are plotted. Examination of regression lines and the given regression equations suggest that if TOWE scores are made available, GTM scores can be predicted with utmost accuracy. However, all the remaining correlation coefficients except the one are just negligible.

The second measure, MFE was found closely associated with MCA, TMIA and GTM but a negative relationship was also found between MFE and MOA. It is rather difficult to present an exact explanation of such extreme relationship. The three relationships namely, MFE and MCA, MFE and TMIA, and MFE and GTM yielded correlation coefficients of .55, .83 and .59 respectively. All these three correlation coefficients are strong and significantly high (P .01). These three relations are depicted graphically in figure 4.62 through figures 4.64. Careful examination of these regression lines and the equations given thereon suggest that the relationship shown in
figure 4.63 is the most effective one as the slope of the regression lines is quite close to the diagonal showing perfect relationship.

The third measure was MPT. It was found poorly associated with almost all the measures except one. That is the relationship between MPT and TMIA. This relationship is denoted by correlation coefficient of .56. It is shown graphically in the form of regression lines in figure 4.65 along with the related regression equations.

Similarly, MCA was also observed as poorly related with the other measures. Only two relationships namely MCA and MTE (r=.55), and MCA and TMIA (r=.67) are high. Both these correlations are significantly high and positive. These are depicted graphically in figures 4.66 and 4.67 respectively.

Considerably high relationships were observed between MOA and MTA (r = .50), between MTE and TMIA (r = .58), and between MTE and GTM (r = .55). These relationships are also presented graphically in figures 4.68 through 4.70.

Finally, relationship between TMIA and GTM was examined. Here r = .68 was found. This is relatively high and positive relationship. Figure 4.71 gives us a
clear picture of this relationship along with the related regression equations.

On the whole it appears that the 1988 results of Nagpur University are not very promising when viewed in the context of reliability despite a very high relationship between a few measures, since the other relationships are very poor. It is inferred that internal consistency is relatively very poor.

In 1989 B.Ed. results of Amravati University, it was found that they are comparatively more reliable than the 1988 B.Ed. results. Mean and standard deviation values of Amravati University data for the said examination are given in table 4.13.

Table 4.13: Mean and Standard Deviation of Nine Different Variables
(Amravati, 1989)

<table>
<thead>
<tr>
<th>COL</th>
<th>TOWE</th>
<th>MPE</th>
<th>MPT</th>
<th>MCA</th>
<th>MOA</th>
<th>MTA</th>
<th>MTE</th>
<th>TMIA</th>
<th>GTM</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>244.27</td>
<td>78.55</td>
<td>113.48</td>
<td>73.96</td>
<td>61.29</td>
<td>30.81</td>
<td>24.03</td>
<td>304.90</td>
<td>626.81</td>
</tr>
<tr>
<td>SD</td>
<td>33.11</td>
<td>9.73</td>
<td>17.61</td>
<td>10.30</td>
<td>9.06</td>
<td>6.05</td>
<td>6.76</td>
<td>35.53</td>
<td>61.84</td>
</tr>
</tbody>
</table>

Surprisingly, the marks given in internal as well as
External assessments are inclined towards the upper end and the variations are large but since the mean values are also large the internal consistency was found to be high.

It is not possible to understand or have a very clear idea from the mean and standard deviation values; inevitably the data were to be subjected to correlation coefficients. These values are given in the following table. There is a special feature of correlation coefficients obtained regarding 1989 data.

Table 4.14: Intercorrelationship Between Nine Different Measures (Amravati, 1989)

