# MANGALORE UNIVERSITY

**CENTRE FOR DISTANCE EDUCATION**
MANGALAGANGOTHRI - 574 199
DAKSHINA KANNADA DISTRICT, KARNATAKA STATE

# COURSE 10

# ASSESSMENT FOR LEARNING
## (Curriculum and Pedagogic Studies)
## BLOCKS 3 & 4
### (PART - 2)

## B.Ed. DEGREE PROGRAMME
(OPEN AND DISTANCE LEARNING)

## SECOND YEAR B.Ed.

**Published by**
**MANGALORE UNIVERSITY**
**Mangalagangothri - 574 199**
Dakshina Kannada District, Karnataka State

**Assessment for Learning:** Self learning Material for B.Ed. Degree Programme (Open and Distance Learning) of Second Year, Prepared by Dr. Shashikala A. Published by The Registrar, Mangalore University, Mangalagangothri - 574 199, Karnataka.

**Year 2019-20**

**Developed by:**
**The Director**
Centre for Distance Education,
Mangalore University,
Mangalagangothri - 574 199,
Dakshina Kannada District, Karnataka.

**Course Co-ordinator**
**Dr.Chidananda A.L.**
B.Ed.(ODL) Programme,
Centre for Distance Education,
Mangalore University, Mangalagangothri - 574 199,
Dakshina Kannada District, Karnataka.



**Assessment for Learning:** Self-learning Material for B.Ed. Degree Programme (Open and Distance Learning) of Second Year.

**Prepared by:**
Dr. Shashikala A.

**Published by:**
**The Registrar**
Mangalore University,
Mangalagangothri - 574 199,
Dakshina Kannada District, Karnataka.

**Year 2019-20**

## COURSE 10

# ASSESSMENT FOR LEARNING
# (Curriculum and Pedagogic Studies)
# BLOCKS 3 & 4
## (PART - 2)

---

**The Registrar**
Mangalore University
Manalagangothri-574 199

**Publisher**

---

**Dr. Shashikala A. : Blocks - 3 & 4**

**Course Writer**

---

**Dr.Chidananda A.L.**
Co-ordinator
B.Ed.(ODL) Programme,
Centre for Distance Education,
Mangalore University,
Mangalagangothri - 574 199

**Course Scrutinizer**

---

## Contents

# Overview of the Course

The present course analyses the critical role of assessment in enhancing learning of students. In contrast to the traditional notion of assessment as an act to be performed at the end of the teaching, using a paper-pencil test, the course situates assessment within a constructivist paradigm. The traditional assessment procedure is a mechanism to filter learners as per their abilities or potentials and thus reducing learning to a limited set of 'expertise' that can be displayed on paper. With the constructivist understanding of learning and assessment, assessment cannot be an end-of-teaching activity. Rather, it has to be an ongoing process where the teacher closely observes learners during the process of teaching-learning, records learning landmarks, and supports them by providing relevant feedback. The need for giving feedback to students and their guardians is highly significant, and therefore the knowledge about the nature and procedures of the feedback process is very important for a teacher. Thus, the present course discusses the nature, types and ways of giving feedback to students and parents. It also opens up diverse methods and tools for assessing an array of learning/performance outcomes of diverse learners. The course discusses the relationship of assessment with self-esteem, motivation, and identity as learners.

This course will help in understanding the psycho-social and political dimensions of assessment. This helps to realize how traditional assessment used for competitive selection has provided legitimacy to evil systems of education and worked towards perpetuating equations of power and hegemony in society.

This course aims to develop a critical understanding of issues in assessment and also explores realistic, comprehensive, and dynamic assessment processes that are culturally responsive for use in the classroom. This is one of the greatest challenges before the Indian system and through this course, you need to get empowered to critically look at the prevalent practices of assessment and selection which lead to better learning and developing more confident and creative learners.

The first block discusses the basic concepts of assessment and evaluation. It deals with the purposes and approaches of assessment in Behaviouristic, Cognitivist, and Constructivist Paradigms. It also discusses the difference between traditional and constructivist approaches of assessment. It promotes teachers for a critical review of current evaluation practices and their assumptions about learning and development.

The second block deals with assessment tools and procedures. It discusses the nature, merits, and limitations of different assessment tools like observation, Rubric based assessment, and other quantitative and qualitative assessment procedures. It highlights the significance of self-assessment and peer assessment.

The third block analyses the procedure of data analysis. It also describes the nature and procedure of feedback. It analyses the nature, merits, and limitations of marks system and grade systems. It also prepares you to develop and maintain a comprehensive learner profile

.

The history of reforms and the present status of the examination system is dealt with in the fourth unit. The impact of examination-driven schooling on the social identity and socialization of children has been discussed to highlight the need for an urgent reorientation in

the focus of the examination system. The nature of assessment in vocational courses has been detailed in the same block. The role of ICT in the examination also has been discussed here.

In total, the focus of this course is to highlight the need to adopt a shift in the total process of assessment. We need to shift from the concept of 'Assessment of learning' to 'Assessment for learning'. The total content of this course needs to be understood with this focus.

# Block 3 : Data Analysis, Feedback and Reporting

## Unit 1 : Statistical tools, frequency distribution, graphical representation. Central tendency, variation, normal distribution, percentile rank, correlation and their interpretation

**Unit Structure**



### 3.1.1. Learning Objectives

After completing this Unit, the student teachers will be able to

- Understand and describe the basic statistical terms and tools;
- Describe the various measures of tendency and make the right choice for an appropriate analysis;
- Appreciate the utility of statistics in an educational administration; and
- Apply suitable statistical tools in various classroom activities.

### 3.1.2. Introduction

We live in an age of information, where almost every minute we get information about something or the other. It may be in the form of facts, numerical figures, tables, graphs, etc. The source for all this information for us maybe newspapers, televisions, magazines, and other means of communication. These may relate to cricket batting or bowling averages, profits of a company, temperatures of cities, expenditures in various sectors of a five-year plan, polling results, and so on. These facts or figures, which are numerical or otherwise, is based on a set of information collected for a definite purpose are called data. The extraction of meaningful information from the data collected is studied in a branch of mathematics called Statistics. Therefore, Statistics in its simplest term is the discipline that is concerned with the collection, organization, analysis, interpretation, and presentation of data.

Coming to our field, we have many questions like

- How is the Class 10 result this year?
- What is the performance of my school?
- Who has got the highest score in our school?

When the results are announced by the Board, we easily get the answers to all the questions.

How are these things possible? It is again with the help of Statistics through its various tools. In this unit, we will learn about the use of some of the statistical tools that are of use from our educational point of view along with a basic understanding of statistics.

### 3.1.3. Learning Points and Learning Activities

#### 3.1.3.1. Frequency Distribution and their Graphical Representation

We have understood that statistics is a branch of science that deals with the collection, organisation, analysis, and drawing of inferences from the data. The methods or the tools used to analyse this data are called statistical tools.

The basic unit of any statistical study is the data. Let us find out what is data.

Any bit of information that is expressed as a value or numerical number is data. Data is a collection of information, measurement, or observations. For example, the marks a student scored in the Mathematics exam, the amount of rain in a place on a particular day, the height of a student, the value of your house, the age of children in a class are all data.

Let us collect some data. Let us take the marks scored by 10 students in Mathematics
47 74 63 29 48 55 74 47 59 82
This data by itself does not give any information except the scores

Let us go a step further and arrange them in the ascending order. It will be as under.
29 47 47 48 55 59 63 74 74 82
The data is arranged. What information do you get?

The lowest mark scored = 29
The highest mark scored = 82
The difference between the highest and the lowest score is called the range.
Range = 82 – 29 = 53

If a score is obtained by more than one student/child, then the number of students who have obtained the same score is called the frequency.
In our data given above, two students have scored 47 and two students have scored 74
So we say, frequency of 47 = 2
Similarly, the frequency of 74 = 2

This kind of arrangement of data is easy when the quantity of data is less. Let us consider the following example

Marks obtained by 30 students of Class 10 of Rashtriya Vidyalaya school:

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10 | 20 | 36 | 92 | 95 | 40 | 50 | 56 | 60 | 70 |
| 92 | 88 | 80 | 70 | 72 | 70 | 36 | 40 | 36 | 40 |
| 92 | 40 | 50 | 50 | 56 | 60 | 70 | 60 | 60 | 88 |

Now recall the concept of frequency. Using that we can tabulate the data as follows.

The first score is 10. Put a tally against 10, the second score is 20. Put a tally against 20 and so on, till you cover all the scores. If a score is repeated, put a second tally against it. The total of all the tallies for each score gives the frequency of that score.

A score of 36 is obtained by 3 students. Hence, there are 3 (|||) tallies. Similarly, 4 students have obtained a score of 60. The total of all the frequencies gives the total number of students in this case.

The frequency is generally represented by 'f' and the total of all the frequencies by 'n'. The symbol used to express the sum or total is $\sum$ read as (sigma)

| **Marks/Score** | **No of students** | **Frequency** |
|---|---|---|
| 10 | \| | 1 |
| 20 | \| | 1 |
| 36 | \|\|\| | 3 |
| 40 | \|\|\|\| | 4 |
| 50 | \|\|\| | 3 |
| 56 | \|\| | 2 |
| 60 | \|\|\|\| | 4 |
| 70 | \|\|\|\| | 4 |
| 72 | \| | 1 |
| 80 | \| | 1 |
| 88 | \|\| | 2 |
| 92 | \|\|\| | 3 |
| 95 | \| | 1 |
| **Total** | **30** | **30** |

Now, we have the data and it is tabulated. It is called ungrouped frequency distribution.
To present large data we can group the scores still further for our convenience.

Consider the following scores of 100 students

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 94 | 61 | 40 | 51 | 76 | 64 | 82 | 79 | 42 | 88 |
| 59 | 44 | 63 | 87 | 71 | 52 | 48 | 72 | 50 | 73 |
| 74 | 66 | 92 | 58 | 72 | 45 | 68 | 90 | 75 | 65 |
| 71 | 33 | 41 | 72 | 37 | 52 | 60 | 77 | 28 | 40 |
| 57 | 72 | 71 | 60 | 69 | 54 | 77 | 60 | 66 | 71 |
| 53 | 86 | 31 | 62 | 58 | 35 | 44 | 85 | 49 | 39 |
| 67 | 70 | 56 | 69 | 76 | 78 | 68 | 55 | 91 | 66 |
| 39 | 71 | 58 | 47 | 77 | 58 | 78 | 37 | 21 | 40 |
| 77 | 43 | 51 | 61 | 76 | 71 | 75 | 46 | 58 | 70 |
| 63 | 32 | 95 | 69 | 30 | 78 | 48 | 50 | 60 | 34 |

The 100 students whose score we have collected is called the population.
We have 100 scores between 21 and 95
Range = 91-25 = 66
We can group these 100 scores into groups with a range of 10 or any convenient number, say 10 in this case.
This becomes 20-29, 30-39, 40-49 ....., 90-99
Each of these groups is called a class interval.
The scores from 20-29 can be put in the class interval 20-29,
The scores from 30-39 can be put in the class interval 30-39 etc.

Each class can include 10 scores like 20, 21, 22, 23, 24, 25, 26, 27, 28, 29
In each of these classes, the lowest value is called the lower limit and the highest value of the class is called the upper limit
In the class 20-29, 20 is the lower limit and 29 is the upper limit
As 10 different scores can be entered in each class, it is called the size of the class interval or the width of the class or the class interval in general

A table can be prepared as shown below and the scores can be entered with a tally and finally counted for frequency.

| **Marks Scored** | **Tally of marks** | **Frequency** |
|---|---|---|
| 20-29 | \|\| | 2 |
| 30-39 | 𝍸 𝍸 | 10 |
| 40-49 | 𝍸 𝍸 \|\|\|\| | 14 |
| 50-59 | 𝍸 𝍸 𝍸 \|\| | 17 |
| 60-69 | 𝍸 𝍸 𝍸 𝍸 | 20 |
| 70-79 | 𝍸 𝍸 𝍸 𝍸 \|\| | 22 |
| 80-89 | 𝍸 𝍸 | 10 |
| 90-99 | 𝍸 | 5 |
| **Total** | **100** | **100** |

Presenting data in this form simplifies and condenses data and enables us to observe certain important features at a glance. This is called a grouped frequency distribution table.

The table gives information about the lowest score range, highest score range, how many have scored above average, how many are very poor etc. at a glance.

Try these examples now.

a) The blood groups of 30 students of Class VIII are recorded as follows: A, B, O, O, AB, O, A, O, B, A, O, B, A, O, O, A, AB, O, A, A, O, O, AB, B, A, O, B, A, B, O. Represent this data in the form of a frequency distribution table. Which is the most common, and which is the rarest, blood group among these students?
Hint: How many blood groups are there A, B, O, AB. So the class can be identified as A, B, O and AB.

b) The heights of 50 students, measured to the nearest centimetres, have been found to be as follows: 161 150 154 165 168 161 154 162 150 151 162 164 171 165 158 154 156 172 160 170 153 159 161 170 162 165 166 168 165 164 154 152 153 156 158 162 160 161 173 166 161 159 162 167 168 159 158 153 154 159
   (i) Represent the data given above by a grouped frequency distribution table, taking the class intervals as 160 - 165, 165 - 170, etc.
   (ii) What can you conclude about their heights from the table?
   (iii)What do you understand?

A well-structured frequency distribution makes possible a detailed analysis of the structure of the population with respect to given characteristics. Therefore, the groups into which the population break down can be determined.

In the example that we studied above, in a population of 100 students, with reference to their scores, we can identify the strength of the class in terms of their performance. This data can be used to decide on additional support if any required for any member/student of the population who have a lower score.

**Graphical Representation of data**

In the previous section we have understood the representation of data by frequency distribution tables. Now, let us learn another way of representing data, that is graphical representation. It is generally said that one picture is better than a thousand words. Usually comparisons among the individual items are best shown by means of graphs. The representation then becomes easier to understand than the actual data.

There are many ways of representing data through graphs. Some of them are the following.

- Pie charts
- Bar graphs
- Histograms of uniform width, and of varying widths

We will study about each one of them with more detail

**a. Pie Charts**

A pie chart is a circular chart divided into wedge-like sectors, illustrating proportion. Each wedge represents a proportionate part of the whole, and the total value of the pie is always 100 percent.

Pie charts can make the size of portions easy to understand at a glance. They are widely used in business presentations and education to show the proportions among a large variety of categories including expenses, segments of a population, or answers to a survey. Pie charts are easier to plot also.

**Uses of Pie Charts**

- They are used to depict parts of a whole in terms of percentages.
- Pie charts are widely used in business presentations and educational presentations as well.
- Pie charts are also used to analyse results of survey studies.
- Pie charts are usually self -explanatory or require very little additional explanation.

Let us understand how to draw a pie chart

A pie chart (also called a Pie Graph or Circle Graph) makes use of sectors in a circle. The angle of a sector is proportional to the frequency of the data.

The formula to determine the angle of a sector in a circle graph is:

$$\mathbf{AngleofSector} = \frac{\mathbf{Frequencyofdata}}{\mathbf{Totalfrequency}} \mathbf{x\ 360°}$$

Following are the steps involved in constructing a circle graph or pie chart:

**Step-1**: Calculate the angle of each sector, using the formula

$$\text{Angle of Sector} = \frac{\text{Frequency of data}}{\text{Total frequency}} \text{ x } 360°$$

**Step-2**: Draw a circle using a pair of compasses
**Step-3**: Use a protractor to draw the angle for each sector.
**Step-4**: Label the circle graph and all its sectors.

Let us understand it through an example

In a school, there are 750 students in Year1, 420 students in Year 2 and 630 students in Year 3. Draw a circle graph to represent the numbers of students in these groups.

750, 420 and 630 represent the frequencies

Total number of students(Total frequency )= 750 + 420 + 630 = 1800

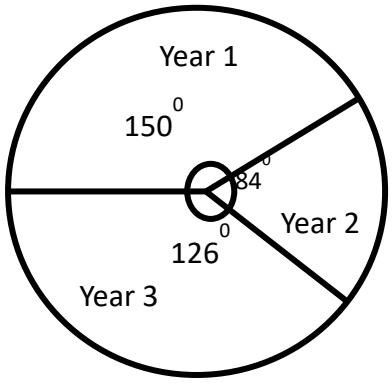
$$\text{For year 1, size of angle} = \frac{750}{1800} \text{ x } 360 = 150° \text{ (Based on the formula given above)}$$

$$\text{For year 2, size of angle} = \frac{420}{1800} \text{ x } 360 = 84° \text{ (Based on the formula given above)}$$

$$\text{For year 3, size of angle} = \frac{630}{1800} \text{ x } 360 = 126° \text{ (Based on the formula given above)}$$

Using a compass, draw a circle of suitable radius. Measure in each sector, the corresponding angles using a protractor and label the respective sector

Label the chart:




Students in different years

**Advantages of a Pie Chart**

- A simple and easy-to-understand picture.
- It represents data visually as a fractional part of a whole, which can be an effective communication tool for the even uninformed audience.
- It enables the audience to see a data comparison at a glance to make an immediate analysis or to understand information quickly.

- The need for readers to examine or measure underlying numbers themselves can be removed by using this chart.
- To emphasize the points you want to make, you can manipulate pieces of data in the pie chart.

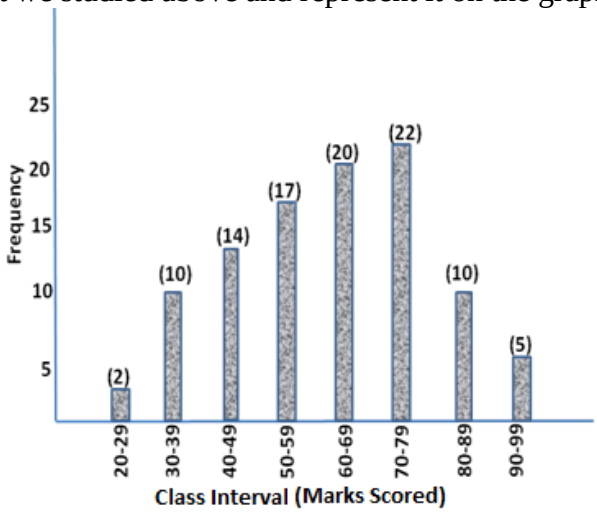
**Disadvantages of a Pie Chart**

- If too many pieces of data are used, the pie chart becomes less effective.
- They may become crowded and hard to read if there are too many pieces of data, and even if you add data labels and numbers may not help here.
- You need a series to compare multiple sets as this chart only represents one data set.
- To analyze and assimilate information quickly, this may make it more difficult for readers.
- As the reader has to factor in angles and compare non-adjacent slices, it has its problems in comparing the data slices.
- To make decisions based on visual impact rather than data analysis leads readers to draw inaccurate conclusions.

**Bar Graphs:** A bar graph is a chart that uses bars to show comparisons between categories of data. The bars can be either horizontal or vertical. Bar graphs with vertical bars are sometimes called vertical bar graphs. A bar graph will have two axes. One axis will describe the types of categories being compared, and the other will have numerical values that represent the values of the data. It does not matter which axis is which, but it will determine what bar graph is shown. If the descriptions are on the horizontal axis, the bars will be oriented vertically, and if the values are along the horizontal axis, the bars will be oriented horizontally. A range bar graph represents a range of data for each independent variable. Temperature ranges or price ranges are common sets of data for range graphs. Unlike the above graphs, the data do not start from a common zero point but begin at a low number for that particular point's range of data. A range bar graph can be either horizontal or vertical.

Let us consider the frequency table that we studied above and represent it on the graph.

| Marks Scored | Tally of marks | Frequency |
|---|---|---|
| 20-29 | \|\| | 2 |
| 30-39 | 𝍸 𝍸 | 10 |
| 40-49 | 𝍸 𝍸 \|\|\|\| | 14 |
| 50-59 | 𝍸 𝍸 𝍸 \|\| | 17 |
| 60-69 | 𝍸 𝍸 𝍸 𝍸 | 20 |
| 70-79 | 𝍸 𝍸 𝍸 𝍸 \|\| | 22 |
| 80-89 | 𝍸 𝍸 | 10 |
| 90-99 | 𝍸 | 5 |
| Total | 100 | 100 |



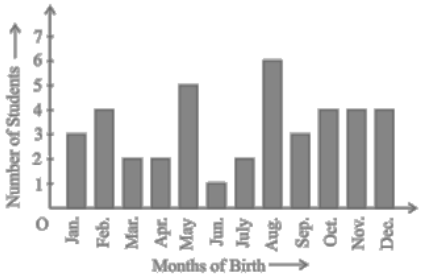

The marks scored is represented on the x-axis and the frequency is represented on the y-axis.

The graph gives an over-all picture of the performance of the class.