<table>
<thead>
<tr>
<th>TOWE</th>
<th>MPE</th>
<th>MPT</th>
<th>MCA</th>
<th>MOA</th>
<th>MTA</th>
<th>MTE</th>
<th>TMIA</th>
<th>GTM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>x</td>
<td>0.39</td>
<td>0.155</td>
<td>0.24</td>
<td>0.29</td>
<td>0.11</td>
<td>0.50</td>
<td>0.30</td>
</tr>
<tr>
<td>2</td>
<td>x</td>
<td>0.57</td>
<td>0.53</td>
<td>0.40</td>
<td>0.50</td>
<td>0.16</td>
<td>0.64</td>
<td>0.72</td>
</tr>
<tr>
<td>3</td>
<td>x</td>
<td>0.60</td>
<td>0.47</td>
<td>0.48</td>
<td>0.17</td>
<td>0.69</td>
<td>0.57</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>x</td>
<td>0.60</td>
<td>0.50</td>
<td>0.10</td>
<td>0.73</td>
<td>0.63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>x</td>
<td>0.40</td>
<td>0.17</td>
<td>0.61</td>
<td>0.51</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>x</td>
<td>0.13</td>
<td>0.65</td>
<td>0.51</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>x</td>
<td>0.32</td>
<td>0.48</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>x</td>
<td></td>
<td>0.79</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Here extreme relationships are not observed but very poor relationship could be observed. For example, TOWE has the poorest relationship with MTA ($r = .11$), while it has the highest relationship with GTM ($r = .75$). Somewhat moderate relationship was observed between TOWE and MTE. It is $.50$. Likewise, relationship between MPE and other measures was examined. A very bright picture was obtained; MTE was found strongly associated to MPT, MCA, MTE, TMIA and GTM; but among these relationships, with GTM it is very strong with the correlation coefficient $.72$.

MPT on the other hand is poorly associated with other factors, while correlation coefficient between MCA and MPT is $.60$, between TMIA and MPT $.69$, and between MPT and GTM it is $.57$.

Similarly good associations were observed between MCA and MOA ($r = .60$), MCA and MTA ($r = .50$), MCA and TMIA ($r = .73$), and MCA and GTM ($r = .63$).

Thus, most of the correlations are observed positive and high. Here it is worth mentioning that factor seven known as MTE was found poorly associated with the other measures, while TMIA and GTM were positively and strongly associated with the other measures. Some of these relationships are presented graphically by computing the regression equations.
The first relationship is between TOWE and GTM. Correlation coefficient is .75. This relationship is shown in figure 4.72 which is based on the two regression equations, \( \hat{Y} = 1.40X + 284.64 \), and \( \hat{X} = .40Y - 9.48 \). No doubt, prediction is near to accurate.

The other relationship is shown in figure 4.73. It is between MPE and GTM. The correlation coefficient is .72. The regression lines along with regression equations are presented in figure 4.73. Here also accuracy in prediction seems to be very high.

The next relationship is presented in figure 4.74, which is between MPT and TMIA. The correlation coefficient is .69 and the regression equations on which it is based are as follows:

\[
\hat{Y} = 1.39X + 146.92, \text{ and } \\
\hat{X} = .34Y + 9.20
\]

Correlation coefficient between MCA and TMIA was found, \( r = .73 \). These data were treated by regression equations. The two regression equations are, \( Y = 2.51X + 118.65 \), and \( X = .21Y + 9.43 \). This relationship is shown in figure 4.75. Here also it is possible to predict the scores more accurately. The last
relationship presented graphically is between TMIA and GTM in which case a very high positive correlation coefficient was observed \((r = .79)\). Two regression lines showing this relationship are presented in figure 4.76. The regression equations on which the regression lines are based are as follows:

\[
\hat{Y} = 1.37X + 207.57, \quad \text{and} \quad \hat{X} = 0.45Y + 20.39
\]

The results interpreted so far demonstrate that, the internal as well as external consistency in the data collected for 1989 in Amravati University were relatively more reliable than the results prepared earlier.

Data from Nagpur University for the year 1989 brought out mostly unreliable internal as well as external assessment. Means and standard deviation of the nine different measures studied are displayed in table 4.15.

Table 4.15: Mean and Standard Deviation of Nine Different Variables (Nagpur, 1989)

<table>
<thead>
<tr>
<th>COL</th>
<th>TOWE</th>
<th>MPE</th>
<th>MPT</th>
<th>MCA</th>
<th>MOA</th>
<th>MTA</th>
<th>NTE</th>
<th>TMIA</th>
<th>GTM</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>249.49</td>
<td>73.20</td>
<td>24.40</td>
<td>16.34</td>
<td>15.84</td>
<td>16.04</td>
<td>4.65</td>
<td>151.02</td>
<td>398.32</td>
</tr>
<tr>
<td>SD</td>
<td>30.34</td>
<td>8.41</td>
<td>3.07</td>
<td>2.65</td>
<td>2.14</td>
<td>1.76</td>
<td>2.51</td>
<td>12.30</td>
<td>41.93</td>
</tr>
</tbody>
</table>
From the standard deviation values one could see that the standard deviation is not very large as they were in case of previous results. It means that when each measure is considered independently there is internal consistency. However, it could be attributed to the large sample size of 215 used in the study to evaluate 1989 data. This internal consistency is remarkable only and only when it is treated independently, but when the interrelationship between the nine measures were examined only the correlation coefficient with TMIA were found somewhat remarkable. Of all the possible intercorrelations there were only seven intercorrelations which could be considered as high strength of associations. Of these seven five are related to the factor of TMIA and two are associated with GTM.

Table 4.16: Intercorrelation Between Nine Different Measures (Nagpur, 1989)

<table>
<thead>
<tr>
<th>TOWE</th>
<th>MPE</th>
<th>MPT</th>
<th>MCA</th>
<th>MOA</th>
<th>MTA</th>
<th>MTE</th>
<th>TMIA</th>
<th>GTM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>x</td>
<td>0.365</td>
<td>0.442</td>
<td>0.21</td>
<td>0.310</td>
<td>0.37</td>
<td>0.214</td>
<td>0.56</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>0.351</td>
<td>0.232</td>
<td>0.33</td>
<td>0.310</td>
<td>0.006</td>
<td>0.734</td>
<td>0.430</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>0.20</td>
<td>0.36</td>
<td>0.335</td>
<td>0.163</td>
<td>0.67</td>
<td>0.43</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td>0.152</td>
<td>0.265</td>
<td>-0.474</td>
<td>0.360</td>
<td>0.211</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.383</td>
<td>0.25</td>
<td>0.606</td>
<td>0.344</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.185</td>
<td>0.562</td>
<td>0.444</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.25</td>
<td>0.27</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>0.62</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>
With TOWE, TMIA and GTM were found strongly associated. The correlation coefficients are .56 and .73 respectively. These relationships are depicted by regression equations. For the first one, the regression equations are,

\[ \hat{Y} = 0.22X + 94.37, \text{ and} \]
\[ \hat{X} = 1.38Y + 40.88 \]

The second relationship is presented graphically in figure 4.77. Here the x axis is represented by TOWE and the y axis denotes GTM. Related regression equations are mentioned in the figure. One could see that GTM could be predicted accurately when the scores on TOWE are made known.

Except one that is the relationship between MFE and TMIA all the correlation coefficients were found very low. This relationship is presented in figure 4.78. The regression lines are based on the two equations,

\[ \hat{Y} = 1.06X + 72.86, \text{ and} \]
\[ \hat{X} = 0.49Y - 2.17 \]

Findings of MPT are not different from that of MPE. Further with MCA not a single measure was found strongly associated. Needless to say that the other correlation coefficients were poor and only the following three
relationships namely, MOA with TMIA, MTA with TMIA, and TMIA with GTM have positive and strong correlation.

From the above interpretation, it is clear that more internal consistency and obviously high reliability was observed in the internal as well as external assessment. In other words, marks obtained in one examination failed to correspond with marks obtained in other examination.

In the final stage 1990 data for B.Ed. examination of Amravati as well as of Nagpur University were examined. Means and standard deviation of nine measures related to Amravati University data are given below.

Table 4.17: Mean and Standard Deviation of Nine Different Variables
(Amravati, 1990)

<table>
<thead>
<tr>
<th>COL</th>
<th>TOWE</th>
<th>MPE</th>
<th>MPT</th>
<th>MCA</th>
<th>MOA</th>
<th>MTA</th>
<th>MTE</th>
<th>TMIA</th>
<th>GTM</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>238.44</td>
<td>77.80</td>
<td>115.45</td>
<td>77.85</td>
<td>62.56</td>
<td>34.51</td>
<td>22.94</td>
<td>310.80</td>
<td>631.35</td>
</tr>
<tr>
<td>S</td>
<td>53.11</td>
<td>13.38</td>
<td>15.52</td>
<td>7.39</td>
<td>11.48</td>
<td>3.90</td>
<td>8.09</td>
<td>33.66</td>
<td>76.89</td>
</tr>
</tbody>
</table>

These data were based on sample size of 86 only but it is characterised by large variations in the distribution. For example, mean TOWE is 238.44 and the standard deviation
associated with it is 53.11. Even the mean scores of TMIA is 310.80 and the standard deviation is 33.66. This clearly shows that there are large variations and there is poor internal consistency. This becomes clear from the internal correlation matrix presented in the following table.