It indicates majority are in the range 60-69 and 70-79, a few are high scorers and there a few who need some additional attention

Let us look at another example.

40 students of a class were asked about the months of their birth and the following graph was prepared for the data so obtained.




Observe the bar graph given above and answer the following questions:

1. How many students were born in the month of November?
2. In which month was the maximum number of students born?

**Advantages of a bar chart**

- Tells the message at a glance
- Makes facts and figures clear and understanding
- Emphasizes relationship between two or more objects
- Can be seen by a good number of viewers at a time

**Disadvantages**

- Do not show interrelationships between activities.
- Managing projects becomes difficult without those relationships between activities.

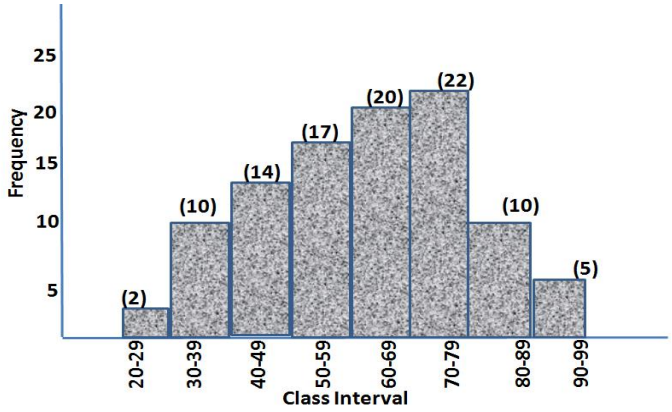
**b. Histogram**

A **histogram** is a vertical bar chart in which the frequency corresponding to a class is represented by the **area** of a bar (or rectangle) whose base is the class width. But, the histogram differs from a bar chart in that it is the area of the bar that denotes the value, not the height. However, if the widths of the bars are uniform then only the height need to be considered. Let us understand histograms with uniform (equal) width.

In a histogram, there are no gaps between the rectangles and the *y*-axis is the frequency and always starts at 0.

Let us take the example that we discussed above.

| Marks Scored | Tally of marks | Frequency |
|---|---|---|
| 20-29 | \|\| | 2 |
| 30-39 | 𝍸 \|\|\|\| | 10 |
| 40-49 | 𝍸 𝍸 \|\|\|\| | 14 |
| 50-59 | 𝍸 𝍸 𝍸 \|\| | 17 |
| 60-69 | 𝍸 𝍸 𝍸 𝍸 | 20 |
| 70-79 | 𝍸 𝍸 𝍸 𝍸 \|\| | 22 |
| 80-89 | 𝍸 𝍸 | 10 |
| 90-99 | 𝍸 | 5 |
| Total | 100 | 100 |



You can observe that a histogram will have no space between the bars

**Properties of a histogram**

- Histogram is useful when representing continuous data.
- Unlike a bar graph, the width of the bar need not be the same under certain conditions.
- It shows the distribution of frequencies over a range of data.

**Advantages of a histogram**

- It displays large amount of data.
- It can be used to show the relative frequency of occurrence of the data.
- It can be used to show the future performance of a process.

**Disadvantages of histogram:**

- It can be used along with the continuous data.
- It cannot be used for the comparison of two data sets.
- Exact values cannot be read because the data can be grouped into categories.

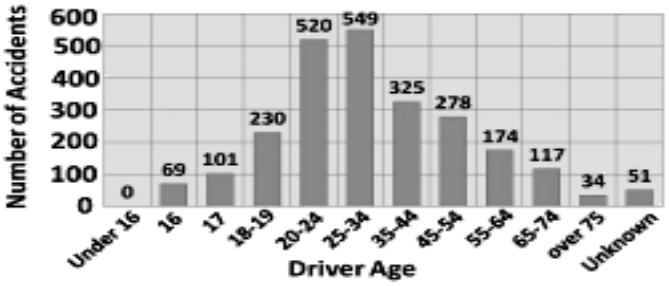
**Check Your Progress - 1**

1. Construct the frequency distribution table for the data on heights (cm) of 20 boys using the class intervals 130 - 135, 135 - 140 and so on. The heights of the boys in cm are: 140, 138, 133, 148, 160, 153, 131, 146, 134, 136, 149, 141, 155, 149, 165, 142, 144, 147, 138, 139. Also, find the range of heights of the boys.

2. Construct a frequency distribution table for the following weights (in gm) of 30 oranges using the equal class intervals, one of them is 40-45 (45 not included). The weights are: 31, 41, 46, 33, 44, 51, 56, 63, 71, 71, 62, 63, 54, 53, 51, 43, 36, 38, 54, 56, 66, 71, 74, 75, 46, 47, 59, 60, 61, 63.
   (a) What is the class mark of the class intervals 50-55?
   (b) What is the range of the above weights?
   (c) How many class intervals are there?
   (d) Which class interval has the lowest frequency?

3. Select the right answer
   A frequency table is used to
   a) Illustrate the median and spread of a set of data
   b) Represent data in a graphical format
   c) Analyse the change in frequencies over time
   d) List variables and their frequency

4. The following graph appeared in a local newspaper. Which age group had the most accidents?



5. If a pie chart is to be drawn, calculate the angle required for the summer.

| Season | No of People |
|---|---|
| Spring | 15 |
| Summer | 25 |
| Autumn | 16 |
| Winter | 4 |

### 3.1.3.2. Measures of Central Tendency

As the name suggests, it is a value that represents the central point of a set of data or distribution of data. It is defined as a statistical measure that represents through a single value, the picture of a set of data. It aims to provide a description of the entire data in the distribution.

**Central tendency** is very useful in different fields of study. It lets us know what is normal or 'average' for a set of data. It also condenses the data set down to one representative value, which is useful when we are working with large amounts of data.

Central tendency helps to compare one data set to another. For example, we have a sample of girls and a sample of boys, and want to compare their heights. By calculating the average height for the two groups, we could easily draw comparisons between the girls and boys.

Central tendency is also useful when we want to compare one piece of data to the entire data set. Let's say a test was conducted for a class of 50 students. The average score of 50 students is 64. If student 'X' has a score of 55, he/she can compare with the average performance of the group and get an idea as to where he/she stands in the class. It also helps the teacher to get some clues about the group and plan her lesson accordingly

It is expressed in terms of three important measures namely mean, median and mode. Let us understand each one of them in a little detail.

**a. Mean:**

We are all very familiar with the term 'average'. Mean is similar to average. It can be calculated as the sum of all the values in the dataset divided by the number of values. In general, it is considered as the arithmetic mean. It is an arithmetic average in its simplest terms. If there are 6 values, $x_1$, $x_2$, $x_3$, $x_4$, $x_5$ and $x_6$, then their mean is given by

$$M = \frac{x_1 + x_2 + x_3 + x_4 + x_5 + x_6}{6}$$

Now, let us recall, we can represent data in two ways, grouped and ungrouped. The above expression for mean holds good when the data size is small.

Observe the following table. It shows the score of 30 students in a test

| Score(x) | Frequency(f) | Fx |
|---|---|---|
| 48 | 3 | 144 |
| 54 | 8 | 432 |
| 72 | 12 | 864 |
| 85 | 4 | 340 |
| 96 | 3 | 288 |
| **Total** | **30** | **2068** |

This table indicates that 3 students have scored 48, 8 have scored 54, 12 have scored 72, 4 have scored 85 and 3 have scored 96, making the total number of students to 30. If we calculate the mean of this tabulated data it will be

$$\bar{x} = \frac{(48\ x\ 3) + (54x8) + (72x12) + (85x4) + (96x3)}{30} = \frac{2068}{30} = 68.9$$

In general, in a grouped data, if $x_1$, $x_2$, $x_3$.....$x_n$ represent scores or observations with frequencies $f_1$, $f_2$, $f_3$....$f_n$ respectively, then their mean is given by

$$\bar{x} = \frac{f_1x_1 + f_2x_2 + f_3x_3 + \cdots + f_nx_n}{f_1 + f_2 + f_3 \ldots\ldots f_n}$$

Remember, the sum of n terms can be written using the symbol$\sum$

So, the above equation can be written as $\bar{x} = \frac{\sum_{i=1}^{i=n} f_n x_n}{\sum_{i=1}^{i=n} f_n}$

This can be written in simple terms as $\bar{x} = \frac{\sum f_i x_i}{\sum f_i}$ where the value of i varies from 1 to n

But sometimes, the data will be quite huge. In such cases, we need to group them and put in as a grouped frequency table in terms of class intervals. There are many methods of finding the mean of a grouped data. They are

- Direct method
- Assumed mean method
- Step deviation method

But, in this unit, we will focus only on the direct method of finding the mean.

**Direct method of finding mean**

Step-1: Classify the data into intervals and find the corresponding frequency of each class.

Step-2: Find the class mark by taking the midpoint of the upper and lower class limits.

Class mark of a class interval $= \frac{\text{lower limit of the class + upper limit of the class}}{2}$

For example, you have classes say 10-20, 20-30, 30-40 .....

The lower limit for the class 10-20 is 10, upper limit is 20. Hence, class mark $=\frac{10+20}{2}=15$
Similarly, the class mark for other classes will be $\frac{20+30}{2}=25$, $\frac{30+40}{2}=35$ ……..

Step-3: Tabulate the product of class mark and its corresponding frequency for each class. Calculate their sum ($\sum x_i f_i$).

Step-4: Divide the above sum by the sum of frequencies ($\sum f_i$) to get the mean.
Let us work out an example

Find the mean of the following data:

| **Marks** | 0 - 10 | 10 - 20 | 20 – 30 | 30 - 40 | 40 - 50 |
|---|---|---|---|---|---|
| **No. of Students** | 4 | 10 | 18 | 12 | 6 |

First find the class mark $=\frac{\text{lower limit of the class + upper limit of the class}}{2}$

Class Mark = $\frac{0+10}{2}=5$; $\frac{10+20}{2}=15$ ……

Prepare the frequency table:

| **Class interval** | **$f_i$** | **Class Mark ($x_i$)** | **$f_i x_i$** |
|---|---|---|---|
| 0 - 10 | 4 | 5 | 20 |
| 10 - 20 | 10 | 15 | 150 |
| 20 -30 | 18 | 25 | 450 |
| 30 - 40 | 12 | 35 | 420 |
| 40 - 50 | 6 | 45 | 270 |
| | $\Sigma f_i = 50$ | | $\Sigma f_i x_i = 1310$ |

$\bar{x}=\frac{\sum f_i x_i}{\sum f_i}=\frac{1310}{50}=26.2$**Mean = 26.2**

**Advantages of Mean**

- The Arithmetic mean rigidly defined by Algebraic Formula.
- It is easy to calculate and simple to understand.
- It is based on all observations of the given data.
- It is capable of being treated mathematically hence it is widely used in statistical analysis.
- The Arithmetic mean can be computed even if the detailed distribution is not known but some of the observations and numbers of the observation are known.
- It is least affected by the fluctuation of sampling.
- For every kind of data mean can be calculated.

**Demerits of Arithmetic Mean**

- It can neither be determined by inspection or by graphical location.
- The Arithmetic mean cannot be computed for qualitative data like data on intelligence honesty and smoking habit etc.

- It is too much affected by extreme observations and hence it is not an adequate represented data consisting of some extreme point.
- If anyone of the data is missing then the mean cannot be calculated.

**b. Median:**

Median is the most middle value in the arrayed data. It means that when the data are arranged in ascending or descending order, the median is the middle value. If the number of terms is odd, then the median is the value of the middle term of the array. If the number of terms is even, then the median is the average of the middle two terms. It is a valuethat divides the arrayed set of data into two equal parts and the number of terms greater than the median is equal to the number of terms smaller than the median. It is also known as a positional average.

Median = Value of $\{\frac{(n+1)}{2}\}^{th}$ term of an array of terms in a distribution

Let us understand through an example

Find the median of the values **4, 1, 8, 13, 11**

Arrange the data **1, 4, 8, 11, 13**

Median = Value $\{\frac{(n+1)}{2}\}^{th}$ term = (5+1)/2 = 3$^{rd}$ term

3$^{rd}$ term is 8 and hence, Median = **8**

Let us look at another case

Find the median of the values **5, 7, 10, 20, 16, 12**

Arrange the data **5, 7, 10, 12, 16, 20**

Median = Value $\{\frac{(n+1)}{2}\}^{th}$ term = [(6+1)/2]$^{th}$ = (7+1)/2 = 3.5$^{th}$ term = (10+12)/2 = 11

Median = 10+122=11

Let us understand about the median of grouped data

Calculate the median from the following data:

| **Group** | 60 – 64 | 65 – 69 | 70 – 74 | 75 – 79 | 80 – 84 | 85 – 89 |
|---|---|---|---|---|---|---|
| **Frequency** | 1 | 5 | 9 | 12 | 7 | 2 |

Prepare a frequency table

Here we need to add a column called cumulative frequency. It is the total frequency up to the respective level.

To understand this better, consider your earnings in 6 months from Jan –Jun as Rs. 8000 per month. Your earnings are as follows.

| Month | Earning | Cumulative earning |
|---|---|---|
| Jan | 8000 | 8000 |
| Feb | 8000 | 16000 |
| Mar | 8000 | 24000 |
| April | 8000 | 32000 |
| May | 8000 | 40000 |
| Jun | 8000 | 48000 |

Apply the same for frequency here

| Group | *F* | Cumulative Frequency |
|---|---|---|
| 60 – 64 | 1 | 1 |
| 65 – 69 | 5 | 6 |
| 70 – 74 | 9 | 15 |
| 75 – 79 | 12 | 27 |
| 80 – 84 | 7 | 34 |
| 85 – 89 | 2 | 36 |

In a grouped data we may not be able to find the middle observation by looking at the cumulative frequencies as the middle observation or term will be some value in a class. We need to find that class in which the median lies. To find this we calculate the cumulative frequencies of all the classes (n) and find (n/2). We find the class whose cumulative frequency is nearly equal to n/2. This class is the median class.

In our above example, n =36 and n/2 =18

Hence, median is in the class 70-74, which has a cumulative frequency of 15

Median is now calculated using the formula $Median = l + \left[\frac{\frac{n}{2} - cf}{f}\right] xh$

Where, *l* is the lower limit of the median class
'n' is the total number of observations, or scores,
'cf' is the cumulative frequency of the class preceding the median class
'f' is the frequency of the median class
'h' is the size of the class interval in which the median lies
Applying this formula to the above data we get, Hence, median is in the

$$Median = 74.5 + \frac{5}{12}(3) = 75.75$$

**Advantages of Median**

- It is easy to compute and comprehend.
- It is not distorted by outliers/skewed data.

- It can be determined for ratio, interval, and ordinal scale.
- It is very simple to understand and easy to calculate. In some cases, it is obtained simply by inspection.
- Median lies at the middle part of the series and hence it is not affected by the extreme values.
- It is a special average used in qualitative phenomena like intelligence or beauty which are not quantified but ranks are given. Thus we can locate the person whose intelligence or beauty is the average.

**Disadvantages of Median**

- It does not take into account the precise value of each observation and hence does not use all information available in the data.
- Unlike mean, median is not amenable to further mathematical calculation and hence is not used in many statistical tests.
- If we pool the observations of two groups, median of the pooled group cannot be expressed in terms of the individual medians of the pooled groups.

**c. Mode**

Mode is the number which appears most often in a set of numbers.
Example: in {6, 3, 9, 6, 6, 5, 9, 3} the Mode is 6 (it occurs most often).

Let us take another example
3, 7, 5, 13, 20, 23, 39, 23, 40, 23, 14, 12, 56, 23, 29

**If** these numbers are arranged in order
3, 5, 7, 12, 13, 14, 20, **23, 23, 23, 23**, 29, 39, 40, 56

This makes it easy to see which numbers appear **most often**.
In this case the mode is **23**.

Let us take the case of grouped data.

In the case of grouped data, we cannot identify the term with the highest frequency. We can only locate the class with the highest frequency. It is called the modal class. The mode is a value in the modal class and is given by the following formula.

$$Mode = l + \left[\frac{f_1 - f_0}{2f_1 - f_0 - f_2}\right] xh$$

Where, '*l*' is the lower limit of the modal class
$f_1$ is the frequency of the modal class
$f_0$ is the frequency of the class preceding the modal class
$f_2$ is the frequency of the class succeeding the modal class
h is the size of the class interval

Let us consider the following data to calculate the mode

| **Group** | 60 – 64 | 65 – 69 | 70 – 74 | 75 – 79 | 80 – 84 | 85 – 89 |
|---|---|---|---|---|---|---|
| **Frequency** | 1 | 5 | 9 | 12 | 7 | 2 |

We can calculate the mode by using the formula $Mode = l + \left[\frac{f_1 - f_0}{2f_1 - f_0 - f_2}\right] xh$

Let us get the required data from the given table.

The modal class is the class with the highest frequency
12 is the highest frequency and hence the modal class is 75-79
'$l$' is the lower limit of the modal class = 75
$f_1$ is the frequency of the modal class = 12
$f_0$ is the frequency of the class preceding the modal class = 9
$f_2$ is the frequency of the class succeeding the modal class = 7
h is the size of the class interval = 5 (60, 61, 62, 63, 64)

Substituting these values in the given formula, we get $Mode = 75 + \left[\frac{12-9}{24-9-7}\right] x\ 5$

$$= 75 + \frac{3}{8}(5) = 75 + 1.87 = 76.87$$

Hence, mode = 76.87

**Advantages of Mode**

- The mode is easy to understand and calculate.
- The mode is not affected by extreme values.
- The mode is easy to identify in a data set and in a discrete frequency distribution.
- The mode is useful for qualitative data.
- The mode can be computed in an open-ended frequency table.
- The mode can be located graphically.

**Disadvantages of Mode**

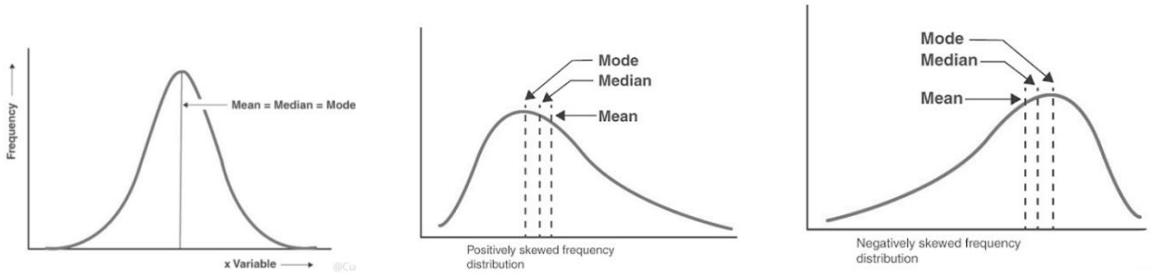
- The mode is not defined when there are no repeats in a data set.
- The mode is not based on all values.
- The mode is unstable when the data consist of a small number of values.
- Sometimes data have one mode, more than one mode, or no mode at all.

From the above discussions, we understand that

- Mean is the average of a set of observations.
- Median is the middle value of a set of observations.
- A mode is the most common observation.

We have now understood the relation between mean, median and the mode. Let us see the relation between them.

When the distribution of a set of scores is perfectly normal, then mean, median and mode will have the same value. It is also said to be symmetric about the central value. But if the distribution is not perfectly normal, then there will be skewness. Skewness refers to the concentration of data on one side of the distribution. The degree of skewness refers to the degree of concentration of scores. Skewness can be positive or negative. This is indicated in the figure below.




In the case of negative skew, the mean is influenced by the presence of outliers at the lower end of the data's range. This means that the mean would be less than the median and mode. It seems counterintuitive that the majority of the data is on the higher side, but it is called negative skew. One mnemonic that I use is that the long tail points to the negative side of an x-axis.

There is an empirical relation between the mean, median and the mode. This is given by

Mode = 3 Median – 2 Mean

**Check Your Progress - 2**

1. Work out the *mean*, *median* and *mode* of each set of numbers below:
   a) 4 4 6 8 5
   b) 6 7 7 7 7 5 6 2 9 8
   c) 8 4 3 3 5 7
   d) 6 6 7 7 4 9 1 7 1 0 1

2. A police station kept records of the number of road traffic accidents in their area each day for 100 days. The figures below give the number of accidents per day.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4 | 3 | 5 | 5 | 2 | 5 | 4 | 3 | 2 | 0 | 3 | 1 | 2 | 2 | 3 | 0 | 5 | 2 | 1 |
| 3 | 3 | 2 | 6 | 2 | 1 | 6 | 1 | 2 | 2 | 3 | 2 | 2 | 2 | 2 | 5 | 4 | 4 | 2 | 3 |
| 3 | 1 | 4 | 1 | 7 | 3 | 3 | 0 | 2 | 5 | 4 | 3 | 3 | 4 | 3 | 4 | 5 | 3 | 5 | 2 |
| 4 | 4 | 6 | 5 | 2 | 4 | 5 | 5 | 3 | 2 | 0 | 3 | 3 | 4 | 5 | 2 | 3 | 3 | 4 | 4 |
| 1 | 3 | 5 | 1 | 1 | 2 | 2 | 5 | 6 | 6 | 4 | 6 | 5 | 8 | 2 | 5 | 3 | 3 | 5 | 4 |

Find the mean number of accidents per day

3. The ages of students in a small primary school were recorded in the table below.

| **Age** | **5-6** | **7-8** | **9-10** |
|---|---|---|---|
| **Frequency** | **29** | **40** | **38** |

(a) Estimate the mean. (b) Estimate the median. (c) Find the modal class.