Table 4.18: Correlation Coefficient Between Nine Measures (Amravati, 1990)

<table>
<thead>
<tr>
<th></th>
<th>TOWE</th>
<th>MPE</th>
<th>MPT</th>
<th>MCA</th>
<th>MOA</th>
<th>MTA</th>
<th>MTE</th>
<th>TMIA</th>
<th>GTM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>x</td>
<td>0.23</td>
<td>-0.01</td>
<td>0.46</td>
<td>0.31</td>
<td>0.03</td>
<td>0.71</td>
<td>0.40</td>
<td>0.32</td>
</tr>
<tr>
<td>2</td>
<td>x</td>
<td>0.07</td>
<td>0.30</td>
<td>0.11</td>
<td>0.16</td>
<td>0.12</td>
<td>0.19</td>
<td>0.32</td>
<td>0.26</td>
</tr>
<tr>
<td>3</td>
<td>x</td>
<td>x</td>
<td>0.22</td>
<td>0.42</td>
<td>0.58</td>
<td>-0.02</td>
<td>0.63</td>
<td>0.58</td>
<td>0.63</td>
</tr>
<tr>
<td>4</td>
<td>x</td>
<td>x</td>
<td>0.32</td>
<td>0.30</td>
<td>0.39</td>
<td>0.58</td>
<td>0.63</td>
<td>0.52</td>
<td>0.46</td>
</tr>
<tr>
<td>5</td>
<td>x</td>
<td>x</td>
<td>0.39</td>
<td>0.28</td>
<td>0.52</td>
<td>0.64</td>
<td>0.33</td>
<td>0.44</td>
<td>0.73</td>
</tr>
<tr>
<td>6</td>
<td>x</td>
<td>x</td>
<td>0.07</td>
<td>0.64</td>
<td>0.33</td>
<td>0.44</td>
<td>0.73</td>
<td>0.70</td>
<td>x</td>
</tr>
<tr>
<td>7</td>
<td>x</td>
<td>x</td>
<td>0.70</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

A glance at the correlation matrix makes it clear that most of the correlation coefficients are very poor. Some of the correlation coefficients associated with TMIA and GTM are considerably high. TOWE is strongly
associated with MTE. The relationship is denoted by correlation coefficient of .71, while with GTM it is denoted by .88. The second relationship is presented graphically in figure 4.79. Here two regression lines are drawn and the relevant regression equations are given. It is clear that prediction of GTM is more accurate when TOWE are presented.

Not a single correlation coefficient with MPE is large enough to be taken care of, but with MPT, MTA and TMIA were seen strongly associated. The other relationships, however, could not reach to the value of $r = .50$. Measure MCA brought out correlation coefficient of .58 with TMIA and .63 with GTM. The other relations are more or less negligible. The remaining factors had shown considerable strength of association with TMIA and GTM. However, among them only two correlation coefficients had shown some positive indications of significantly better prediction. They are correlation coefficients between MTE and GTM, and TMIA and GTM. The correlation coefficient values are .73 and .70 respectively.

On the whole the Amravati University results are seen lowering down its reliability and internal consistency.

Finally, the results of 1990 B.Ed. examinations of
Nagpur University were examined. The means and standard deviation values of different measures are given below.

Table 4.19 : Mean and Standard Deviation of Nine Different Variables
(Nagpur, 1990)

<table>
<thead>
<tr>
<th>COL</th>
<th>TOWE</th>
<th>MPE</th>
<th>MPT</th>
<th>MCA</th>
<th>MOA</th>
<th>MTA</th>
<th>MTE</th>
<th>TMIA</th>
<th>GTM</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>247.96</td>
<td>75.39</td>
<td>24.40</td>
<td>16.62</td>
<td>15.87</td>
<td>15.78</td>
<td>4.30</td>
<td>152.26</td>
<td>398.65</td>
</tr>
<tr>
<td>S</td>
<td>28.97</td>
<td>6.42</td>
<td>2.65</td>
<td>1.45</td>
<td>1.67</td>
<td>1.70</td>
<td>1.30</td>
<td>9.79</td>
<td>37.77</td>
</tr>
</tbody>
</table>

Since 1986 Nagpur University had maintained a good tradition of large variation but the data given in table 4.19 denote that if each mean score is treated independently, then there is a very high internal consistency. Most of the standard deviation values are quite low indicating that the deviation from the means are less. Further the data were subjected to correlational analysis. The values are given in following table.

If the matrix is divided into two halves, then it is seen that in the first half correlation coefficients are very poor indicating that there is no correspondence in the marks given by the internal as well as external examiner. There is another feature of the correlation
Table 4.20: Correlation Coefficient Between Nine Measures (Nagpur, 1990)

<table>
<thead>
<tr>
<th></th>
<th>TOWE</th>
<th>MPE</th>
<th>MPT</th>
<th>MCA</th>
<th>MOA</th>
<th>MTA</th>
<th>MTE</th>
<th>TMIA</th>
<th>GTM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>x</td>
<td>0.41</td>
<td>0.30</td>
<td>0.21</td>
<td>0.20</td>
<td>0.14</td>
<td>0.28</td>
<td>0.50</td>
<td>0.83</td>
</tr>
<tr>
<td>2</td>
<td>x</td>
<td>0.26</td>
<td>0.08</td>
<td>0.21</td>
<td>0.13</td>
<td>0.24</td>
<td>0.84</td>
<td>0.54</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>x</td>
<td>0.05</td>
<td>0.15</td>
<td>0.15</td>
<td>0.17</td>
<td>0.53</td>
<td>0.35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>x</td>
<td>0.21</td>
<td>0.10</td>
<td>0.06</td>
<td>0.30</td>
<td>0.21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>x</td>
<td>0.43</td>
<td>-0.10</td>
<td>0.45</td>
<td>0.22</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>x</td>
<td>0.09</td>
<td>0.40</td>
<td>0.18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>x</td>
<td>0.35</td>
<td>0.36</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>x</td>
<td>0.63</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Matrix that strength of association between TMIA and GTM is relatively superior to the other relationships. The correlation coefficient between TOWE and GTM is .83 which is very high and significant beyond .01 level. It is clear that such high correlation coefficient is useful for denoting regression for predicting the scores. The two regression equations are,

\[
\hat{Y} = 1.08X + 130.32, \text{ and}
\]

\[
\hat{X} = 0.63Y - 5.82
\]
This association suggests that the scores can be predicted with more accuracy.

With MPE, the two measures, TMIA and GTM were found strongly related. With TMIA the correlation coefficient was .84 which is positive, very high and significant beyond .01 level. When subjected to regression equation, the following regressions were obtained.

\[
\hat{Y} = 1.28X + 55.69, \text{ and } \\
\hat{X} = .55Y - 8.48
\]

There is no need to explain it graphically as it clearly indicates a high and accurate possibility of correct prediction. The other high relation found was between MPE and GTM. It is .54. With the measure MPT only TMIA was strongly associated, the correlation coefficient being .53. The last high strength of association was found between TMIA and GTM. The correlation coefficient is .53 which is positive and high.

In brief, it is seen that there is no guarantee of reliability in the assessment either internal or external.

Evaluation either internal or external cannot be believed to be 100 percent objective when the descriptive
type of answers are given. Only in case of objective
type of questions near about 100 percent objectivity
and reliability could be brought in. There are several
other factors apart from the written or presented
material which influence the evaluation in the internal
assessment as the number of students are large and the
proportion of teachers is small; it is unusual to expect
accuracy in the evaluation. Secondly, internal assess­
ment in Indian condition depends on personal relation,
caste, appearance, way of behaviour manners and several
other factors, as a result of which high reliability in
internal as well as external assessment is a mirage.