### 3.1.3.3.Percentiles and Correlation

**Percentiles**

A **percentile** is a measure that indicates what percent of the given population scored at or below the measure. They tell you where a score stands relative to other scores Often, schools and colleges use percentiles to rank students based on their academic performance. If Sita scored in the 90th percentile, then that means her performance is equal to or better than 90% of her class. Since percentiles are based on a percentage, percentiles range between 0-100. Percentiles tell us how a value compares to other values. The general rule is that if value X is at the $k^{th}$ percentile, then X is greater than K% of the values.

**The percentile rank formula is:** $R = \frac{\boldsymbol{P}}{\boldsymbol{100}}\boldsymbol{x}\ (\boldsymbol{N}+\boldsymbol{1})$ . Where *R* represents the rank order of the score. *P* represents the percentile rank. *N* represents the number of scores in the distribution.

Let's say that you are a teacher, and out of 20 students, one of your students, Lalita, scored 78 points in a test. She wants to know what her percentile rank was for the test. Using the following distribution of all 20 scores you can calculate his percentile rank:
34, 37, 48, 59, 62, 75, 76, 78, 79, 80, 82, 85, 90, 91, 92, 92, 94, 97, 99, 100

Based on ranking the distribution in order from lowest to highest, we see that her score of 78 is the eighth highest score in the distribution, so $R = 8$. We also know that $N = 20$, because there are 20 scores. We now have all of the information we need to calculate her percentile rank.

$$8 = \frac{P}{100}x\ (20+1) = 38.1$$

Using the formula for calculating the percentile rank, we can say that Lalita's raw score of 78 falls at the 38th percentile. She now knows that 38% of the class scored at or below his score of 78.

**Steps in determining the location of a percentile.**

**Step-1: Organize the numbers in an ascending order**

**Step-2: Calculate the percentile location by using the formula** $\boldsymbol{i} = \frac{\boldsymbol{P}}{\boldsymbol{100}}\boldsymbol{xN}$

where,

1. P is the percentile of interest
2. i is the percentile location
3. N is the number in the data set
   (i) If i is a whole number, the $P^{th}$ percentile is the average of the value at the $i^{th}$ location and the value at the $(i+1)^{st}$ location
   (ii) If i is not a whole number, the $P^{th}$ percentile value is located at the whole number part of i+1

Let us work out an example

Determine the 30th percentile of the following eight numbers 1 2 4 3 5 3 5 2 6

Step-1: Organize the data into an ascending-order array: 1 2 2 3 3 4 5 5 6

Step-2: Calculate the percentile location: $i = \frac{30}{100} x8 = 2.4$

Step-3: Determine the location: Because i is not a whole number, step 3(b) is used. The value of i+1 is 2.4+1, or 3.4. The whole number part of 3.4 is 3. The 30th percentile is located as the third value. The third value is 2, so 2 is the 30th percentile.

**Percentiles of grouped data**

The $k^{th}$ percentile denoted by $P_k$ is calculated as follows

$$P_k = L + \frac{\frac{kxN}{100} - C}{f} xh \ \ (fork = 1, 2 \dots 99)$$

where:

- $L$ is the lower limit of the class containing $P_k$
- $f$ is the frequency of the class containing $P_k$
- $h$ is the width of the class containing $P_k$
- $C$ is the cumulative frequency of the class preceding the class containing $P_k$

Here, the cumulative frequency just greater than $\frac{kxN}{100}$ is the class containing $P_k$ (K=1,2,...,99)
Let us understand through an example

Determine $P_{80}$ from the following distribution

| Class | Frequency | Cumulative frequency |
|---|---|---|
| 0-5 | 20 | 20 |
| 5-10 | 15 | 35 |
| 10-15 | 31 | 66 |
| 15-20 | 22 | 88 |
| 20-25 | 10 | 98 |
| 25-30 | 2 | 100 |

Here $\frac{kxN}{100}$. The cumulative frequency just greater than 80 is 88, so the class 15-20 contains $P_{80}$

$L$=15, $f$=22, $h$=5, $C$=66, Therefore
Substituting the values in the given formula, we get

$$P_{80} = 15 + \frac{80 - 66}{22} x\ 5 = 18.18$$

**Correlation**

Correlation is a statistical technique that can show whether and how strongly pairs of variables are related. For example, height and weight are related; taller people tend to be

heavier than shorter people. The relationship isn't perfect. People of the same height vary in weight, and you can easily think of two people you know where the shorter one is heavier than the taller one. Nonetheless, the average weight of people 5'5" is less than the average weight of people 5'6", and their average weight is less than that of people 5'7", etc. Correlation can tell us just how much of the variation in peoples' weights is related to their heights.

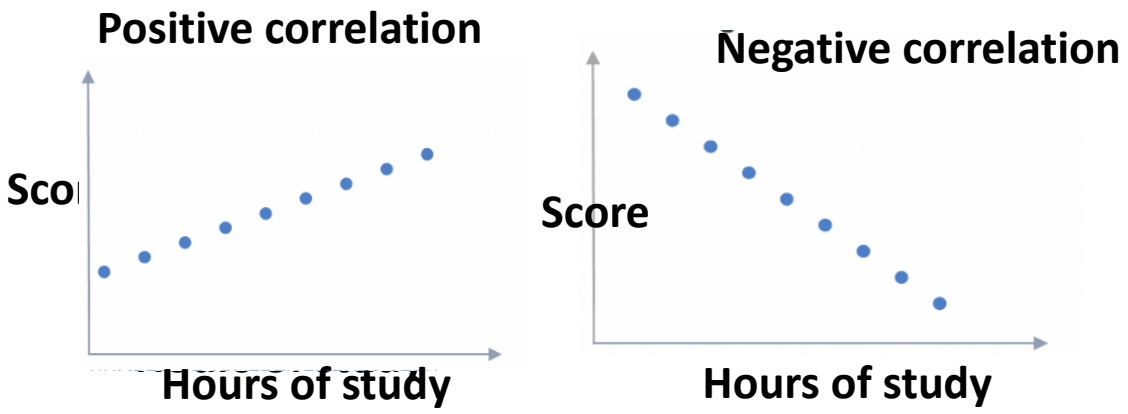
The main result of a correlation is called the **correlation coefficient** (or "r"). It ranges from -1.0 to +1.0. The closer r is to +1 or -1, the more closely the two variables are related.

Correlation is a term that is a measure of the strength of a linear relationship between two quantitative variables (e.g., height, weight). The correlation can be positive or negative.

*Positive correlation* is a relationship between two variables in which both variables move in the same direction. This is when one variable increases while the other increases and vice versa. For example, *positive* correlation may be the more you exercise, the more calories you will burn, or the more you study, higher will be your scoring

*Negative correlation* is a relationship where, as one variable increases the other decreases, and vice versa.

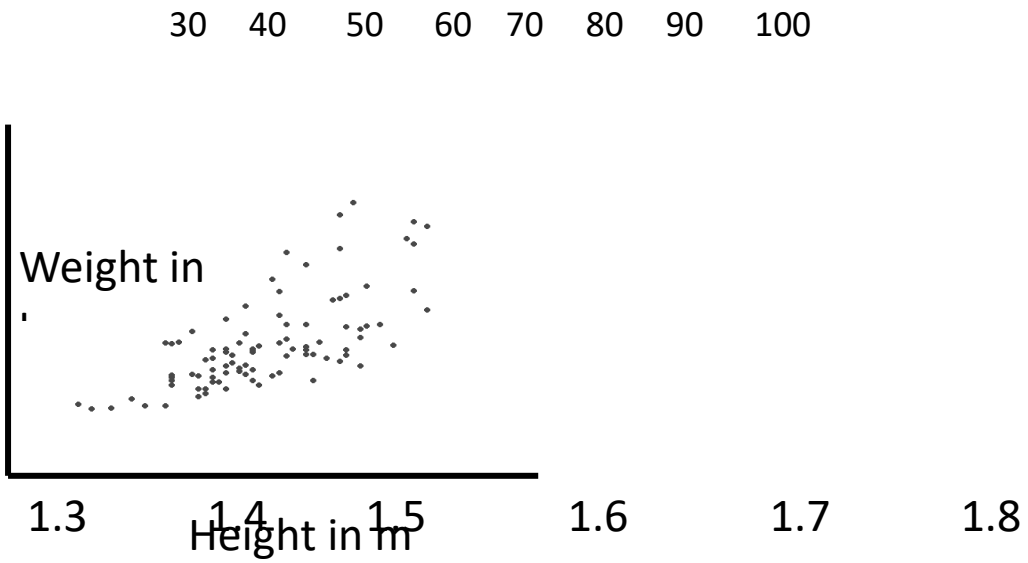
The relation between hours of study and the score is indicated in the graph below with both positive and negative correlation.




**Interpreting Correlation Coefficients**

A correlation between two variables indicates that as one variable changes its value, the other variable also tends to change its value in a specific direction. An understanding of this relationship helps in predicting the value of the other variable. For example, height and weight are correlated as height increases, weight also tends to increase. Consequently, if we observe an individual who is unusually tall, we can predict that his weight is also above the average.

Generally, the correlation data is plotted as Scatterpots. The following graph shows the relation between height and weight of girls. Each dot represents a combination of a girl's height and weight.




At a glance, we can see that there is a relationship between height and weight. As height increases, weight also tends to increase. However, it's not a perfect relationship. If we look at a specific height, say 1.6 meters, we can see that there is a range of weights associated with it. You can also find short people who weigh more than taller people. However, the general tendency that height and weight increase together can be easily seen.

The most common measure of correlation is *Pearson's product-moment correlation*, which is commonly referred to simply as the *correlation*, the correlation coefficient, or just the letter *r* (always written in italics). The *correlation* coefficient r measures the strength and direction of a linear relationship, for instance:

- 1 indicates a perfect positive correlation.
- -1 indicates a perfect negative correlation.
- 0 indicates that there is no relationship between the different variables.

Values between -1 and 1 denote the strength of the correlation, as shown in the example below.

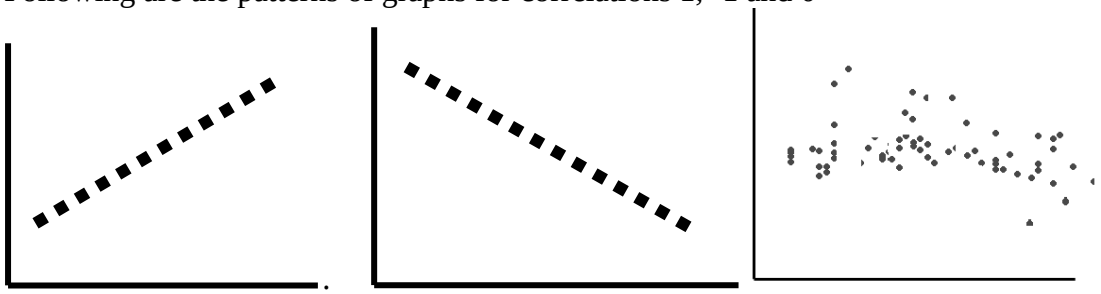
**Strength:** The greater the absolute value of the correlation coefficient, the stronger the relationship.

- The extreme values of -1 and 1 indicate a perfectly linear relationship where a change in one variable is accompanied by a perfectly consistent change in the other. For these relationships, all of the data points fall on a line. In practice, we may not see either type of perfect relationship.
- A coefficient of zero represents no linear relationship. As one variable increases, there is no tendency in the other variable to either increase or decrease.
- When the value is in-between 0 and +1/-1, there is a relationship, but the points don't all fall on a line. As r approaches -1 or 1, the strength of the relationship increases and the data points tend to fall closer to a line.

**Direction:** The sign of the correlation coefficient represents the direction of the relationship.

- Positive coefficients indicate that when the value of one variable increases, the value of the other variable also tends to increase. Positive relationships produce an upward slope on a scatterplot.
- Negative coefficients represent cases when the value of one variable increases, the value of the other variable tends to decrease. Negative relationships produce a downward slope.

Following are the patterns of graphs for correlations 1, -1 and 0



**Check Your Progress - 3**

1. Find the 85th percentile score in the following test results.
   {95, 88, 70, 75, 83, 70, 66, 91, 68, 76, 82}
2. If a student is ranked eight out of ten in a competition, what is the student's percentile rank?
3. 98, 99, 99, 100, 101, 102, 104, 104, 105, 105, 107, 110, 112, 112
   For the above data set, 102 is in what percentile?
4. For the following correlations (r): 0.29, -0.63, 0.15, -0.34, 0.04
   a) Which is the strongest correlation?
   b) Which is the weakest correlation?

### 3.1.4. Let us Summarise

- Statistics is a branch of science that deals with the collection, organisation, analysis, and drawing of inferences from the data.
- The basic unit any statistical study is the data. Let us find out what is data.
- The number of times a specific score or observation is repeated is called the frequency.
- The frequency is generally represented by f and the total of all the frequencies by n.
- The symbol used to express the sum or total is $\sum$ read as (sigma).
- Presenting data with frequency in the form of a table is called frequency table.
- Presenting data in classes with frequency in the form of a table is called grouped frequency table.
- Data can be represented in many graphical forms like pie charts, bar graphs, histograms etc.
- A pie chart is a circular chart divided into wedge-like sectors, illustrating proportion. Each wedge represents a proportionate part of the whole, and the total value of the pie is always 100 percent.
- A pie chart (also called a Pie Graph or Circle Graph) makes use of sectors in a circle. The angle of a sector is proportional to the frequency of the data.
- A bar graph is a chart that uses bars to show comparisons between categories of data.
- A histogram is a vertical bar chart in which the frequency corresponding to a class is represented by the area of a bar (or rectangle) whose base is the class width. But, the

histogram differs from a bar chart in that it is the area of the bar that denotes the value, not the height.

- In a histogram, there are no gaps between the rectangles and the *y*-axis is the frequency and always starts at 0.
- The value that represents the central point of a set of data or distribution of data is measured in terms of the measures of central tendency.
- Mean median and mode are the three measures of central tendency.
- **Mean:** defined as the samples' average score.
- **Median:** defined as the middle score after the scores have been arranged in numerical order.
- **Mode:** defined as the most often occurring value.
- The mean, median and mode can be calculated using the following formulae.

| | **Ungrouped** | **Grouped** |
|---|---|---|
| **Mean** | $M = \frac{x_1 + x_2 + x_3 + x_4 + x_5 + x_6}{6}$ | $\bar{x} = \frac{\sum f_i x_i}{\sum f_i}$ |
| **Median** | $\{\frac{(n+1)}{2}\}^{th}$ term | $Median = l + \left[\frac{\frac{n}{2} - cf}{f}\right] xh$ |
| **Mode** | value with highest frequency | $Mode = l + \left[\frac{f_1 - f_0}{2f_1 - f_0 - f_2}\right] xh$ |

- There is an empirical relation between the mean, median and the mode. This is given by Mode = 3 Median – 2 Mean.
- A percentile is a measure that indicates what percent of the given population scored at or below the measure.
- The percentile rank formula is: $R = \frac{P}{100} x\ (N + 1)$
- The percentile rank formula for grouped data is $P_k = L + \frac{\frac{kxN}{100} - C}{f} xh\ (fork = 1, 2 \ldots 99)$.
- Correlation is a term that is a measure of the strength of a linear relationship between two quantitative variables (e.g., height, weight). The correlation can be positive or negative.
- The most common measure of correlation is *Pearson's product-moment correlation*, which is commonly referred to simply as the *correlation*, the correlation coefficient, or just the letter *r* (always written in italics). The *correlation* coefficient r measures the strength and direction of a linear relationship, for instance:
- 1 indicates a perfect positive correlation.
- -1 indicates a perfect negative correlation.
- 0 indicates that there is no relationship between the different variables.

### 3.1.5. Answers to 'Check Your Progress - 1, 2 and 3'

**Check Your Progress - 1**

1.

| **C.I.** | 130-135 | 135-140 | 140-145 | 145-150 | 150-155 | 155-160 | 160-165 | 165-170 |
|---|---|---|---|---|---|---|---|---|
| **Frequency** | 3 | 4 | 4 | 5 | 1 | 1 | 1 | 1 |

**Range = 34 cm**

2.

| **C.I.** | 30-35 | 35-40 | 40-45 | 45-50 | 50-55 | 55-60 | 60-65 | 65-70 | 70-75 | 75-80 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Frequency** | 2 | 2 | 3 | 3 | 5 | 3 | 6 | 1 | 4 | 1 |

a. 52.5
b. 44 gm
c. 10
d. 65 - 70, 75 – 80

3. (d)
4. 25-34
5. $150^0$

**Check Your Progress - 2**

1.
   a) 5.4, 5, 4
   b) 6.4, 7, 7
   c) 5, 4.5, 3
   d) 5.8, 6.5 7

2. 3.23
3. Mean = 8.2 Median = 8.25 Modal class is 7-8

**Check Your Progress - 3**

1. 91
2. 20
3. 43rd
4. Strongest is -.63, Weakest is .04

### 3.1.6. Unit end Exercises

1. Prepare a grouped frequency table for the marks scored by your students in a test conducted by you. Calculate the mean, median and mode for this data.
2. Interpret the results of the above data and prepare a list of how you can use them to improve the performance of your class.

### 3.1.7. References


1. Statistics in Education by Dr. K.M. Bhandarkar
2. Statistics In Psychology & Education by Henry E.Garrett
3. https://www.coursehero.com/file/pe2lj1l/Advantages-and-disadvantages-of-percentile-ranks-Percentile-ranks-or-simply/
4. https://www.enotes.com/homework-help/what-advantages-disadvantages-bar-chart-688947
5. https://www.emathematics.net/statistics.php?tipo=centil
6. https://sciencing.com/difference-bar-graph-pie-chart-5832998.html
7. https://magoosh.com/statistics/understanding-measures-central-tendency/
8. https://www.google.com/search?q=comparison+of+mean+median+and+mode+on+a+graphs&rlz=1C1CHBF_enIN838IN838&tbm=isch&source=iu&ictx=1&fir=wvL9eU3vHmhtDM%252CvWPf_O5EdCL5-M%252C_&vet=1&usg=AI4_-kSckqmBzhFGkhNJ9Ylkt6jlZi0YgA&sa=X&ved=2ahUKEwjw1IeE7d3qAhXV6nMBHYL9BVUQ9QEwBXoECAUQJA&biw=1707&bih=781#imgrc=wvL9eU3vHmhtDM
9. https://statisticsbyjim.com/basics/measures-central-tendency-mean-median-mode/
10. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3157145/
11. https://www.google.com/search?q=calculating+mode+of+a+grouped+data&rlz=1C1CHBF_enIN838IN838&oq=Mode+of+a+grouped+&aqs=chrome.4.0j69i57j0l5j69i60.11312j0j4&sourceid=chrome&ie=UTF-8

# Block 3 : Data Analysis, Feedback, and Reporting

## Unit 2 : Feedback as an essential component of formative assessment

**Unit Structure**



### 3.2.1. Learning Objectives

After completing this Unit, the student teachers will be able to

- Analyse the need for effective feedback in the context of formative assessment;
- Explain the goals of feedback in the context of formative assessment; and
- Explain the characteristic features of effective feedback and try to incorporate the same in such situations.

### 3.2.2. Introduction

As you all know, formative assessment procedures have been advised to summative assessment methods. Formative assessment refers to the type of assessment methods teachers use to evaluate students' comprehension, learning needs, and academic progress during the process of learning a lesson, unit, or course. This type of assessment help teachers identify concepts that students are struggling to understand, skills they are having difficulty acquiring, or learning standards they have not yet achieved so that adjustments can be made to lessons, instructional techniques, and academic support. The process of the formative method is very important i.e., to focus on both learning and the difficulties students faced to learn something. The major component of formative assessment is feedback. Hence, feedback should be given with proper planning and by taking care of all the precautions while giving it. In this unit, let us understand more about the process of this mechanism, i.e., feedback and its importance in formative assessment

### 3.2.3. Learning Points and Learning Activities

#### 3.2.3.1. Importance and goals of feedback in formative assessment

**Importance of feedback in formative assessment:**

Let us recall the meaning of the term feedback. Feedback, in the context of learning, is about reactions to students' performance on learning a concept, skill, task, etc. Feedback is used as a basis for improvement.

Feedback is one of the important components of formative assessment. The role of feedback is important as it tells the student what to do next. Feedback helps both students with good performance and also those who need more guidance. For the student who has demonstrated success and achievement in learning, the feedback can inform them that continuing with the approach they're using is effective. For the student who may be struggling, or may have misunderstood some of the key concepts, feedback can provide various means to solve the problem or remediate the learning.

Feedback helps students to become self-learners by learning the ways of resolving problems through guided practices. Feedback provides more than one way to solve problems. It is more than saying whether the answer the students have thought of is correct or not. Feedback can also be used to challenge students' responses in a way that makes them think differently about the problem. Feedback can also be used to initiate deeper thinking by changing the question or adding new facts to a problem. Feedback is a form of significant resource to the students that help students to take active steps to proceed with their learning. This is considered an instructional action. It enhances learning through many strategies. It also guides students to become independent and self-reflective learners and better critics of their work. Feedback stimulates reflection, interaction, and dialogue about learning improvement.

**The goals of feedback in formative assessment:**

In the context of formative evaluation, feedback can be used for many purposes. They can be summarised as follows:

- To guide students in their process of learning.
- Identity and reward specific qualities in their learning to motivate them further.
- To give hints as to how to improve their learning.
- To monitor student learning to provide ongoing feedback that can be used by instructors to improve their teaching and by students to improve their learning.
- To develop their ability to monitor, evaluate, and regulate their learning.

**Check Your Progress - 1**

**Mark the correct statements with '√' sign and incorrect statements with 'x'**

1. Feedback helps only those students who learn better and faster.
2. Feedback can provide various means to solve the problem
3. Feedback provides more than one way to solve problems.
4. Feedback can also be used to challenge students' response
5. There is no scope for self-reflection in the process of feedback.
6. To identify and reward specific qualities of students is one of the goals of feedback.

### 3.2.3.2. Characteristic features of effective feedback

**Following are the indicators of effective feedback in formative evaluation:**

**It needs to be Constructive**

Apart from telling students whether they are on the right track or not, it should set ways in which the student can improve the work. This encourages them to think critically about their work and to reflect on what they need to do to improve it. It helps them see their learning in new ways and gain increased satisfaction from it. It enhances the interaction between teachers and students.

**It has to be timely**

A teacher cannot give feedback after two or three days of the process of learning. It should happen "then and there". That is why feedback is considered an essential instructional component. The teacher should give feedback during the process of the assessment itself. Otherwise, it loses its value.

When feedback is given immediately after showing proof of learning, the student responds positively and remembers the experience about what is being learned confidently. If we wait too long to give feedback, the moment is lost and the student might not connect the feedback with the action.

**Meaningful**

Though feedback can be given to a group, it is based on individual needs. If needs are the same then feedback can be given to the whole group. Most of the time it demands to take care of the minute needs of the individual student. Our classrooms are full of diverse learners. Some students need to be pushed to achieve at a higher level and other needs to be handled very gently so as not to discourage learning and damage self-esteem. A balance between not wanting to hurt a student's feelings and providing proper encouragement is essential. This is to say that the feedback given should become useful to the students. It should be relevant, practical in the context of the learner. It should be linked to specific assessment criteria, and be received by a student in time to benefit subsequent work. Hence, effective feedback guides students to adapt and adjust their learning strategies.

**Feedback should be educative in nature**

Providing feedback means giving students an explanation of what they are doing correctly and incorrectly. However, the focus of the feedback should be based essentially on what the students are doing right. It is most productive to a student's learning when they are provided with an explanation and example as to what is accurate and inaccurate about their work. Feedback should means, 'compliment+ correction + complement'.

**Ask the 4 questions**

Studies of effective teaching and learning (Dinham, 2002, 2007a; 2007b) have shown that learners want to know where they stand in regards to their work. Providing answers to the following four questions regularly will help provide quality feedback. These four questions are also helpful when providing feedback to parents:

What can the student do?
What can't the student do?
How does the student's work compare with that of others?
How can the student do better?

**Feedback should refer to a skill or specific knowledge**

This is when rubrics become a useful tool (**single-point rubrics**, for example). A rubric is an instrument to communicate expectations for an assignment. Effective rubrics provide students with very specific information about their performance, compared to an established range of standards. For younger students, try highlighting rubric items that the student is meeting or try using a sticker chart.

**The one-on-one conference is ideal**

Providing a one-on-one meeting with a student is one of the most effective means of providing feedback. The student will look forward to having the attention and allows the

opportunity to ask necessary questions. A one-on-one conference should be generally optimistic, as this will encourage the student to look forward to the next meeting.

As with all aspects of teaching, this strategy requires good time management. One can try meeting a student while the other students are working independently. Time the meetings so that they last no longer than 10 minutes.

**Feedback can be given verbally, non-verbally, or in written form**

It is imperative to examine our non-verbal cues. Facial expressions and gestures are also means of delivering feedback.

**Should focus on one ability at a time**

It makes a far greater impact on the student when only one skill is critiqued versus the entire paper being the focus of everything wrong.

**Educate students on how to give feedback to each other**

Model for students what appropriate feedback looks like and sounds like. This is called 'peer conferencing.' Students can be trained to give each other constructive feedback in a way that is positive and helpful.

**Have the student take notes**

During a conference over a test, paper, or a general 'check-in,' students should be guided to take notes of feedback points. The student can use a notebook to jot down notes as they are given verbal feedback.

**Giving genuine praise is essential**

It is important to recognise every positive point and praise the students. This helps the students to get motivated to do further tasks.

Make a phone call home to let mom or dad know how thrilled you are with the student's behaviour. Comments and suggestions within genuine feedback should also be focused and practical.

**Constant observation and communication of the same to the students is important**

Make an effort to notice a student's behavior or effort at a task. For example; "I noticed when you regrouped correctly in the hundreds column, you got the problem right." "I noticed you arrived on time to class this entire week." Acknowledging a student and the efforts they are making goes a long way to positively influence academic performance.

**A model or example needs to be given**

There is a need to communicate with students the purpose of an assessment and/or feedback. One should demonstrate an example of skills or show a completed product.

**Feedback should be interactive**

Both the content and process of feedback should be taken care of. Feedback is valuable when it is received, understood, and acted on. How students analyse, discuss, and act on feedback is as important as the quality of the feedback itself.

**Feedback should have scope for the active involvement of teachers and students**

Assessment is a task of both teachers and students. In formative assessment both assessment and informative feedback go together so that both the teacher and the student can evaluate whether understanding is taking place during the learning process. Both teachers and students are equally responsible for effective learning and both need to consider feedback with real involvement and responsibility.

**Expected performance should be clarified**

Teachers normally keep talking about good performance in the class. But what exactly they mean by that, or, what are the learning goals should be clarified by the teacher to the students before the process of assessment. This can be done through written documentation outlining assessment criteria that define various levels of achievement. This can be presented in the form of rubrics, key, and thus concrete procedures of assessment should be made clear.

**Develop ability for self-assessment**

Good feedback practice facilitates the development of self-assessment and reflection in learning; This implies that students should be trained to take care of their learning through reflective practices. The teacher should make the students reflect on each of the activities expected to be performed by students and should also be guided as to how to use the product of reflections.

**Guide to grow further**

In the process of giving feedback, the students should be provided high-quality information about what, why, how they are supposed to learn, how they have been learning, and also how they have to proceed in near future. This implies that students should be offered corrective, constructive, and constructive advice.

**Give a chance to perform to see the improvement in performance**

Closing the feedback loop involves finding out the gap between current and desired performance, and this is the last but one principle for providing opportunities for students to resubmit a piece of work following an external feedback cycle to see whether performance has improved.

**Deduct useful information for teachers**

Good feedback practice should also provide useful information for teachers that can be used to improve subsequent activities and courses.

**Process of feedback**

**The next question is what should be the process of giving feedback. One needs to remember the following points while executing feedback.**

**Appreciation.**

Appreciation is the key to opening the “feedback door.” Thanking students for submitting their work acknowledges and validates their time spent learning something new. Appreciation comments do not have to be drawn out to have a positive impact. They can be as simple as “thank you for sharing this awesome (idea/question/thought) with us.“ Receiving a positive, appreciative comment at the outset, students are more likely to feel respected and engage with any additional feedback you provide.

**Sayback**

Sayback involves restating what learners said. This shows learners that you read their posts and lets them know that they are on the right track. Often, the best way to start a sayback comment is with an "I agree" or some other appreciative statement.

**Links to resources**

Sharing a link to a resource extends learning beyond the course content and introduces learners to new information, ideas, perspectives, and digital tools.

**Questions**

Asking a question is a good way to engage learners in conversations about their work. While answering questions, learners often reflect on the process of their work, which brings their comprehension to a deeper level. Questions can serve many purposes when providing feedback. They can be used to clarify the learners' thinking (e.g., "What did you mean by…"), to make the learning process more transparent (e.g., "Why did you..."), to inspire students to think about their work differently (e.g., "Have you considered looking at the topic from this perspective?"), to expand the learner's' knowledge or skills (e.g., "Have you considered exploring..."), and to encourage learners to make changes to their work (e.g., "Have you thought about trying…").

**Sharing personal experiences.**

Nothing links students and facilitators like shared experiences. It says "Hey...I've been there!" to the student and helps foster a relationship of mutual respect. Besides increasing the sense of connection, sharing personal experiences makes the feedback feel more authentic and meaningful. Students want to learn from real-world experiences.

**Encouraging.**

Sometimes learners just need a few positive words of encouragement (e.g., "You can do it!") that show them you are invested in and support their learning. Encouraging often rekindles learners' enthusiasm for an assignment or project and motivates them to keep improving their work.

**In total, feedback needs to be constructive.** There are four types of constructive feedback.

- **Negative feedback** – corrective comments about past behaviour. Focuses on behaviour that wasn't successful and shouldn't be repeated.
- **Positive feedback** – affirming comments about past behaviour. Focuses on behaviour that was successful and should be continued.
- **Negative feed-forward** – corrective comments about future performance. Focuses on behaviour that should be avoided in the future.
- **Positive feed-forward** – affirming comments about future behaviour. Focused on behaviour that will improve performance in the future.

**Check Your Progress - 2**

**Mark the correct statements that represent the characteristics of effective feedback, with '√' sign and incorrect statements with 'x'**

Effective feedback

1. needs to be Constructive
2. has to be timely
3. should help students to score more marks
4. needs to be given during leisure time

5. should be interactive
6. should have scope for the involvement of teachers and students
7. clarify expected performance
8. facilitate the development of self-assessment

### 3.2.4. Let us Summarise

- Feedback is one of the important components of formative assessment.
- The role of feedback is important as it tells the student what to do next.
- Feedback helps both students with good performance and also those who need more guidance.
- Feedback aims to guide students in the process of learning
- Some of the characteristic features of effective feedback are: It should be constructive, timely, meaningful, interactive, promote active involvement of teachers and students, clarify expected performance, and develop self-assessment skills.

### 3.2.5. Answer to 'Check Your Progress - 1 and 2'

**Check Your Progress - 1**
1 and 5-'x'
2,3,4 and 6 - '√'

**Check Your Progress - 2**
'√'- 1,2,5,6,7,8
'x'- 3 and 4

### 3.2.6. Unit end Exercises

Explain the importance, goals, and characteristic features of effective feedback in the context of formative evaluation.

### 3.2.7. References


1. https://files.eric.ed.gov/fulltext/EJ1111131.pdf
2. https://www.cmu.edu/teaching/assessment/basics/formative-summative.html
   Resources:
3. Hattie J and Timperely H (2007), The Power of Feedback. Review of Educational Research, 77, 81–112
4. Heritage, M. 2014, Formative assessment: An enabler of learning, Retrieved from http://www.amplify.com/assets/regional/Heritage_FA.pdf
5. https://cole2.uconline.edu/courses/333119/pages/using-feedback-in-formative-assessment
6. https://www.futurelearn.com/courses/educational-design/0/steps/26436
7. Feedback as an essential component of formative assessment
8. International Journal of Teaching and Learning in Higher Education 2016, Volume 28, Number 2, 168-175 http://www.isetl.org/ijtlhe/ ISSN 1812-9129 The Impact of Feedback as Formative Assessment on Student Performance Leanne Owen Neumann University

# Block 3 : Data Analysis, Feedback, and Reporting

## Unit 3 : Types of Feedback: Types of teacher feedback (oral, written, comments); Peer feedback

**Unit Structure**



### 3.2.1. Learning Objectives

After completing this Unit, the student teachers will be able to

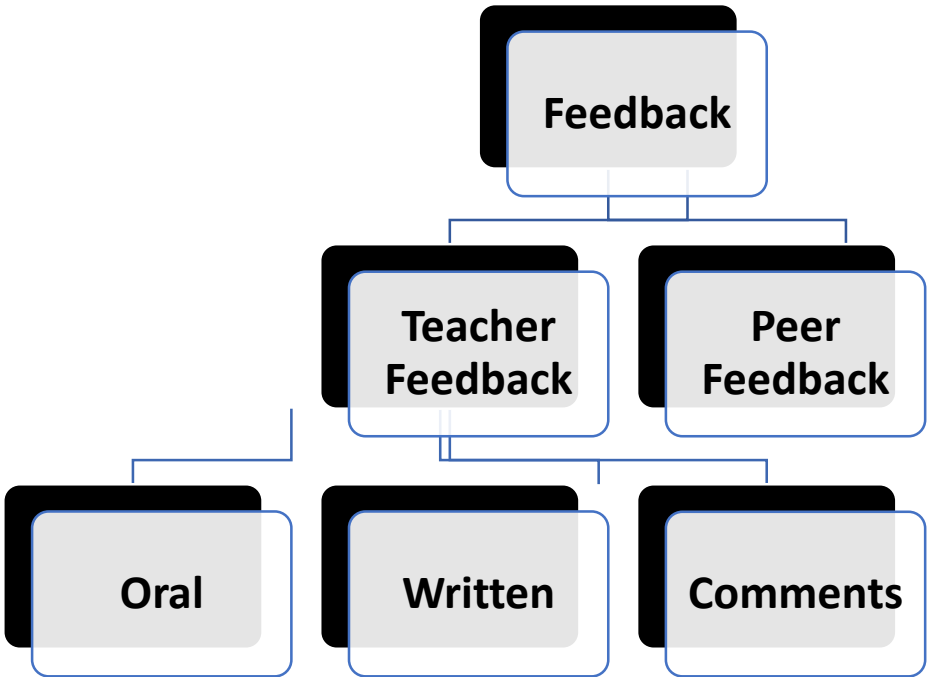
- Analyse the types and nature of teacher feedback;
- Explain the nature of peer feedback; and
- Explain the types of comments that can be used while giving feedback in different situations.

### 3.2.2. Introduction

Normally feedback process is associated with the teacher. But we need not think that only experts in the field can give feedback. Even their peers, friends, classmates can give very valuable feedback to the students with prior guidance and understanding. Hence feedback can be given or taken by different people and it will be useful in each of these situations. Hence, let us understand the nature and process of feedback when it is given by teachers and peers, in this unit. Ultimately, the purpose of feedback, by whomever it is, certainly is to help the individual or the group to grow. Steve job's words are very significant in this context. He says, "My job is not to be easy on people. My job is to take these great people we have and to push them and make them even better". Educators strive to do the same thing by providing learners with meaningful feedback that extends and develops their thinking".

### 3.3.3. Learning Points and Learning Activities

As mentioned above, the feedback can be given either by the teacher or peers. The following diagram makes this point clear.




The teacher can give feedback orally, or in written form, or the form of just comments and explain the same. Peers also can present in different forms, but normally their feedback will be in oral form.

### 3.3.3.1. Teacher feedback

The characteristics and process of effective feedback have been explained in the previous unit, and it is obvious that any teacher giving feedback needs to take into consideration all these aspects. The teacher can present the feedback either in oral or written form or in the form of comments.

#### i. Oral feedback

Oral feedback is one of many communication forms where students receive feedback from their teacher who either corrects them implicitly or explicitly or asks them to clarify what they say.

As Vygotsky has observed, the language plays a central role in the process of oral feedback. This interaction between teachers and pupils in the classroom is one of the privileged contexts of learning regulation.

As experts in the field explain, “Learning isn’t about consuming content. Learning is about applying content, repeatedly practicing, and receiving feedback from an expert. In other words, practice + feedback = learning”.
Oral feedback involves all the word choice issues that written feedback does, but it also includes some unique issues.

#### Nature of Oral Feedback

**Making the learning visible**

The work for which the teacher is going to give feedback may be presented in different forms. It may be just an essay written on papers, or presented in the form of soft

copy or a display on some base, or a product in some tangible form of a project report. The teacher needs to analyse each part of it. This raises levels of pride, giving students a keener sense of purpose, and it often instills a healthy competitive edge to the learning. It is also evident that most successful students have an innate sense of what 'good work' looks like, but many students simply don't have this degree of self-efficacy. Making visible exemplar work, and breaking down its parts, is a simple and powerful way to modify the learning of each student – helping to enhance what Ron Berger described as the crucial assessment going on "inside students".

**When to give Oral Feedback?**

Oral feedback should be given at a time and place in which the student is ready and willing to hear what is given. Oral feedback ranges more broadly than any other type of feedback, from the very formal and structured to the very informal (few whispered words of the teacher as she passes through student's seat).

Oral feedback is often given informally during observations of students doing their work or of work in progress. Oral feedback is also appropriate as a formal response to finished products completed by young children or for students of any age during conferences, where feedback leads to a conversation between teacher and student.

Oral feedback is often a matter of opportunity, of observing students' readiness to hear it. A student on the way out the door to recess may not be thinking about the assignment, that the teacher would discuss. He may focus on the games he wants to choose at that time. The teacher needs to be mindful of when opportunities occur. The teacher needs to make proper decisions about when to give feedback to individuals and groups.

Content issues are the same for oral and written feedback. One important point to be noticed while giving oral feedback is there is less time in this context. There is less time to make decisions about how to say things, and once it is said, it cannot be taken back.

The following are some of the ways to deliver oral feedback to an individual student:

- Quietly, at the student's desk, while the rest of the class is working
- At the teacher's desk, either informally (asking one student to come near the teacher's desk).
- At a specially scheduled out of class time, such as after school.

**Types of Oral Feedback**

**Quick and quiet feedback**

This type of feedback is individual, extemporaneous feedback provided to students when the teacher notices a need. These feedback sessions are quick, often addressing one point (usually about the process the student is using for the work rather than about the task), and they are quite interchanges. There is no need to broadcast to the whole class, which particular difficulty one student is having. Besides, the rest of the class is working. These should not have any stigma attached. Short tutoring or coaching sessions like this should be routine, should happen to all students at one time or another.

**In-Class Student Conferencing**

Unlike quick-quiet feedback, in-class conferencing is not extemporaneous. In class conferencing is planned, usually within a lesson that has students working so that individuals

can meet the teacher one at a time about their work. Both the teacher and the students have reviewed the work beforehand and hence both are ready to discuss. Since this type of meeting is planned, the focus can be both the work and the process the student used to do it. In-class conferencing can be done in any subject about paper or project assignments.

**Out of Class Conferencing**

If a student is having difficulties that require more time than normally the teachers give to one student during class time, the teacher can set aside a special time for an out of the conference. Similarly, if a student is doing advanced or extension work that requires more time to go over than the regular class hours, the teacher can set aside some special time. Out of class conferences can occur before or after school, during recess, and at other times.

**ii. Written feedback**

Written feedback can be a powerful tool for helping students to move forward in their learning.

Written feedback has the advantage that the student can refer to it over and over again. With oral feedback, the student may forget what was said.

**Some techniques for effective written feedback**

- Feedback for improvement needs to be clubbed with what the student did well in terms of the standard.
- Feedback should not be given on all components. Crucial aspects have to be selected and feedback should focus on these aspects.
- The feedback should be simple and typed so that the students can easily understand them. If the students' work is in digital form, feedback should be added in appropriate place, in proper form.
- It is important to be positive or neutral, instead of being negative
- One needs to be very concrete about what the students need to improve. For example, it is better to suggest like, 'Write with coherence' rather than " improve your writing". A concrete list of suggestions can be created and saved so that, appropriate suggestions can be easily cut and pasted.
- The feedback written needs to be reviewed to see, whether that is appropriate for the whole class or small group or the individual focused attention.
- Students should be given a chance to improve or re-do the work since the ultimate purpose is learning, and not assigning a grade.
- Make obvious the gap: opportunities need to be provided to make the students understand where they are and where they are supposed to reach or show the difference between current performance and the desired performance.