Analysis of secondary data had been done by
employing statistical technique such as correlation and
regression analysis. Primary data were collected from
an effective sample of 84 college teachers teaching in
different educational colleges of Vidarbha. For data
collection an interview schedule was developed, through
which bio-data of the respondents and their attitude
towards evaluation of various activities were assessed.
The findings are mostly in line with the expectations of
the study and it was observed that these findings
satiate some of the assumptions of the study. All the
teachers had post-graduation degree in education and
nearly all had teaching experience of more than five years. Both male as well as female respondents were incorporated in the present study.

The second part of the interview schedule dealt with practical examination and evaluations. The mean and standard deviation scores of various measures are given in table 4.3.

<table>
<thead>
<tr>
<th>P_{3A}</th>
<th>P_{3B}</th>
<th>P_{4}</th>
<th>P_{5A}</th>
<th>P_{5B}</th>
<th>P_{6}</th>
<th>P_{7}</th>
<th>P_{8}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ex</td>
<td>743</td>
<td>1431</td>
<td>2516</td>
<td>449</td>
<td>1974</td>
<td>2011</td>
<td>354</td>
</tr>
<tr>
<td>Ex^2</td>
<td>7220</td>
<td>25617</td>
<td>76966</td>
<td>2467</td>
<td>48890</td>
<td>51547</td>
<td>2092</td>
</tr>
<tr>
<td>X</td>
<td>8.90</td>
<td>17.24</td>
<td>29.95</td>
<td>5.34</td>
<td>23.5</td>
<td>23.94</td>
<td>5.36</td>
</tr>
<tr>
<td>S</td>
<td>2.59</td>
<td>3.39</td>
<td>4.39</td>
<td>0.89</td>
<td>5.49</td>
<td>6.40</td>
<td>1.72</td>
</tr>
<tr>
<td>n</td>
<td>84</td>
<td>83</td>
<td>84</td>
<td>84</td>
<td>84</td>
<td>84</td>
<td>66</td>
</tr>
</tbody>
</table>

P_{3A} = Evaluation of Practical Exams.

P_{3B} = Attitude towards facilities available.

P_{4} = Total Mean attitude score.

P_{5A} = Attitude towards Evaluation of Practice Teaching.

P_{5B} = Evaluation of Cultural Activities.

P_{6} = Characteristics of Internal Assessment.

P_{7} = C.G.P.A.

P_{8} = Attitude towards C.G.P.A.
The first column refers to attitude towards evaluation of practical examination in B.Ed. colleges. When mean score is considered, it was found 8.90 while standard deviation was 2.59. Here it is necessary to make clear that high score indicates favourable attitude towards the present system of evaluation of practical examinations. It could be seen that the mean value is much less than the maximum possible score one could obtain on the short attitude scale administered on the subjects. Obviously, attitude of teachers towards the present system of evaluation of practical examination is not positive. Barring a few respondents, most of them expressed their negative attitude towards present scheme of evaluation. More than 68% respondents strongly agreed with the statement - "Marks obtained by students in practical examination depend mostly on the mercy of examiner. Further the respondents believed that in most cases there is no objectivity in the evaluation of practical work. From all these it could be inferred that in traditional scheme of evaluation there is absence of objectivity and also it lacks reliability.

Regarding the objectives of B.Ed. syllabus, the respondents reported that the main objective is to develop skilled and trained teachers, but the present scheme and the flow of students failed to co-ordinate
with each other and secondly the teachers are not so serious as they are expected to be.

In most higher educational institutions, there is maximum emphasis on lecture oriented teaching but the teachers from colleges of education trust that the objective of B.Ed. syllabus is not of developing the lecture oriented teachers.

Practical training oriented teaching is another objective which the respondents believe is also an important objective of B.Ed. syllabus. However, even after completion of B.Ed. training, most teachers are seen using lecture method and they believe only in completing the course.

In order to understand whether the present syllabus is comprehensive or not, the opinion of teachers was sought. Similarly what the teachers and the taughts expect through B.Ed. training were also studied. Surprisingly the picture is not encouraging. Since B.Ed. degree is necessary for fetching a job, through any means it is to be obtained - was found as the primary tendency of taughts. There was little pessimism among the college teachers.

In B.Ed. examinations, distribution of marks is done
on three types of examinations. They are theory, practicals and sessionals. In the Amravati University, the distribution is different than the distribution of marks followed in Nagpur University. There were no valuable comments when the respondents were asked which distribution is more appropriate, and what are the possible reasons of it. It clearly shows that most teachers are unrelated with the scheme of allotment of marks.

There are varied types of practical examination, cultural activities, sessional, etc. which are evaluated in B.Ed. courses. Regarding the practical examinations apart from the objectivity and reliability, the other aspects were considered and attitude of respondents regarding them were mentioned. The other aspects were facilities available, internal vs external examiners in practical examinations, co-operation of students and teachers, etc. Here also high score represents favourable attitude whereas low score indicates unfavourable or negative attitude. Mean and standard deviation values given in table 4.3 clearly show that there is absence of positive attitude towards the marks given in practical examinations. The mean score was 17.24 and the associated standard deviation was 3.39. The deviations are not large but the mean score is much poor. The most favourable
attitude could be indicated by the highest score of 40, but not a single respondent had a score of 40. Most of the respondents had given reactions in the form of middle two items in the four point scale provided with each of the statement. Obviously the teachers were seen realising the biased assessment in practical examinations. There were negligibly few respondents (14 percent) who reported that marks in practical examinations are given mostly on the basis of performance of students in the examinations; also they reported that success in final practical examination depends on the co-operation of students in the class. Most of the respondents expressed their feelings that number of students has increased in B.Ed. classes but increase in the proportion of the teachers is very poor, as a result of which, the teachers do not find sufficient time to devote for evaluation of practical work.

A considerably large number of respondents believe that there should be only external examiner for practical examination and they should be conducted without the internal examiner. However, it is not fair to express such disbelief on the internal examiner, because practical examination is a new situation. They are not conducted in natural way but in artificial situations these examinations are conducted. Naturally, the students in this new environment are confused and afraid of. He develops an
anxiety as a result of which he might not be able to reproduce the answer correctly even though he knows the answer. In other words the process of making practical examination free from subjective bias is not so easy as it appears to be.

A mean score of 29.95 associated with standard deviation of 4.39 was observed when the total score of attitude scale was taken into consideration. Here also the attitude of respondents towards the evaluation scheme of practical examination was found negative.

Section IVth of the Interview Schedule dealt with practice teaching and home assignments. Practice teaching is also evaluated so also the home assignments. Here only two statements were related to practice teaching and each statement was provided with a four point scale ranging from strongly agree to strongly disagree. There was linear relationship between score obtained and positive attitude towards present evaluation system of practice teaching. A mean score of 5.34 (standard deviation 0.89) was obtained. Since the maximum score was 8. Here the mean score indicates inclination towards positive attitude. In fact, practice teaching could be evaluated by both, the examiners and the taughts to whom the learning matter is communicated but here evaluation is done by the examiners only. It is not unusual then, the respondents had given positive reactions.
Introduction of internal assessment was believed to be intended to integrate teaching and evaluation but several respondents reported that the main objective of internal assessment is to test those skills and abilities which cannot be tested through external examinations. Despite the fact that this is the main aim of internal assessment, some of the respondents felt that internal assessment was introduced with the intention of providing professional treatment to some of the students. Such opinions, though less in number cannot be ignored outrightly because such bias in assessment is not a new phenomenon.

Evaluation of cultural activities, home assignments, etc. are not free from the subjective effect. When the attitude was assessed, mean score of 23.50 was observed. It was associated with a standard deviation of 5.49. The mean score is relatively poor, though it is in the middle of the lowest and highest score that could be obtained on attitude scale. It appears that the respondents instead of exhibiting their extreme views, put \( \sqrt{ } \) marks only on the reactions lying in the middle of the rating scale. There is sufficient ground to assume that internal assessment of cultural and other activities has sufficient sound foundation, and it works effectively.
Considering the different positive as well as negative characteristics of internal assessments a few statements were framed, as through them the opinions of respondents towards internal assessments were measured. Mean score and standard deviation are presented in table 4.3. Once again it could be seen that the respondents have selected the reactions lying in the middle of the range. In other words, neither they strongly agreed or disagreed with the statement. However, the mean score of 23.94 associated with standard deviation of 6.40 clearly shows that there were large deviations in the responses given by the subjects.