- Make clear what good performance is, i.e., show them the goals, criteria, and expected standards.
- Have enough and required communication with students to make them understand what needs to be understood completely.
- The following questions can serve as a checklist in the context of written feedback.

List of questions to ask when providing written feedback

Have I:

- referred only to the work (and not the person who wrote it, degree of effort)?
- been specific in what I'm referring to is the person's work, including at least one thing done well and at least one thing the student needs to work on?
- communicated a connection with the main criteria?
- provided comments that are constructive, respectful, positive, concrete, clear, legibly written?
- used terms that students can understand?
- limited comments to the 2-4 most important components?
- focused on the most substantial aspects of the assignment in my feedback (e.g., providing feedback on the argument vs. grammar)?
- included some questions for the student?
- Would this feedback help my learning?
- takes the student's work seriously?
- conveys an understanding of what the students were trying to do?
- makes concrete suggestions for how it might be done more effectively?

(Source: Harvard Writing Project Bulletin special issue: Responding to student writing http://cei.ust.hk/files/public/giving_effective_feedback.pdf)

**iii. Comments**

By now we know that the teacher can give feedback either orally or in written form. Sometimes it may be just enough to write or say a few strong statements and this will contribute a lot to achieve the objectives of feedback. These comments need to be framed carefully, specifically, and in a way that the students can understand what the teacher intends to communicate.

**Characteristics of Comments used by teachers:**

The teachers have to carefully frame the comments keeping in mind the following points:

**Precise:** Normally teachers say or write good, fair, excellent, or poor. No student understands what exactly these words mean. Since it is a positive comment, they feel happy and keep quiet. This type of comment will not tell much about how they can still improve, or what aspects are good and what aspects are not that good, etc. Therefore, the teacher should use such comments that exactly tell the teacher, student, and parents what is good' 'what is excellent'. For example, in a writing exercise, the teacher can say 'cohesion well maintained' or 'appropriate vocabulary used' etc. For other aspects, additional comments are required.

**Concise:** The comments should not be too long. It needs to be very crisp and short. "sensitive to needs" "systematically done" etc will say a lot about the work.

**Understandable:** the teacher need not show his or her language mastery while giving feedback comments. Even a below-average student should be able to understand the comments written by students.

**To the point:** Only one aspect should be focused on at a time and the comment should refer solely to that aspect. If a teacher is assessing the vocabulary aspect the comments should be

related to only that aspect and it should not go beyond that like writing style, grammatical correctness, etc.

**Genuine:** No comment should be used either to praise or put down a student. The comment is given based on one's performance and not on the person. This needs to be very clear for the teacher.

**Relevant:** the comment should be highly relevant to the task and should help the individual to grow. This forward-looking principle should be kept in mind. It should be relevant to the age, class, background, and overall performance of the students.

**Appropriate:** The comment should be appropriate to the person, and his performance.
Most of the time the teachers find it difficult to frame appropriate comments which need to be shared during feedback. The following are some examples of comments regarding different traits.

**Character Traits (Positive Comments)**
The student

- _____ is confident, positive and a great role model for his/her classmates.
- _____ is frequently among the first to help and mentor other classmates. He/she is a valuable part of the classroom.
- _____ has shown excellent ability to set goals and be persistent in achieving them.
- _____ is interested in his/her learning, listens attentively, and makes a solid effort to avoid distractions that could interrupt the learning process.
- _____ is accountable and responsible. He/she makes smart decisions, admits mistakes, and listens to opportunities to improve.
- _____ relates well to classmates and is appreciative of different perspectives and experiences.
- _____ manages his/her emotions maturely and responds to feedback appropriately.
- _____ always looks for ways to be helpful in the classroom.
- _____ is dependable and reliable, follows directions effectively, and follows through on his/her commitments to him/herself and others.
- _____ is thoughtful, insightful, and thorough in written and verbal communication, and has a talent for expressing his/her ideas clearly.
- _____ works well with classmates in group work and often takes a leadership role.
- _____ shows a positive attitude with classmates in group projects and activities, and both takes and gives suggestions and directions effectively.
- _____ shows maturity when solving problems with classmates and uses good communication.
- _____ excels at applying what he/she learns in the classroom to real-world and real-life situations.
- It has been a pleasure to have _____'s enthusiasm, positivity, and maturity in my class.
- _____ is an enthusiastic member of the class and shows a willingness to learn.
- _____ shows responsible behavior, works well with a group, and shows appreciation for the efforts of classmates.
- _____ is focused during class and contributes ideas willingly.
- _____ performs independent work with confidence and focus.
- _____ works independently and takes pride in the work done well.

- _____ is focused in class and willingly participates in group discussion.
- _____ is very conscientious and shows excellent effort and care with daily work.
- _____ demonstrates a willing and conscientious effort in his/her daily work.
- _____ shows a conscientious effort to learn.
- _____ has done a great job facing and overcoming big challenges this year. Please continue to nurture and encourage this behavior over the summer.
- _____ shows responsibility and follows directions whenever they are given.
- _____ listens to and follows directions precisely and attentively.
- _____ follows directions promptly and accurately.
- _____ shows respect for teachers and peers.
- _____ treats school property and the belongings of others with care and respect.
- _____ is honest and trustworthy in dealings with others.
- _____ displays good citizenship by assisting other students.
- _____ joins in school community projects.
- _____ is concerned about the feelings of peers.
- _____ faithfully performs classroom tasks.
- _____seeks responsibilities and follows through.
- _____is thoughtful in interactions with others.
- _____is kind, respectful and helpful when interacting with his/her peers
- _____is respectful of other students in our classroom and the school community
- _____demonstrates responsibility daily by caring for the materials in our classroom carefully and thoughtfully
- _____takes his/her classroom jobs seriously and demonstrates responsibility when completing them
- _____is always honest and can be counted on to recount information when asked
- _____is considerate when interacting with his/her teachers
- _____demonstrates his/her manners on a daily basis and is always respectful
- _____has incredible self-discipline and always gets his/her work done on time
- _____can be counted on to be one of the first students to begin working on the task that is given
- _____perseveres when faced with difficulty by asking questions and trying his/her best
- _____does did not give up when facing a task that is difficult and always does his/her best
- _____is such a caring boy/girl and demonstrates concern for his/her peers
- _____demonstrates his/her caring nature when helping his/her peers when they need the assistance
- _____is a model citizen in our classroom
- _____is very hardworking and always completes all of his/her work
- _____is patient and kind when working with his/her peers who need extra assistance
- _____trustworthy and can always be counted on to step in and help where needed

**Attitude**

- _____is an enthusiastic learner who seems to enjoy school.
- _____exhibits a positive outlook and attitude in the classroom.
- _____appears well rested and ready for each day's activities.
- _____shows enthusiasm for classroom activities.
- _____shows initiative and looks for new ways to get involved.
- _____uses instincts to deal with matters independently and in a positive way.

- _____strives to reach their full potential.
- _____is committed to doing their best.
- _____seeks new challenges.
- _____takes responsibility for their learning.

**Behaviour**

- _____cooperates consistently with the teacher and other students.
- _____transitions easily between classroom activities without distraction.
- _____is courteous and shows good manners in the classroom.
- _____follows classroom rules.
- _____conducts themselves with maturity.
- _____responds appropriately when corrected.
- _____remains focused on the activity at hand.
- _____resists the urge to be distracted by other students.
- _____is kind and helpful to everyone in the classroom.
- _____sets an example of excellence in behavior and cooperation.

**Communication Skills**

- _____has a well-developed vocabulary.
- _____chooses words with care.
- _____expresses ideas clearly, both verbally and through writing.
- _____has a vibrant imagination and excels in creative writing.
- _____has found their voice through poetry writing.
- _____uses vivid language in writing.
- _____writes clearly and with purpose.
- _____writes with depth and insight.
- _____can make a logical and persuasive argument.
- _____listens to the comments and ideas of others without interrupting.

**Group Work**

- _____offers constructive suggestions to peers to enhance their work.
- _____accepts the recommendations of peers and acts on them when appropriate.
- _____is sensitive to the thoughts and opinions of others in the group.
- _____takes on various roles in the work group as needed or assigned.
- _____welcomes leadership roles in groups.
- _____shows fairness in distributing group tasks.
- _____plans and carries out group activities carefully.
- _____works democratically with peers.
- _____encourages other members of the group.
- _____helps to keep the work group focused and on task.

**Interests and Talents**

The student:

- _____has a well-developed sense of humor.
- _____holds many varied interests.
- _____has a keen interest that has been shared with the class.
- _____displays and talks about personal items from home when they relate to topics of study.
- _____provides background knowledge about topics of particular interest to them.

- _____has an impressive understanding and depth of knowledge about their interests.
- _____seeks additional information independently about classroom topics that pique interest.
- _____reads extensively for enjoyment.
- _____frequently discusses concepts about which they have read.
- _____is a gifted performer.
- _____is a talented artist.
- _____has a flair for dramatic reading and acting.
- _____enjoys sharing their musical talent with the class.

**Participation**

The student:

- _____listens attentively to the responses of others.
- _____follows directions.
- _____takes an active role in discussions.
- _____enhances group discussion through insightful comments.
- _____shares personal experiences and opinions with peers.
- _____responds to what has been read or discussed in class and as homework.
- _____asks for clarification when needed.
- _____regularly volunteers to assist in classroom activities.
- _____remains an active learner throughout the school day.

**Social Skills**

The student:

- _____makes friends quickly in the classroom.
- _____is well-liked by classmates.
- _____handles disagreements with peers appropriately.
- _____treats other students with fairness and understanding.
- _____is a valued member of the class.
- _____has compassion for peers and others.
- _____seems comfortable in new situations.
- _____enjoys conversation with friends during free periods.
- _____chooses to spend free time with friends.

**Time Management**

- _____tackles classroom assignments, tasks, and group work in an organized manner.
- _____uses class time wisely.
- _____arrives on time for school (and/or class) every day.
- _____is well-prepared for class each day.
- _____works at an appropriate pace, neither too quickly or slowly.
- _____completes assignments in the time allotted.
- _____paces work on long-term assignments.
- _____sets achievable goals with respect to time.
- _____completes make-up work in a timely fashion.

**Work Habits**

- _____is a conscientious, hard-working student.
- _____works independently.
- _____is a self-motivated student.
- _____consistently completes homework assignments.
- _____puts forth their best effort into homework assignments.
- _____exceeds expectations with the quality of their work.
- _____readily grasps new concepts and ideas.
- _____generates neat and careful work.
- _____checks work thoroughly before submitting it.
- _____stays on task with little supervision.
- _____displays self-discipline.
- _____avoids careless errors through attention to detail.
- _____uses free minutes of class time constructively.
- _____creates impressive home projects.

**Check Your Progress - 1**

1. You have been giving written feedback to your students. Use the following check list and find out whether you are taking care of the points given in the check list.

| Sl. No. | Characteristics | Yes | No | Remarks |
|---|---|---|---|---|
| 1 | referred only to the work (and not the person who wrote it, degree of effort)? | | | |
| 2 | been specific in what I'm referring to in the person's work, including at least one thing done well and at least one thing the student needs to work on? | | | |
| 3 | clearly communicated a connection with the main criteria? | | | |
| 4 | provided comments that are constructive, respectful, positive, concrete, clear, legibly written? | | | |
| 5 | used terms that students can understand? | | | |
| 6 | limited comments to the 2-4 most important components? | | | |
| 7 | focused on the most substantial aspects of the assignment in my feedback | | | |
| 8 | included some questions for the student? | | | |

2. Give the same checklist to your colleague and find out the status of their written feedback. Discuss and decide the points to be taken care of while writing feedback comments in future.

### 3.3.3.2. Peer feedback

Peer feedback may be referred to by many terms such as peer evaluation, peer critiquing, peer editing, or peer response. Peer feedback is a practice where feedback is given by one student to another. Peer feedback provides students opportunities to learn from each other. After students finish a writing assignment but before the assignment is handed into the instructor for a grade, the students have to work together to check each other's work and give comments to the peer partner. Comments from peers are called peer feedback. Peer feedback can be in the form of corrections, opinions, suggestions, or ideas to each other. Ideally, peer feedback is a two-way process in which one cooperates with the other.

Peer feedback involves providing opportunities for students to talk and listen, write, read meaningfully, and reflect on the content, ideas, issues, and concerns of an academic subject. Peer feedback can be defined as "a communication process through which learners enter into dialogues related to performance and standards." Peers should look for missing details, ask questions about parts that are confusing, and praise what they enjoyed.

According to experts in the field, there are positive effects on peer feedback in a classroom setting. First, it provides diversity with teaching compared with the traditional way of giving teacher feedback. In peer feedback sessions, students do not just listen to teacher instructions, but work with their peers and tend to get more practice. Students' anxiety may become lower which can increase learning motivation.

Second, sharing opinions with peers helps build and increase one's confidence. Clearly expressing what one is trying to say requires confidence and sufficient knowledge; people need to self-dress what to say with their knowledge or experiences. Thus, giving useful feedback strengthens one's confidence. Moreover, peer feedback helps the student to take more responsibilities in the learning process. Besides doing assignments, students have to read others' work carefully as well so that one is not only responsible for his/her work but also the others.

When peer feedback is established it allows students to interact with their peers and creates high social skills while learning material more effectively. Interaction with other students allows students to have better social approaches when interacting. Learning by peer feedback gives students more of an opportunity to work as a unit instead of individuals working alone. Working in groups gives students more useful life skills that will help prepare them for the future. Peer feedback gives more control to the student, the student can decide if they want to use the criticism their peers are giving them or not. When given options more students are more likely to give and absorb more feedback.

However, there are some drawbacks to peer feedback, too. Students respect and respond more to their teacher's feedback rather than their peers' feedback, and they often take peer feedback for granted so that they do not make corrections based on it. Thus, the teachers' strict requirement for students to do revisions is crucial for how students treat either teacher feedback or peer feedback. Besides, some students cannot give peer feedback owing to insufficient knowledge. In this case, students hardly learn from others, so peer feedback loses track of its original rationale to help the other get improvement.

According to some studies, students' view of peer feedback can be very different due to cultural differences, so the effectiveness of using peer feedback will not be the same in different situations. Some cultures encourage working together and maintaining harmony in a

group. In contrast, some other cultures encourage individual study. Therefore, it is assumed that peer feedback may be more useful in a certain learning environment.

Peer feedback is an effective strategy to improve academic achievement. However, little evidence is available about the effects of peer feedback on academic outcomes other than achievement, such as academic self-concept.

Peer feedback engages students in their learning process while taking both the roles of an examiner and examinee.

The quality and the effectiveness of peer feedback depend on characteristics of the feedback and the feedback practice employed. One of the most intensively researched feedback characteristics is feedback valence, specifying whether the feedback is positive or negative. While positive feedback can enhance both performance and perceptions of one's competencies; research has shown mixed results for the effect of negative feedback. On a theoretical level, it is argued that negative feedback may enhance efforts to improve performance. On the other side, negative feedback may be perceived as a threat to the self-concept, so that cognitive resources are shifted from the task and redirected to the self.

**Points to consider while giving peer feedback**

Here are some clues on how to do peer-to-peer assessment sensitively and effectively, so that it is a useful and positive experience for all. Peers can be well informed about the following considerations.

**Know the difference between "good" and "bad" feedback-**We all know what it is like to be on the receiving end of bad feedback: we feel 'got at', 'attacked', 'put down', and generally finish up feeling, at best, deflated, and, at worst, insecure. Some of the basic characteristics of bad feedback are that it is directed globally at the person; it is unhelpful, it does not suggest change or solutions, it is not delivered thoughtfully, and it comes from the needs of the critic rather than the needs of the person receiving it.

Good feedback should be constructive, specific, kind, justified, and relevant. This affirms the worth of the person and gives support whilst offering a new constructive perspective. In so doing, the feedback shows value in the person who is receiving it and that the giver is sensitive to their needs and goals.

This does not mean that only praise should be given; in fact, fake praise or praise directed at the person rather than what they have done can be quite counterproductive because it can feel patronizing. Any critical matters though should be raised in an overall supportive context so that this creates an atmosphere of trust.

**Top tip to keep in mind:** Helpful feedback makes a conscious distinction between the person – who should always be valued – and their work – which may be subject to critical comment.

**Be consciously non-judgmental –** offer your personal view, but remember not to act as an authority. Give your reactions and feelings rather than value-laden statements, for example, use comments like, 'I feel … when you …'. Saying things like "just a couple of thoughts", or "something to consider", are also effective ways of relaxing the conversation.

**Be positive** – say what you appreciate. Don't just focus on what you react negatively towards. The key here is to do this authentically about something that you genuinely feel, rather than because you feel something positive is required.

**Be respectful** – be constructive in your feedback, and always respect the other person's work and way of doing things. Also remember, they are still in the learning process, just like you.

**Be specific –** generalizations are unhelpful. Give your peer enough information to pinpoint the areas that you are referring to, and make sure they have a clear idea of what you are saying about those specific areas. Provide examples.

**Offer advice/solutions** – When pointing out areas for improvement, also provide possible solutions, approaching the topic in alternative ways. This will motivate them and further their learning experience.

**Be direct** – say what you mean. Don't wrap it up in circuitousness, fancy words, or abstract language.

**Be aware** – note your emotional state before you give feedback. If you are feeling anxious or defensive this may well distort your otherwise helpful comments. Be sure to approach your feedback with positivity and a spirit of learning. Think about how your feedback will be perceived.

**Be diligent –** check your response. Is it an accurate reflection of what you want to express? Have you perceived the project or assignment accurately? It can be discouraging to receive criticism from someone who hasn't paid close attention to what you have done.

**Get a second opinion**

One of the best ways to learn is to get feedback yourself, and this applies just as readily to your peer reviews. So, **ask for feedback on your feedback.** This way you will learn how your comments are perceived, and also allow you to improve your feedback-giving skills. A friend or family member may be a good audience for this. Or your mentor may be the best person to get feedback from.

**Practice giving Feedback**

Giving peer-to-peer feedback will not come naturally to everyone. The skills of delivering (and receiving) can be developed with practice. The practice is a must, and practice makes feedback perfect.

**Putting it in writing**

It is always better to make the students put in writing, the feedback, they would like to present orally. This helps them to concretize what they want to say, and avoids ambiguity in thinking and communicating. Sometimes, students say, " I did not mean that", to say that was not his point. So, putting the feedback on the paper, before expressing is a safe method.

**Check Your Progress - 2**

Have you ever tried to help your students to grow using peer feedback? If so, identify what changes you need to incorporate into this practice. If not, attempt to organize activities for peer feedback and document the results.

### 3.3.4. Let us Summarise

- The feedback can be given either by the teacher or peers.
- The teacher can give feedback orally, or in written form, or the form of just comments and explain the same. Peers also can present in different forms, but normally their feedback will be in oral form.
- Oral feedback is one of many communication forms where students receive feedback from their teacher who either corrects them implicitly or explicitly or asks them to clarify what they say.
- Oral feedback is often given informally during observations of students doing their work or of work in progress.
- Written feedback can be a powerful tool for helping students to move forward in their learning.
- Written feedback has the advantage that the student can refer to it over and over again. With oral feedback, the student may forget what was said.
- The teachers can give feedback in the form of comments. Comments need to be precise, concise, appropriate, relevant, to the point, understandable, and genuine.

### 3.3.5. Answers to 'Check Your Progress - 1 and 2'

**Check Your Progress - 1**

Both of you sit together and identify and write on a paper on what aspects you need to take care of while giving written feedback.

**Check Your Progress - 2**

Share the experiences of peer feedback activity with your colleagues and motivate them to have peer feedback sessions for the advantage of their students.

### 3.3.6. Unit end Exercises

1. Explain the nature of different types of teacher feedback and list the merits and limitations of each type of feedback.
2. Explain the concept of peer feedback and the points to be considered while giving peer feedback.

### 3.3.7. References


1. https://blog.openclassrooms.com/en/2019/06/18/how-to-give-constructive-and-useful-peer-to-peer-feedback/
2. https://www.educationworld.com/a_curr/profdev/profdev148.shtml
3. https://en.wikipedia.org/wiki/Peer_feedback
4. https://federation.edu.au/staff/learning-and-teaching/teaching-practice/feedback/types-of-feedback
5. https://elearningindustry.com/9-types-of-feedback-boost-student-engagement
6. https://www.teachthought.com/pedagogy/20-ways-to-provide-effective-feedback-for-learning/
7. https://www.theconfidentteacher.com/2012/11/
8. http://headguruteacher.com/2012/07/17/the-washing-hands-of-learning-think-pair-share/.http://headguruteacher.com/2012/07/17/the-washing-hands-of-learning-think-pair-share/.
9. https://www.prodigygame.com/blog/report-card-comments/
10. https://research-advances.org/index.php/IJEMS/article/download/445/464

11. https://www.theconfidentteacher.com/2012/11/oral-formative-feedback-top-ten-strategies/
12. https://iad4learnteach.wordpress.com/2015/06/05/the-power-of-oral-feedback/https://iad4learnteach.wordpress.com/2015/06/05/the-power-of-oral-https://iad4learnteach.