When information regarding literary activities, cultural activities, games and sports, teaching aids and field trips were sought, more or less, common reactions were observed. The same traditional literary and cultural activities are being repeated every year in the B.Ed. training. Even the frequency is also more or less the same. It is true in case of games and sports, teaching aids and field trips. No novel programmes were seen introduced by the teachers or by the taughts.

The final part of the Interview Schedule dealt mainly with grading system and recently introduced C.G.P.A. scheme. The C.G.P.A. scheme was opted by
Amravati University for B.Ed. examinations. Since the scheme is not introduced in Nagpur University, a brief account of C.G.P.A. scheme was given at the end. Related to the effectiveness of C.G.P.A. scheme, a few statements were incorporated. At the first stage opinion regarding trimester, semester and yearly system were sought. No conclusive results could be obtained as most of the respondents felt that all these schemes failed miserably as the examinations are not taken so seriously. Around 23 percent reported trimester system as better, 47 percent said that semester system is superior, while 30 percent thought that the traditional yearly assessment is the best way. From the content analysis of the reasons given by the respondents, it was found that unless examinations are taken very seriously, these schemes do not carry any meanings.

Most respondents were not acquainted with C.G.P.A. scheme. Even when the details were presented in the interview schedule, the respondents reported that the scheme is difficult to understand. Both, the teachers and taughts are conditioned to the traditional scheme of evaluation where the teachers find the teachers find the C.G.P.A. scheme a difficult one. The students felt, they are left in wilderness. It is because previously even without consistency in the performance, those who
obtained 60 percent or more marks, were placed in first division, whereas in C.G.P.A. system even if the marks obtained are more than 60 percent but there is no consistency in performance, the student is not placed in first division. As a result of this many respondents felt that the C.G.P.A. scheme has created anomalies in the university results. In fact, the scheme is not at all difficult and with little efforts both the students and the teachers can understand the meaning of symbols used in the C.G.P.A. formula. However, without making efforts, these reactions are given. When the mean score of 5.36 (standard deviation 1.72) is thought in terms of score representing positive or negative attitude, then it is seen that, it is a kind of indifferent attitude.

In the traditional scheme if a student secures 40 percent marks in one subject and 80 percent in another one, the average being 60 percent, he is to be placed in first division. However, such is not possible if C.G.P.A. scheme is introduced. Consistency in performance is an important criterion but without understanding its importance, the C.G.P.A. scheme was observed unpopular among the teachers of colleges of education. The mean score of 7.64 (standard deviation 1.77) shows that once again the respondents had tendered their opinions not through extreme reactions but through the middle categories.
Since long the traditional method of allotting division on the basis of percentage of marks is in practice. Here superior performance in some subjects and poor performance in other subjects, all can fetch a good division to the student, but that is not possible in C.G.P.A. scheme. Since both the teachers and taughts are conditioned to the old pattern, their reluctance and negative opinion towards C.G.P.A. scheme can easily be understood.

In sum, there are several inadequacies in the present valuation system of college examinations. Specially in B.Ed. examinations, apart from theory papers much weightage is given for internal assessment of various academic and cultural activities. There is ample scope for bringing in improvements in the valuation system. But the main problems are two - the first being how seriously the teachers evaluate performance of students objectively, and the second is related to the taughts, how seriously they take the examination and do not associate it with just a means of fetching a job.

Suggestions:

In view of the findings of the study, a few suggestions are made:
1. There is a need of follow-up studies in each university every year. Internal consistency of valuation scheme must be examined and the findings be discussed with the examiners.

2. For significant discrepancies in the valuations the person concerned be held responsible and necessary steps must be taken to avoid discrepancies.

3. Periodical examinations, both in theory as well as in practicals be conducted and the students must be evaluated as objectively as possible.