# Block 3 : Data Analysis, Feedback, and Reporting

## Unit 4 : Marks System and Grade System

**Unit Structure**



### 3.4.1. Learning Objectives

After completing this Unit, the student teachers will be able to

- Analyse the nature and limitations of the marks system;
- Explain the nature and limitations of the grading system; and
- Make a judicial selection of procedures to evaluate students' achievement.

### 3.4.2. Introduction

We have understood the importance of evaluation in the whole educational system. An equally important aspect is the scoring and interpretation of scores in tests and examinations. Tests and examinations are conducted to know the achievement levels of students. If you glance at the history of examinations in India, you come across that in the past the performance of students was solely assessed through the traditional system of written examination. Judgments regarding the academic achievement of students were passed based on marks obtained in the written examination. The tests were scored in terms of marks and this system is known popularly as marks system or marking system. In the past decades, the different educational commissions analysed the evaluation system in India, including the examination system, and identified the major limitations of the same, and made significant recommendations in this regard. These commissions emphatically suggested replacing the 'grading system' in the place of 'marking system' or 'marks system'. Let us contemplate on these two systems of evaluation and try to understand the pros and cons of each one of these procedures.

### 3.4.3. Learning Points and Learning Activities

#### 3.4.3.1. Marking System – Meaning, Characteristics, Merits, and Limitations

This system of examination is followed in almost all kinds of examinations like Annual system, Semester system, Open-book, and Continuous internal assessment. In this system, the students are given marks for their achievement in various areas. This system is being followed from time immemorial. Although the system is now on a rejection line, it helps us accurately ordering and ranking the students.

**Definition of Marking System**

A test is administered to students to assess their performance and mastery in different subject areas. Typically, the level of student performance is expressed in terms of numerical scores which is popularly known as marks. The system of evaluating the performance and achievement of students based on numerical scores is called the marks system.

Though the marking system appears to be an absolute scale indicating the exact level of students' achievement, in reality, this is a relative scale. The real meaning of marks can be drawn when the marks of an individual can be compared to those assigned to other students.

A mark in many ways is a judgment of one person by another and it gives information about the persons who are being judged. Many educationists believe that there is nothing wrong with encouraging this system as it enables us to point out the level of achievement of students. All that is required is to plan and execute the tests with appropriate procedures and scientifically interpret the results.

There is no doubt that the marks system has its advantages. It satisfies rank holders. It is easy to rank the students. Teachers' task is easy in this system. Students work hard for achieving higher positions in class. A feeling of competition forces them to learn more than others. Parents get accurate information about the performance of their wards.

Despite all these, today's marking system as it is in practice is not found to be as beneficial as it is expected. It suffers from several limitations. It is not transparent enough to show the extent of achievement or competencies of students in a particular subject. Its results are not valid. It does not test accurately and comprehensively what it intends to test. The knowledge or competencies of students gained throughout the year/ semester is assessed within 3 hours. This means it does not measure all that is expected to be measured. In the markings, system scores are expressed on a scale that ranges from 0-100 or 0-101 scale. The levels of performance are measured using this scale based on cut off marks fixed by the teacher or the educational board. There is no scientific rationale to fix this cut off marks. Those who score above 60% will be considered as first-class, between 50% and 59% are considered as second class and those who score below 40% are considered as failures. It is difficult to differentiate the achievement level of those who scored 59% and 60%. If it is a free answer type examination, there are all chances of the same teacher giving 60% to the student who scored 59%, if he evaluates the same paper again. Hence this marks system is not valid and reliable. There is a certain amount of subjectivity involved in this type of system.

Apart from this, there are a few more limitations to this system. It promotes an unrealistic philosophy among students, teachers, and parents that scoring marks are the sole aim of life. It promotes a rat race for marks among students. It pressurizes students to achieve better than their peers. Societal pressure will make students stressed. This system results in suicidal tendencies among slow learners. Variation in marks of different teachers de-motivates students. There can be bias in giving marks. Its focus is on marks not on a healthy learning environment. It adversely affects the interpersonal relations among students.

Misclassification of students based on marks is a major disadvantage. Getting low marks leads to several behavioural problems.

The educational commissions that analysed the system of education in India, including the evaluation system, identified and documented these limitations of the marking system and recommended an alternative system through which we can minimise the adverse effects of the marks system and that is the "grading system". Let us understand the meaning and advantages of this grading system.

**Check Your Progress - 1**

You as teachers have experienced the consequences of both the marking and grading system. Reflect on the merits and limitations of each procedure and list your suggestions in this regard

### 3.4.3.2. Grading System – Meaning, Characteristics, Merits, and Limitations

You have already learned about the meaning, nature, types, and approaches, and limitations of grading in detail under 1.6.3.2. of this course. Hence, let us briefly recapitulate the meaning and limitations of grading and understand the nature of the present grading system in India.

Marks indicate raw scores in a test. A raw score on a test has practically little significance without additional data for interpreting it. Raw scores or marks only indicate measurement and do not carry meaning attached. Grades on the other hand are indices of evaluation signifying that value judgments have been placed with the help of some criteria. In all the methods of grading, an attempt is made to identify relatively uniform score intervals in a hierarchical order from 'very poor' to 'superior performance'. Then, to each score range, a symbol mostly a letter is associated to indicate the corresponding level of performance. However, the size of the score range depends on the reliability objectives of the test.

"Grades are standardized measurement of varying levels of comprehension within a subject area." Grades are the criteria in which students' marks are placed and judged. Grades can be assigned in letters (for example, A, B, C, D, or F), as a range (for example 91-100, 81-90), as descriptors (Excellent, Great, Satisfactory, Needs improvement), in percentages, or, as is common in some post-secondary institutions, as a Grade Point Average (GPA).

**How does the Grading System Work?**

The main objective of grading is to place a value upon the quality of students' performance. The grading process depends on many things such as the nature of the subject matter, the difficulty of the question paper, the intellectual abilities assessed by the question, and precision required in the evaluation programme.

**Advantages of Grading System**

The grading system is supposed to have the following advantages:

**Avoiding Low Score Pressure:** One of the merits of the CBSE Grading system is it lowers the pressure of students to score high marks because, in the grading system, the real marks acquired by the student are not written on the report cards. The reason behind this is that students must not target scoring excellent marks but to accomplish excellent grades.

**Grading Pattern:** The grading system lays a sophisticated pattern, as the grades are awarded to the students not only based on academic performance but also on other things such as attendance, accomplishments, assignments, etc. are also considered while making a decision.

**Easy Classification:** With the introduction of the grading system, educators can classify the students into distinct groups such as bright, average, and under-average students. As a result, educators will have a clearer idea of providing mentorship to average and under-average students.

A few more merits of the grading system are as follows:

- The degree of achievement of an individual student is communicated effectively to stakeholders.
- The judgmental quality of marks is done away with, leading to a stress-free learning environment in schools.
- Misclassification of students based on marks is minimized.
- Unhealthy cut-throat competition among high achievers is minimized.
- Societal pressure is reduced.
- The focus is on a better learning environment.

**Disadvantages of Grading System:**

- **Diminishing Students Performance:** The decrease in students' performance is one of the demerits of the new grading system in CBSE. Students know that without putting in their effort, they can achieve the targeted grade point. So, if a student's target is A grade, they know that if they get 90 marks, they are going to be placed under A grade so they don't target 100 marks.
- **Students Lose Competitive Spirit:** Students are becoming lazy and dropping their academic level because they concentrate on achieving the passing marks instead of focusing on getting the greatest marks, thus resulting in lower competitive spirit among students.
- **Misses out Details:** While the CBSE grading system helps students belonging to below average and average bracket, it also ignores or fails to recognize the details of the bright minds. Learners belonging to the 90-100 are considered to be of the same aptitude whereas, this could not hold for all the cases.

A few more limitations of the grading system are as follows:

- It does not necessarily eliminate the possibility of misclassification depending on the variability and reliability of the test.
- It subjects the abler students to a disadvantage and poorer ones to an advantage.
- The possibility of assigning wrong grades in the neighborhood of cut scores is also substantial

**Grading System in India**

The grading system in India varies somewhat as a result of being a large country. The most predominant form of grading is the percentage system. An examination consists of several questions each of which is given credit. The sum of credit for all questions generally counts up to 100. The grade awarded to a student is based on the percentage obtained in the examination. The percentage of all subjects taken in an examination leads to the grade awarded at the end of the year. The percentage system is used at both the school and university.

**CBSE Grading System**

CBSC has adopted a different system than the one mentioned above. It comprises of Absolute & Percentile Marks awarded by teachers based on the performance of candidates. In the last two years, CBSE has changed its grading system twice, making it more advanced.

The number of students enrolled under CBSE for a particular academic session plays a vital role in deciding the grade a candidate will be awarded.

Given below is the table that will explain more about the same:
(Source: CBSE Grading System [2020 Update]https://leverageedu.com/blog/cbse-grading-system/)

| Qualification | Grade |
|---|---|
| Top 1/8th of the passed students | A1 |
| Next 1/8th of the passed students | A2 |
| Next 1/8th of the passed students | B1 |
| Next 1/8th of the passed students | B2 |
| Next 1/8th of the passed students | C1 |
| Next 1/8th of the passed students | C2 |
| Next 1/8th of the passed students | D1 |
| Next 1/8th of the passed students | D2 |
| Next 1/8th of the passed students | E |

**Check Your Progress - 2**

Identify the correct statements and indicate with '√' mark.

1. Grades are used only for subject areas.
2. Grades are standardized measurements
3. Grades are popular since ancient time
4. Grades are less scientific than marking system
5. The main objective of grading is to motivate students to learn further
6. Both marks system and grade system have their own merits and limitations
7. Grades are popular today at all levels of education in India.

**3.4.4. Let us Summarise**

- A test is administered to students with the aim of assessing their performance and mastery in different subject areas. Typically, the level of student performance is expressed in terms of numerical scores which is popularly known as marks. The system of evaluating the performance and achievement of students based on numerical scores is called marks system.
- Though marking system appears to be an absolute scale indicating the exact level of students' achievement, in reality, this is a relative scale. The real meaning of marks can be drawn when the marks of an individual can be compared to those assigned to other students.

- Grades are indices of evaluation signifying that value judgements have been placed with the help of some criteria.
- "Grades are standardized measurement of varying levels of comprehension within a subject area."
- Grades are the criteria in which students' marks are placed and judged.
- The main objective of grading is to place a value upon the quality of students" performance. The grading process depends on many things such as nature of the subject matter, the difficulty of question paper, the intellectual abilities assessed by the question and precision required in the evaluation programme.
- Both marks system and grade system have their own merits and limitations

### 3.4.5. Answer to 'Check Your Progress - 1 and 2'

**Check Your Progress -1**
Have a discussion about these aspects with your colleagues and share your observations and document your tentative conclusions.

**Check Your Progress – 2**
2 and 6 - '√'

### 3.4.6. Unit end Exercises
Explain the features of marks system and grade system and analyse the relative merits and limitations.

### 3.4.7. References

1. https://leverageedu.com/blog/cbse-grading-system/
2. https://www.youtube.com/watch?v=VC3t28Elu6Msta
1. https://study.com/academy/lesson/absolute-vs-relative-grading-in-the-classroom.html
2. https://www.sciencedirect.com/topics/social-sciences/qualitative-assessmenthttp://shodhganga.inflibnet.ac.in/bitstream/10603/88860/1/chapter%201.pdf

# Block 3 : Data Analysis, Feedback, and Reporting

## Unit 5 : Feedback for Strengthening Self-esteem, Motivation, and Identity of all the Learners including Children with Special Needs

**Unit Structure**



### 3.5.1. Learning Objectives

After completing this Unit, the student teachers will be able to

- Explain how to strengthen self-esteem in the process of feedback
- Explain how to strengthen motivation in the process of feedback; and
- how to strengthen identity in the process of feedback

### 3.5.2. Introduction

We have already seen the meaning, nature, characteristics, and types of feedback. Normally teachers give feedback to enhance the learning of students. Though that should be the prime objective it should not end up only with helping students to learn. Teachers should help students to strengthen their self-esteem, motivation, and identity. In reality, these psychological aspects, directly and indirectly, help students to learn better. Hence in this unit, let us understand the specifications that need to be considered while giving feedback with a special focus on strengthening the self-esteem, motivation, and identity of students.

### 3.5.3. Learning Points and Learning Activities

#### 3.5.3.1. Feedback for Strengthening Self-esteem

Self-esteem is confidence in one's worth or abilities; It is an individual's subjective evaluation of their worth. Self-esteem encompasses beliefs about oneself (for example, "I am unloved", "I am worthy") as well as emotional states, such as triumph, despair, pride, and shame. Experts in the field define Self-esteem as the positive or evaluation of the self, as in how we feel about it.

A feedback situation is an ideal situation to develop or boost self-esteem among students. Using this situation self-esteem can be successfully fostered both among regular children and children with special needs. Growing with low self-esteem is the major and common problem of children with special needs. Both family and society may affect the self-esteem of these students. Hence, teachers should take the responsibility of boosting their self-

esteem and help to grow to their heights. Let us analyse the strategies of feedback to develop and boost self-esteem among children.

If strategies are to be effective, the teachers using them must possess a positive mindset, or set of assumptions, about themselves and their students. Some of the main features of this mindset are:

- Every student desire to learn and be successful in school. If they are not, we must strive to understand the nature of their learning problems.
- If students are demonstrating self-defeating behaviours, such as quitting, or not trying, or acting like the class clown or class bully, we must recognize these are ineffective coping strategies that often mask feelings of low self-esteem and hopelessness. Rather than impose punitive consequences, we must ask how to minimize the despair these youngsters experience every day.
- If we are to lessen the use of these ineffective coping behaviours, we must adopt a more hopeful, positive approach. We must be comfortable in making accommodations when needed.
- Each child or adolescent possesses "islands of competence," or areas of strength, that must be identified, reinforced, and displayed by educators. A strength-based model does not deny the child's problems but recognizes the importance of using the child's strengths as an important component of any intervention program.
- We must actively invite and involve students in the process of their learning.

If one accepts the tenets of this mindset, then it is easier for offering guideposts for bolstering self-esteem. Hence the teachers should accept the students as they are, have great faith in their abilities, faith in their capacity to change, and also exhibit high confidence in changing their behaviour.

Following points need to be considered while giving feedback to boost the self-esteem of students:

**Identify the positive points in their work:** Every child is good at something. The teachers need to identify these positive points in a child's ability. These areas may not be the areas related to the feedback that the teacher is going to give, but it helps in a long way to boost the self-esteem of students. There are situations where the child may say, 'I tried very hard teacher, still I am not getting'. The teacher can say, 'don't worry. You are capable of learning this. You have shown your ability in many areas. You can achieve this also'. These words increase the self-esteem of students.

**Suggest the points to improve without highlighting much on their negative points:** Tell them what they are supposed to do further, rather than repeating what they did not do. Positively put everything.

**Make their work obvious:** Students will do at least a part of their work correctly. Attempts to reach the goal can be seen. Highlight what they have done properly, even if the proportion of it is very small.

**Avoid comparing with others:** Focus only on the present student and his/her work, as you give feedback. Do not mention how others have done, even if others have done better. Develop confidence by saying "you will succeed provided you continue in this way".

**Show them their growth:** Collect data about their previous work. Identify how the students have grown during the previous semesters or sessions. Make their growth very obvious to them.

**Highlight their abilities:** From the data collected, identify their abilities. For example, if you have found that they are
punctual, hardworking, etc make much of it and help them to develop confidence by giving examples from their past work or work in other fields

**Start feedback with an appreciating statement:** Never start your feedback from a negative statement. A teacher can start giving feedback with statements like, " I am proud to work with you, I am happy about the way you are working". As you proceed you can open up the limitations of their work and give suggestions.

**See that each point of the feedback is constructive:** A teacher cannot just find fault and close the feedback session. Every drawback should be associated with tips to improve the same. "Instead of doing like this, I think, you can do this way". This type of statement will help students.

**Watch their mood and confirm that they are ready to receive feedback:** A teacher should not give feedback when she/he is ready. Instead, the readiness of students to receive feedback needs to be checked. The teacher can directly ask the students, "Shall we sit and discuss the work you have presented".

**See that the voice and tone are pleasant and not harsh:** The teacher needs to be very clear about the point that not only the content of feedback is important, the process of giving feedback also is important. Sometimes, even a raise in the teacher's voice may disturb students. Therefore, the teacher needs to be very pleasant, soft while giving feedback.

**Do not point out anything as 'wrong' and instead be suggestive:** The teacher needs to avoid telling students directly that something is 'wrong'. Many times the students work with their perspective. So, it is better to clarify why the work is done in 'that particular way'. There are chances of students being correct also. The teacher can place in front of students other ways of tackling the problem.

**Avoid associating the work of students with marks or grades and scaring them:** The main purpose of feedback is purely to help students to learn better. The students should not be made to get scared or depressed with statements like, "if you continue to do this way, you will fail in the examination". These types of statements adversely affect the self-esteem of students.

**Help them to challenge negative thoughts:** Sometimes students share their inability to do things. One can identify that they have low self-esteem. "I tried teacher to do the best. But I could not. I am good for nothing teacher". The student may genuinely share his/her feelings. In such a situation the teacher, during feedback should help the child to challenge the negative thoughts. The student needs to be made aware of the
strategies to challenge these negative thoughts

**Help them to set goals:** There are specific reasons for not succeeding in academics. Very important among those is that these students do not set goals properly. They do not train themselves to plan systematically. Despite proper motivation and hard work, they have no proper plans. For such students, the teacher should help to set proper goals. When and for how long a particular subject should be studied, what aspect of the subject should be studied etc should be planned well which needs to set proper goals by students. This makes their learning effective and develops confidence among them.

**Teach students to cope with mistakes and failure:** Fear of failure is a powerful thing. The teachers need to make the students understand that dealing with failure is an integral part of learning. Prepare them in such a way that fear of mistakes and failure does not affect their learning and growth. Avoid statements like, "How often do I have to repeat myself?" or "Were you listening carefully?"

**Help them to make decisions:** Instead of the teacher suggesting everything the teacher can ask, 'how do you think you can move further' or 'which is the best way to achieve success in the field according to you" . Like this, the students should be allowed to make decisions about their work. If they are good, motivate them by saying, "fantastic, it's a good idea, proceed in the same manner".

**Check Your Progress - 1**

By now you have understood the concept and characteristics of effective feedback as well as the concept of self-esteem. You have experienced how children feel with low self-esteem and related problems. Make an action plan to deal with any such two children.

**3.5.3.2. Feedback for strengthening Motivation and Identity**

There is ample research support to believe that feedback can strengthen the motivation of students. Suggestive and formative feedback rather than negative feedback is more effective in strengthening motivation.

Motivation is an internal state characterized by the adoption of goal-directed behaviour. It plays a role in learning because it arouses students' attention. Research shows that students with higher motivation persist longer in the face of challenges, learn the material at a deeper level, and score higher on exams compared to their less-motivated peers.

Whereas intrinsic motivation stems from students' engagement with a task for the sheer enjoyment and challenge of doing the task, extrinsic motivation is derived from sources outside of the task itself, such as instructor praise and good grades. Although research shows that students *can* regulate their motivation, it has been pointed out that environmental and personal factors may prevent them from being able to do so successfully. Fortunately, instructors can act at several levels to enhance students' motivation. This implies that the teacher has a great role to play in boosting the motivation of students and feedback sessions can do this in a meaningful way. The following points are important to motivate students through feedback.

While giving feedback as a part of the evaluation, the teacher needs to

- give feedback on time.
- be specific and constructive
- perceive evaluation, not as a process of identifying limitations but a process of helping students to celebrate their learning.

- build trust among students about himself and students themselves.
- interact throughout learning and identify areas of improvement to motivate students further.
- use the positive points to boost motivation.
- be genuine and give realistic observations
- involve three aspects of feedback, namely, the description of the event, feeling, and the result of what the student has performed. For example, “your presentation made me feel proud and this will certainly make your further learning easy and effective”.
- focus on helping students to develop an internal drive to succeed, without the reliance on external motivators.
- help students to set goals and proceed.
- make efforts in such a way that learning becomes a passion for students
- show the real-life relevance of what the students are learning;
- develop a sense of ownership and accountability for their learning
- involve the students actively in the process of feedback
- develop a supportive environment
- give prominence for students’ choices and ideas
- help students to connect to the content or topic that they are learning
- suggest the outputs of the task in which the students are involved, i.e., joy and interest, and satisfaction. This is known as intrinsic feedback.
- to know that frequency of feedback should be more in the beginning than in later stages.
- give information through feedback that supports the learner’s sensory information. For example, a teacher can show a video of a student reading a passage. This provides the student with an opportunity to detect his or her errors and this clarity motivates the child further. This is known as augmentative feedback.
- give feedback after the completion of the task. After the child reads the teacher can say, “After observing your reading, I noticed that you have learned reading fluently but you need to learn to read with the expression”. This is known as terminal feedback.
- to give feedback during the execution of a skill. This is known as concurrent feedback.
- give positive feedback in forms of verbal or gestures
- give descriptive feedback that allows students to pinpoint what they need to improve and how they can fix the issue and motivate them further.
- should not give more corrective feedback and less evaluative feedback on his or her performance, with which he or students
- can easily lose interest and motivation in the task at hand.
- use self-competitive tasks rather than peer-competitive tasks. For example, to read with more expression than the previous attempt. The individual is more confident of getting positive feedback and get motivated.

**Fostering identity**

Our identities are who we are, who we’ve been, and whom we will become. It is, therefore, essential to fully understand identity before making potentially life-changing decisions. Self-identity refers to the descriptive characteristics, qualities, and abilities that people use to define themselves. Self-esteem is a concept very similar to self-identity but includes a value judgment about one's identity.

All the strategies explained above to foster self-esteem and motivation will help in fostering identity also. Along with these strategies, the teachers need to take care of the following to foster the identity of students.

- Help students to analyse what they are, their capabilities, skills, etc.
- Encourage their abilities and skills
- Ask them how they want to describe themselves. Appreciate their personality attributes.
- Find if there are any discrepancies. If so, help them how to handle it.
- Make them figure out what they want to be in the future
- Encourage their ideas and interest
- Support their positive perceptions.
- Some care has to be taken in the case of children with special needs. A disabled person may not identify themselves as 'disabled'. They do not want others also to identify them like this. The teacher needs to clarify this issue. Enlightening people not to label such people as 'disabled' is the responsibility of the teacher. But during feedback, she/he should prepare the students to face such situations with confidence.

**Check Your Progress - 2**

You have understood the advantages of feedback. As you know there is a need for giving feedback to the whole class as well as for individual students. Plan a feedback session that helps to motivate students to learn further, execute the same, and document your observations. Request one of your colleagues to be present while you give class feedback. Take feedback from them. (provide them a Teacher Observation Guide with the indicators of effective feedback)

### 3.5.4. Let us Summarise

- Self-esteem is confidence in one's worth or abilities; self-respect. It is an
- individual's subjective evaluation of their worth. Self-esteem encompasses beliefs about oneself (for example, "I am unloved", "I am worthy") as well as emotional states, such as triumph, despair, pride, and shame. Experts in the field define Self-esteem as the positive or evaluation of the self, as in how we feel about it.
- A feedback situation is an ideal situation to develop or boost self-esteem among students. Using this situation self-esteem can be successfully fostered both among regular children and children with special needs.
- If strategies are to be effective, the teachers using them must possess a positive mindset
- Some of the points to be considered to develop self-esteem are: Identify the positive points in their work, Suggest the points to improve without highlighting much on their negative points, Make their work obvious, Avoid comparing with others, Show them their growth, etc
- Motivation is an internal state characterized by the adoption of goal-directed behaviour. It plays a role in learning because it arouses students' attention. Research shows that students with higher motivation persist longer in the face of challenges, learn the material at a deeper level, and score higher on exams compared to their less-motivated peers.
- Some of the points to be considered to motivate students are: give feedback on time, be specific and constructive, perceive evaluation, not as a process of identifying limitations but a process of helping students to celebrate their learning, build trust among students about himself and students themselves, interact throughout learning and identify areas of improvement to motivate students further.

### 3.5.5. Answers to ‘Check Your Progress - 1 and 2’

**Check Your Progress - 1**
Share your action plan with your colleagues and take their suggestions before you execute it.

**Check Your Progress - 2**
Share your experiences with other colleagues.

### 3.5.6. Unit end Exercises

1. Explain how self-esteem can be developed through the process of feedback.
2. Analyse the points to be taken care of a teacher in the process of feedback to enhance motivation and identity

### 3.5.7. References


1. https://www.teachstarter.com/au/blog/good-feedback-key-improvement/
2. https://ablconnect.harvard.edu/fostering-motivation
3. https://www.researchgate.net/publication/283781036_Enhancing_Students'_Motivation_by_Providing_Feedback_on_Writing_The_Case_of_International_Students_from_Thailand
4. https://cdn.ymaws.com/www.palibraries.org/resource/collection/856E9C9B-66A8-4202-A932-B1C47BC15AB0/Breakout_3.Barefoot_Using_Effective_Feedback_to_Increase_Student_Motivation.pdf
5. https://blog.brookespublishing.com/7-ways-to-foster-self-esteem-and-resilience-in-all-learners/
6. .( https://doi.org/10.1016/j.chb.2015.01.038
7. https://www.greatschools.org/gk/articles/teachers-foster-self-esteem-in-children/

# Block 3 : Data Analysis, Feedback, and Reporting

## Unit 6 : Developing and Maintaining a Comprehensive Learner Profile

**Unit Structure**



### 3.6.1. Learning Objectives

After completing this Unit, the student teachers will be able to

- Explain the meaning and nature of learner profiles;
- Analyse the importance of learner profiles to teachers and students; and
- Prepare good learner profiles.

### 3.6.2. Introduction

All of us, as teachers have experienced the fruit of building a good relationship with our students. Getting to know our students not only increases trust and engagement, but it also helps us differentiate instruction and personalize learning.

The more we as teachers know about our students' background, strengths, knowledge, and learning style, the better we can target instruction toward the child's learning needs. Studies show that knowledge of individual students does have a measurable positive impact on achievement.

Have you made attempts to collect such information about your students? I am sure you have attempted to do so. But the way you have collected and documented may not be as systematic as it is expected of you. A crude way of doing this will not help much. We need to take up this task in a systematic manner to get the maximum benefit out of it. The product of the process of collecting information by the teacher or students collating information about themselves in a systematic and useful manner is known as a 'learner profile'. In this unit let us understand the meaning, importance, and procedure of preparing these learner profiles.

### 3.6.3. Learning Points and Learning Activities

### 3.6.3.1. Meaning, Nature, and Importance of Learner Profiles

**What Is a Learner Profile?**

A learner profile is a document, project, or even conversation that helps teachers learn more about their students.

**Nature of Learner Profile**

Learner profiles may include information such as:

- Skills, strengths, and interests
- Aspirations and passions
- Likes and dislikes
- How the student likes to learn
- things they're good at
- interests
- hopes and dreams
- important people in their lives
- pets
- life experiences (activities, places, kinds of people they like)
- things that make it difficult for them to learn
- what they do when they need help
- how they describe and experience school
- what makes them excited, grumpy or frustrated and how they express this
- about their support team
- examples of supports that have worked in the past.
- Struggles or potential barriers to learning
- Anything else the student or teacher deems important

It can take the form of a formal document or process, or can simply be a series of conversations with students.

Learner profiles can make recommendations about what is needed to support learning.

**Importance of learner profiles**

Learner Profiles help teachers know more about their students. It is beneficial for both the student and the teacher to know the student's interests and strengths.

It gives students the ability to express:

- who they are?
- address assumptions people may have about them or their disability
- express their aspirations and passions
- have a say in what goes on for them at school and in their learning

**Benefits for Teachers**

Teachers can use learner profiles to build effective relationships, develop an inclusive classroom, and understand what technology, differentiation, or adaptations may be needed for individual students.

Teachers can use the data from these profiles to help guide students with the personalized choices they make about their learning.

Learner profiles can help school staff build relationships with students and understand things from their perspective. This can inform planning, classroom layout, timetabling, and supports to enable students to participate and contribute to all classroom learning.

Learner profiles can be created for a variety of purposes. The purpose is agreed upon between the student, parents, and the teacher. This will inform the discussion, questions, and

information provided by learners and their families. It's useful to develop a profile of all students and to use this as the basis of a class profile.

- recognise and remove potential barriers to learning at the outset
- design learning environments and opportunities that build on student interests and experiences to maximise engagement
- select curriculum materials and content that students will be able to access
- offer a range of options for demonstrating thinking and learning that will work well for students
- support positive transitions to new environments. Alongside assessment data, a learner profile supports teachers in knowing about the learner, providing information from the student's perspective.

**Check Your Progress - 1**

I am sure you have made attempts to collect information about your students. Reflect on such efforts and the information you collected and list how that data helped to plan your instruction

**3.6.3.2. Creating and maintaining Learner Profiles**

Learner profiles can be created by the student or collaboratively with parents and teachers. Senior students may prefer to just have a conversation. Before developing a learner profile, the teacher has to discuss with the student and their parents.

The easiest and most effective way to generate learner profiles is to have the students create their own. Student-created learner profiles can take the shape of a PowerPoint presentation, video, letter, infographic, poem, and so on. These profiles can incorporate both words and visuals that describe the student.

In keeping with the overall purpose of the profile, a teacher can provide students with a variety of choices. Give students a list of questions, then explain that they can respond to the questions using a variety of tools, including:

- PowerPoint
- Google Slides
- Prezi
- Piktochart (allows students to create infographics)
- Windows Movie Maker

The format each student chooses will give you even more information about their learning style and preferences.

If, on the other hand, you want to easily compile this information, you may prefer to assign your students a survey using tools such as Google Forms or Survey Monkey.

Google Forms collects responses in a spreadsheet and allows you to view individual responses, and with Survey Monkey you can create custom charts, see a summary view of your data, and browse individual responses.

One does not have to use technology to create a learner profile, but using technology can help facilitate the process. You can create a survey to find out more about each one of your students or have them create a project that depicts their personality.

**Learner Profile:** A simple learner profile prepared by the student is given below. Other areas can be added as per the need of the teacher.

| **Learner Profile – An Example** | | |
|---|---|---|
| **Name: ARUN KUMAR**<br>**Class: 7th standard**<br>**Section: 'A' Section** | | |
| **Sl. No.** | **Areas** | **Description** |
| 1 | Learning Styles | I learn when the content is presented either on the blackboard or a chart or a computer screen<br>It is easy for me to learn when I See what I am learning.<br>The problems have to be worked out on the board for me to learn. |
| 2 | Interests | Singing, dancing, playing football, observing nature |
| 3 | Learning speed | Average speed |
| 4 | Learning needs | Need explanation with examples and illustrations.<br>I cannot stand vague statements, I need better when content is presented in print form, I cannot understand teacher's handwriting |
| 5 | Strengths | I make friendship very fast<br>I have a beautiful handwriting<br>I can read text fluently<br>I can sing well on the stage.<br>I can be calm<br>I do not take hasty decisions |

**Management of Learner Profiles**

The learner profiles can be prepared either by the teacher or students and maintained at different levels

- School-level
- Class level
- Or at both levels

The information needed by the teachers and the school administrators will be different. So, a teacher can encourage students to prepare their profiles fulfilling the data required by the administrators.

The teachers can prepare the profiles of their students including all the information required by the teacher and students. This becomes handy for teachers to plan instruction and other activities.

This gives data for students also needed for their work as well as to plan activities for the whole class

**Check Your Progress - 2**

Create learner profiles of students and identify how the data of these profiles helped you to make better instructional plans

### 3.6.4. Let us Summarise

- A learner profile is a document, project, or even conversation that helps teachers learn more about their students.
- Learner profiles may include information required by the teacher and administrators.
- It can take the form of a formal document or process, or can simply be a series of conversations with students.
- Learner profiles can make recommendations about what is needed to support learning.
- Teachers can use learner profiles to build effective relationships, develop an inclusive classroom, and understand what technology, differentiation, or adaptations may be needed for individual students.
- It has many advantages for students and administrators also.
- Learner profiles can be created by the student or collaboratively with parents and teachers. Senior students may prefer to just have a conversation. Before developing a learner profile, the teacher has to discuss with the student and their parents.
- The easiest and most effective way to generate learner profiles is to have the students create their own. Student-created learner profiles can take the shape of a PowerPoint presentation, video, letter, infographic, poem, and so on. These profiles can incorporate both words and visuals that describe the student.

### 3.6.5. Answers to 'Check Your Progress - 1 and 2'

**Check Your Progress - 1**

Share your reflections with other teachers in your school and collect information about their similar experiences.

**Check Your Progress - 2**

Share your observations with your subject colleagues.

### 3.6.6. Unit end Exercises

Explain the meaning, importance, and procedure of a learner profile.

### 3.6.7. References


1. https://www.inclusive.tki.org.nz/assets/inclusive-education/resources/files/Developing+Learner+Profiles+infosheet.pdfhttps://knowledgeworks.org/resources/learner-profiles-what-why-how/
2. https://www.theedadvocate.org/heres-everything-need-know-learner-profiles/
3. http://www.21things4teachers.net/PD-Modules/Personalized-Learning-in-the-Classroom/Learner-Profiles.html
4. UDL – Student profiles www.udlresource.cal/?p=1632

# Block 4: Examination Reforms

## Unit 1: Issues and directions on Examination reform efforts recommended by Educational Commissions and Committees

**Unit Structure**



### 4.1.1. Learning Objectives

After completing this Unit, the student teachers will be able to

- Explain and analyse the recommendations of the Secondary Education Commission (1952-53) on examination reforms;
- Explain and analyse the recommendations of the Kothari Commission (1964-66) on examination reforms;
- Explain and analyse the recommendations of National Policy on Education (1986 and Programme of Action (1992) on examination reforms; and
- Explain and analyse the recommendations of National Curriculum Frameworks - 1975,1988, 2000, and 2005 on examination reforms.

### 4.1.2. Introduction

Education is not static. It has to change according to the changing social, political, and economic conditions of the society. This implies that the system and content of education should keep changing from time to time. But who will decide what changes need to be incorporated? For this purpose, our government appoints different committees and commissions to survey and analyse the educational scenario at different periods and give suggestions/recommendations that are appropriate to contemporary situations. After the dawn of independence, when the slogan of reorientation of education came from all quarters, the case for examination reform received a proper place. So reforms in the examination have been a subject of serious discussion for a long. Examination reform has been a subject of almost consistent consideration by various committees and commissions appointed by the Government of India from time to time.

Let us understand the different recommendations of such commissions about the examination system in the present unit.

### 4.1.3. Learning Points and Learning Activities

#### 4.2.3.1. Recommendations of the Secondary Education Commission (1952-53) on Examination reforms

Analysing the system of examination and suggesting important recommendations was one of the objectives of the Secondary education commission. Accordingly, the following recommendations have been given about the examination system in India.

A major goal of examination reforms should be to improve the reliability and validity of examinations and to make evaluation a continuous process aimed at helping the student to improve his level of achievement rather than at 'certifying' the quality of his performance at a given moment.

The problem of examination is the most taxing problem of education. The unfortunate consequences of the present system of examinations are before our eyes. If we can solve it satisfactorily, there will be a great relief to the students and the very face of education will be different.

To reform the examination system in our country, the Mudaliar Commission laid stress on the use of objective type tests and internal assessment. This Commission boldly suggested that the certificate of the student should bear his complete performance but there should be no remark to the effect that he has passed or failed in the whole examination. The following are the major recommendations of the secondary education commission regarding examinations:

- The number of external examinations should be reduced.
- There should be a minimization of subjectivity by introducing objective tests of attainment and by changing the type of questions.
- Cramming should be discouraged and rational understanding should be encouraged.
- It is undesirable to set two papers of 03 hours duration each on one day and the same day.
- To find out the pupil's all-around "progress, a proper system of school records should be maintained for every pupil.
- In the final assessment of the pupil's due credit should be given to the internal tests and the school records of the pupils.
- The system of symbolic rather than numerical marking should be adopted for evaluating and grading the work of the pupils in external and internal examinations and in maintaining the school records. A five-point scale may be used: A (excellent), B (good), C (fair and average), D (Poor), E (very Poor).
- There should be only one public examination after the secondary school course.
- The system of compartmental examination should be introduced at the final public examination.
- A candidate who has passed the examination and wishes to qualify in any additional subject(s) may appear at a subsequent examination.
- The certificate awarded should contain the results of the school tests in subjects as well as the gist's of the school records besides the results of the public examination in different subjects.

**Check Your Progress - 1**

Identify the correct statements related to the recommendations of
Secondary Education Commission on examination reforms, using '√' mark

1. Certifying' the quality of performance of students at a given moment.

2. Improving reliability and validity of examinations
3. Making evaluation a continuous process
4. Helping students to improve their level of achievement
5. Helping students to develop the ability to memorise.

**4.2.3.2. Recommendations of Kothari Commission (1964-66) on Examination reforms**

Kothari Education Commission has analysed examination as an integral part of the evaluation and hence has given the recommendation related to examination as a part of the evaluation system. Considering it holistically will help us to understand its intentions better. The following are the recommendations of the Kothari Education Commission related to the examination. One can find that many of the recommendations of the secondary education commission related to examination have been repeated here.

**a. At lower primary stage:**

- It would be desirable to treat the lower primary stage covering class I to IV as an ungraded unit because this would help the children coming from different backgrounds to advance at their own pace.
- Observation techniques should be used by the teachers in a planned and systematic manner.

**b. At the higher primary stage:**

- In addition to written examinations weightage should be given to oral tests, which should form a part of internal assessment.
- Introduction of simple cumulative record card in a phased manner for indicating of pupil's growth and development, his/her academic and emotional problems, his/her difficulties in adjustment, etc.
- There should be an external examination at the end of the primary stage.
- By making use of the standardized or refined test material, the district educational authorities may arrange for a common examination at the end of the primary stage for schools in the district.
- There should be provision for giving certificates along with a cumulative record card at the end of the primary class.
- Special tests may be conducted for the award of scholarships or certificates of merit and identification of talent.

**c. At secondary stage:**

- External examinations should be improved by raising the technical competence of paper-setters, objective-based question papers, adopting scientific scoring procedures, mechanizing the scoring of scripts, and the processing of results.
- The certificates issued by the State Board should give the candidate's performance in different subjects and there should be no remark or the effect that he/she has passed or failed in the whole examination. Permission should also be given for re-appearance or improvement in subjects.
- A few selected schools should be given freedom of assessing their students themselves and holding their final examinations at the end of class X, which will be considered as equivalent to the external examination of the State Board.
- An internal assessment by schools should be comprehensive and should evaluate all aspects of student growth including personality traits, interests, attitudes which cannot be assessed by the external examination system. It should be descriptive as well as quantitative.

- The use of standardized achievement test is strongly recommended. There is a need for developing tools for internal assessment such as interest inventories, aptitude tests, and rating scales. The internal assessment should be shown separately in the mark-sheets and certificates.
- The commission recommended that the first external examination should be held at the end of class X and the second after class XII which will be the end of the higher secondary stage.
- For the evaluation machinery at the state level, the present secondary boards of school education will earn its sobriquet 'State Boards of School Education' with enhanced powers and functions. At the center, there will be a National Board of School Education which will deal with evaluation programmes at the central level.

**Check Your Progress - 2**

Identify the correct statements related to the recommendations of the Kothari Education Commission on examination reforms using '√' mark.

1. the first external examination should be held at the end of class X
2. examinations should be improved by raising the technical competence of paper-setters
3. examinations should be made easy for the students.
4. At the center, there will be a National Board of School Education which will deal with examination programmes at the central level.
5. All schools should be given freedom of assessing their students themselves

**4.1.3.3. Recommendations of National Policy on Education (1986) and Programme of Action (POA 1992) on Examination reforms**

The National Policy on Education, 1986 recommended a new approach to examinations in the following words:

Examinations should be employed to bring about qualitative improvement in education.

1. "Assessment of performance is an integral part of any process of learning and teaching. As part of sound educational strategy, examinations should be employed to bring about qualitative improvement in education.
2. The objective will be to recast the examination system so as to ensure a method of assessment that is a valid and reliable measure of student development and a powerful instrument for Improving teaching and learning; in functional terms, this would mean:
   (i) The elimination of excessive element of chance and subjectivity;
   (ii) The de-emphasis of memorization;
   (iii) Continuous and comprehensive evaluation that incorporates both scholastic and non-scholastic aspects of education, spread over the total span of instructional time.
   (iv) Effective use of the evaluation process by teachers, students and parents.
   (v) Improvement in the conduct of examination;
   (vi) The introduction of concomitant changes in instructional materials and methodology;
   (vii) Instruction of the Semester system from the secondary stage in a phased manner, and
   (viii) The use of grades in place of marks.

**Recommendations of POA**

The programme of action framed on the modified policy of 1986 has made the following recommendations regarding evaluation and examination practices.

1. Elementary Stage: Specification of a minimum of levels of learning in the remaining areas and classes, their adaptation at the State and District levels, designing flexible

procedures of evaluation to suit a variety of school conditions, and use of evaluations in teaching and learning; The minimum levels of learning (MLLs) in the language (mother tongue), mathematics and environmental studies for classes I-V have been developed by MHRD at the national level. Similar exercise to develop these in the remaining areas and classes of elementary curriculum needs to be carried out

2. Secondary Stage: Specification of expected levels of attainments in curricular subjects, designing flexible schemes of the continuous and comprehensive evaluation, consider the introduction of the semester system at the secondary stage in a phased manner.
3. Higher Education Stage: - Gradual switching over by post-graduate departments of all universities to semester, grading, continuous evaluation, and credit systems. Exploring possibilities of introducing: validation tests at the first degree and post-graduate levels.
4. At all stages: Devising procedures for setting up of appropriate administrative and technical support mechanisms. and a review of legislation.

**Check Your Progress - 3**

Classify the recommendations of NPE (1986) and POA(1992) related to the examination and evaluation system with letters 'NPE' and 'POA'

1. Examinations should be employed to bring about qualitative improvement in education.
2. Specification of a minimum of levels of learning in the remaining areas and classes.
3. Effective use of the evaluation process by teachers, students, and parents.
4. Devising procedures for setting up of appropriate administrative and technical support mechanisms.
5. Elimination of excessive element of chance and subjectivity.
6. To ensure a method of assessment that is a valid and reliable measure of student development.
7. Specification of expected levels of attainments in curricular subjects.
8. The de-emphasis of memorization.

### 4.1.3.4. Recommendations of National Curriculum Frameworks - 1975, 1988, 2000 and 2005 on Examination reforms

**National Curriculum Framework 1975**

This framework refers to the then-contemporary system of education and expresses that, " in the present system either there is a promotion for all students without examination or there is an annual examination covering all the courses inducing the child to cram a large mass of half-digested information in a short time and thereafter forget it conveniently. What is necessary is to bring out the goals of education in the form of expected outcomes of learning at each stage, and, in relation to these outcomes, offer courses of study in the form of a sequence of units. Each unit could be then evaluated separately thereby reducing the burden of examination at the end.

The necessary variety of tools and techniques should be employed to evaluate not only the performance of the learner but of the process itself. The deficiencies discovered must be removed as far as possible by remedial courses, if necessary, rather than "failing" students by punishment.

Gradually as the system of internal assessment takes root, and personal biases leading to the lowering of standards brought under control, the external public examination even at the end of class X should be abolished. It would be necessary for each board/state to evolve a phased programme of accomplishing this.

**National Curriculum Framework 1988**

According to this document, while considerable innovations have been made in several aspects of school education, attempts at introducing examination reforms have not met with expected success.

The observation regarding evaluation is documented as follows: "Evaluation, as carried out in the contemporary situation, is quite restricted in scope, purpose, and utility. Although the educational objectives are formulated keeping in view the total development of the learner, i.e., scholastic as well as non- scholastic, and the curriculum is so designed to provide practice, evaluation rarely goes beyond the scholastic(cognitive) development." The following recommendations have been made in this regard.

- Minimum levels of learning should be attained rather than pitch for the optimum levels of learning.
- It was clarified that the ultimate objective of the evaluation is to bring about qualitative improvement in education. Therefore, evaluation should be constructed as a powerful instrument for improving teaching and learning. Instead of using it mainly as a grading device, it should be used as an effective feedback mechanism for the benefit of learners, teachers, and parents so that timely corrective and remedial measures could be taken to ensure that MLL laid down are attained by the learners.
- While the purpose of education is diagnostic, that is, to ascertain the strength and weaknesses of the learner, it should be predominantly so at the elementary stage of school education. Since a majority of the learners quit school at the end of this stage, the school system must ensure that the learner is fully equipped with the knowledge, concepts, ideas, attitudes, and values expected from a good citizen of the country.
- There is a dire need to employ the right technique or use an appropriate tool to assess the performance of the learner, making a judicious selection from among available tools and techniques such as observation schedule, rating scales, interviews, oral communications, interest inventories, anecdotal records, etc. It is also necessary to deformalize both internal and external examinations. It is time that more and more informal means of evaluation are adopted to reduce the anxiety and fear experienced by the learners at all stages of school education. The principle of relevance and flexibility applicable to curriculum development needs to be followed in evaluating the attainment of the learners.
- It was felt that the negative effect of condemning the learner, particularly the youngsters at the tender age, has not been given adequate attention. Therefore, the committee recommended "a warm welcoming approach, in which all concerned share a solicitude(kindness) for the needs of the child and continuation of the policy of non-detention.
- Marks and grades represent condensed and highly abstract symbols summarising and reporting the attainment of the learners. It recommended the replacement of marks by grades.
- According to this committee, the weakest aspect of our educational system is the maintenance of the record of growth and development of the learner. Suitable proforma needs to be formed, for recording the progress of every learner in respect of scholastic and non-scholastic areas of learning. Each school needs to plan out a

detailed scheme of evaluation keeping the minimum levels of learning outcomes and content in view.

- The examination system needs to be recast to streamline evaluation at the institution level and reduce the predominance of external examinations.
- Centralised evaluation and detailed instructions to examiners need to be considered.
- Open book examination, use of books, and other resource materials in an evaluation situation is educationally sound.
- The norms for the suitability of candidates for jobs should be specified and made available to the teachers and administrators for judging the performance of institutions regarding state norms.

**National Curriculum Framework 2000**

The National Curriculum Framework in its document analyses the existing evaluation aspects and identifies the limitations of the present examination system. Though it does not give direct recommendations about the examination system, the suggestions it has given for evaluation have many implications for the examination system. Below you will find the observations of NCF 2000 on the examination and evaluation system of that time.

Examinations in their present form are not the real measure of students' potential because they cover only a small fraction of the course content that the students strive to learn over a period of one year. Nor do they provide for the application of multiple techniques of evaluation like oral technique, observations, projects, assignments, etc. as they resort only to the use of written tests.

Another shortcoming of the present examination system is that the results are declared in terms of raw marks which suffer from several inadequacies ranging from the subjectivity of the examiner to the inherent limitation of the point scale that satisfies neither the criterion of absolute zero nor that of absolute hundred.

The Class X public examination is held in such awe by the society that its pattern percolates down even to the initial stages of schooling. As a result, even small children are prepared along the lines of board examinations right from the beginning and the significant components like diagnosis and remediation seldom become a part of the system.

Keeping all these factors in view, it will be appropriate and very timely for the country to pay heed to the recommendation of the Programme of Action, 1992 that "the predominance of the external examinations (should be) reduced."

This backwash effect of examination which is currently dominating the system frustrates the very concept of mastery learning as it leads to selective teaching and learning. The existing examination system also suffers from an inhuman rigidity which allows little flexibility of any kind. It would be ironical if the learner-centered approach of education is made to co-exist with the system-centered examination.

Yet another flaw of the existing system is the undue importance attached to the results of examinations by the society in the wake of growing competition in every field. This creates psychological fear and tension in the minds of the students to such an extent that various kinds of malpractices in the examinations become rampant and the fear of failure sometimes leads to extreme measures like suicides.

Evaluation in schools needs to be profitably exploited for the development of both cognitive and non-cognitive capacities. This warrants adequate emphasis on both the formative and summative forms of evaluation. While formative evaluation is done during the course of instruction to improve students' learning, summative evaluation is done at the end of the academic year to promote students to the next grade. Both these types of evaluations are essential and, therefore, need to be carried out to realise the goal of bringing about qualitative improvement in school education.

The evaluation must facilitate the all-round development of students. It will, therefore, be desirable to have a school-based system of students' evaluation, both formative and summative, from Classes I-XII. However, at the pre-primary level evaluation will be entirely formative in nature and only at the end of Classes X and XII will the final examinations be conducted by the boards as far as the scholastic areas are concerned.

The school-based evaluation, which will be in the form of a continuous and comprehensive evaluation, will incorporate not only the scholastic areas but also the co-scholastic areas of students' growth.

In Classes X and XII, however, the performance of students in co-scholastic areas will be assessed by the school and conveyed to the board for inclusion in the statement of marks or grades awarded in the scholastic areas of study.

Features of Evaluation need to be humane in nature. It will help students grow as social beings and thus save them from unnecessary pain, anxiety, harassment, and humiliation.

**National Curriculum Framework 2005**

The present curriculum framework's observations regarding evaluation, which suggest important implications for the examination can be summarised as follows:

Paper Setting, Examining, and Reporting: To improve the validity of current examinations, the entire process of paper setting needs to be overhauled. The focus should shift to framing good questions rather than a mere paper setting. Such questions need not be generated by experts only. Through wide canvassing, good questions can be pooled all year round, from teachers, college professors in that discipline, educators from other states, and even students. These questions, after careful vetting by experts, could be categorised according to a level of difficulty, topic/area, concept/competency being evaluated, and time estimated to solve. These could be maintained along with a record of their usage and testing records to be drawn upon at the time of generating question papers.

Compelling teachers to examine without paper offering adequate remuneration makes it difficult to motivate them to ensure better quality and consistency in evaluation. Considering that most boards are in good financial health, funding issues should not come in the way of improving the quality of evaluation.

With computerization, it is much easier to protect the identity of both examinee and examiner. It is also easier to randomise examination scripts given to any particular examiner, thus checking malpractices and reducing inter-examiner variability.

Malpractices such as cheating with help from outside the examination hall can be reduced if candidates are not permitted to leave the exam center in the first half time, and also are not permitted to carry question papers out with them while the examination is still going on. The question paper can be made available after the examination is over.

Computerisation makes it possible to present a wider range of performance parameters on the mark sheet absolute marks/grades, percentile rank among all candidates taking the examination for that subject, and percentile rank among peers (e.g. schools in the same rural or urban block).

It would also be possible to analyse the quality and consistency of various examiners. The last parameter, in particular, we believe to be a crucial test of merit. Making this information public will allow institutions of higher learning to take a more complex and relativist view of the notion of merit. Such analysis will promote transparency. In the medium term, we need to be able to increasingly shift towards school-based assessment and devise ways in which to make such internal assessment more credible.

Each school should evolve a flexible and implementable scheme of Continuous and Comprehensive Evaluation (CCE), primarily for diagnosis, remediation, and enhancing learning. The scheme should take, into account the social environment and the facilities available in the school. Sensitive teachers usually pick up the unique strengths and weaknesses of students. There should be ways of utilising such insights. At the same time, to prevent abuse by schools (as is currently the case in practical examinations), they could be graded on a relative, not an absolute, scale and must be moderated and scaled against the marks obtained in the external examination.

Flexibility in Assessment: A lot of psychological data now suggest that different learners learn (and test) differently. Hence there should be more varied modes of assessment beyond the examination hall paper-pencil test. Because of the differing nature of learners, and the widely variable quality of teaching, the expectation that all candidates should demonstrate the same level of competence in each subject to reach the next level of education is unreasonable.

In light of the urban-rural gap in India, this expectation is also socially regressive. It is well documented, for instance, that much of the higher failure and dropout rates in rural schools can be attributed to poor performance in two subjects — Maths and English. Boards should explore the possibility of allowing students to take exams in these subjects at one of the two (or even three) levels. This need not require that curricula or textbooks will differ for different levels. The "one-exam-fits-all" principle, while being organisationally convenient, is not a student-centered one. Nor is it in keeping with the rapidly evolving nature of the Indian job market, with its increasing differentiation. The industrial assembly-line model of assessment needs to be replaced by a more humanistic and differentiated one. If, as economists predict, four out of every four new jobs in the next decade will be in the services sector, a paradigm shift in Indian education is called for. As fewer and fewer Indians make standardised widgets, and more and more work to solve problems for their fellow citizens, the Indian exam system will 116 also need to become more open, flexible, creative, and user friendly.

Board Examinations at Other Levels: Under no circumstances should board - or state-level examinations are conducted at other stages of schooling, such as Class V, VIII, or XI. Indeed, boards should consider, as a long-term measure, making the Class X examination optional, thus permitting students to continue in the same school (and who do not need a board certificate) to take an internal school exam instead.

**Check Your Progress - 4**

Match the recommendations with appropriate commissions and committees

| | | | |
|---|---|---|---|
| 1 | National Curriculum Framework 1975 | a | ensure that the learner is fully equipped with knowledge, concepts, ideas, attitudes and values |
| 2 | National Curriculum Framework 2005 | b | the predominance of the external examinations (should be) reduced |
| 3 | National Curriculum Framework 1988 | c | The focus should shift to framing good questions rather than mere paper setting. |
| 4 | National Curriculum Framework 2000 | d | The necessary variety of tools and techniques should be employed to evaluate not only the performance of the learner but of the process |

**4.1.4. Let us Summarise**

- Analysing the system of examination and suggesting important recommendations was one of the objectives of the Secondary education commission. Accordingly, the following recommendations have been given about the examination system in India. A major goal of examination reforms should be to improve the reliability and validity of examinations and to make evaluation a continuous process aimed at helping the student to improve his level of achievement rather than at 'certifying' the quality of his performance at a given moment.
- Kothari Education Commission has analysed examination as an integral part of the evaluation and hence has given the recommendation related to examination as a part of the evaluation system. It has given recommendations specifically for primary, secondary, and higher secondary stages
- The National Policy on Education, 1986 recommended a new approach to examinations in the following words. Examinations should be employed to bring about qualitative improvement in education.
- The programme of action framed on the modified policy of 1986 has made specific recommendations related to the examination. It recommended specifying a minimum of levels of learning in the other areas and classes, where it has not been attempted
- National Curriculum Framework 1975 recommended employing necessary tools and techniques to evaluate not only the performance of the learner but of the process itself.
- According to the National curriculum framework 1988, Marks and grades represent condensed and highly abstract symbols summarising and reporting the attainment of the learners. It recommended the replacement of marks by grades
- The recommendation of the National Curriculum Framework 2000 implies that examination and tests for evaluation must facilitate the all-round development of students.
- According to the National Curriculum Framework 2005, to improve the validity of current examinations, the entire process of paper setting needs to be overhauled.

### 4.1.5. Answers to 'Check Your Progress - 1, 2, 3 and 4'

**Check Your Progress - 1**
2,3,4 - '√'

**Check Your Progress - 2**
1 and 2 - '√'

**Check Your Progress - 3**
NPE – 1,3,5,6,8
POA – 2,4,7

**Check Your Progress - 4**
1-d, 2-c, 3-a, 4-b

### 4.1.6. Unit end Exercises

1. Explain the recommendations of the Secondary Education Commission on examination reforms.
2. Explain the recommendations of the Kothari Education Commission on examination reforms.
3. Explain the recommendations of the National Policy on Education, on examination reforms.
4. List the implications of the observations and suggestions of National Curriculum Frameworks, 1975, 1988, 2000, and 2005 about examination reforms.

### 4.1.7. References


1. https://www.yourarticlelibrary.com/education/kothari-education-commission-1964-66/76816
2. National Curriculum Framework 1988 https://www.yumpu.com/en/document/view/50897296/national-curriculum-framework-1988-eledunet
3. http://ctegujarat.org/Downloads/NCF%20Secondary%20Education-2000.pdf
4. http://ncert.nic.in/rightside/links/national_curriculum.pdf1975
5. http://www.ncert.nic.in/rightside/links/pdf/framework/english/nf2005.pdf

# Block 4 : Examination Reforms

## Unit 2 : Impact of Examination-driven Schooling on the Social Identity and Socialization of Children

**Unit Structure**



### 4.2.1. Learning Objectives

After completing this Unit, the student teachers will be able to

- Explain the impact of examination-driven schooling on the social identity of children;
- Explain the impact of examination-driven schooling on the socialization of children; and
- Suggest ways to avoid the negative impact of examination driven schooling on the social identity and socialization of children.

### 4.2.2. Introduction

School is popularly recognised as a miniature society and thus it must promote several social functions. The school is the real stage on which students learn and rehearse their social skills. Some social processes start and continue in the school set up. The school though not the primary social agent is certainly an important social agent. It is the responsibility of the school to socialise children and this is the place exactly where their identity forms since it is here that they start interacting in a social group. A school should create an appropriate climate for students to grow with such social skills and competencies. The school should teach the priorities to be considered, the traits and behaviours to be developed. But does an examination driven school system make justice in this regard? This is the present question. Let us analyse in this unit, the requirements needed to develop these requirements like socialisation and social identity and see whether these requirements can be fulfilled by and examination driven schooling system.

### 4.2.3. Learning Points and Learning Activities

Examination driven schooling means schools working with the belief that preparing students for the examination is the priority issue of schools and thus directs all its activities to help students to score high in the examinations.

Let us understand the nature of the examination has driven the school system. Grades are all that matters in an examination-oriented education system. Get a high grade and also you get the affection from the teacher. Low grades invite low-self-esteem and isolation. This

is since the students are bound to be highly competitive, among their peers they produce caste. Those that have low grades are seen as unworthy to fit into their circle of peers.

Students are forced to know and discover everything they study by heart to get good grades during examination. This could be easy for some while it may be very tough for other people, especially those that are hands-on type of people. The inability to carry out might only result in embarrassment although being rejected by other associates will bring harsher influence towards the students' lives.

Once the aim is set to obtain higher grades in tests, other activities may have to be sacrificed. Teachers are bound to reduce extra-curricular activities like sports as well as discourage inventive activities so that students can study longer. This ought to not occur since the students have worked hard within the class and studying so they should be allowed to take part in such activities as an outlet to release stress. But examination driven school system hardly has scope for this.

#### 4.2.3.1. Impact of examination-driven schooling on the social identity of children

Before analysing the impact of examination-driven schooling on social identity it is important to clarify the meaning of social identity. This clarity will help to analyse the impact of examination driven schooling on the development of the social identity of children.

The identity of children can be understood both from the point of view of personal identity and social identity since the examination-oriented school system affects both the personal and social identity of children especially the slow learners or students getting low scores in the examination.

'Personal identity' usually refers to properties to which we feel a special sense of attachment or ownership. Someone's identity in this sense consists of those properties she takes to “define her as a person” or “make her the person she is”, and which distinguishes her from others.

Social identity is a person’s sense of whom they are based on their group membership(s).
Social identity is the part of the self that is defined by one’s group memberships.

Let us understand the process of social identity. This will explain how we realise our position in society. In this process, the first task is social categorization**.** This is the process by which we organize individuals into social groups to understand our social world. This process enables us to define people, including ourselves, based on the groups to which we belong. We tend to define people based on their social categories more often than their characteristics.

Social categorization generally results in an emphasis on the similarities of people in the same group and the differences between people in separate groups. One can belong to a variety of social categories, but different categories will be more or less important depending on social circumstances. For example, a student can define himself as a good athlete, a good friend, a good student, a social worker, etc, but those identities will only come up if they are relevant to the social situation.

In the second stage, the individual identifies himself or herself as a group member. Socially identifying with a group leads individuals to behave in the way that they believe members of that group should behave. For instance, if an individual defines herself as studious, she may try to do the homework regularly, engage with those who work hard, and be very punctual in school work. Through this process, people become emotionally invested in their group memberships. Consequently, their self-esteem is impacted by the status of their groups.

In the third stage, they compare themselves with other groups. If they find themselves better than others, their self-esteem gets boosted and if they find themselves not as good as others, there are chances of damage to their self-esteem.

When slow learners are in the process of developing their identity, they compare themselves with others and since they are identified at a lower level than others, it damages their self-esteem.

It is obvious that as a general rule, the students need to be motivated to develop positive self-esteem. The situations required for this need to be created by schools.

Our thinking is based on the assumption that schools want the best for students and seek to be fair. But it does not happen always in schools because their inappropriate priorities often inadvertently create an unsafe environment. When schools do not pay attention to the students it results in serious damages not only to the individual but to the community as well. Examination oriented system is one such inappropriate priority that has been creating invisible damages when students are in the school which becomes more visible when they leave the schools.

In an examination-oriented education, only the ability of the child to perform well and score marks are accepted as the only criterion to consider a person as self-worth, competent, and at the same time capable. Those students who do not show this ability categorically are designated as not worth, not competent. This naturally brings down the self-esteem of students, and this makes those students have a low social identity. When social identity is rapidly changed, threatened, or questioned, a child may become vulnerable to depression.

Having a negative or low social identity is not a single consequence of an examination-oriented system. This leads to many problems.

To have a social identity, we need people around us to confirm or deny. If people confirm what we feel good about us, then a positive social identity is formed. If it is denied, then there will be a threat to social identity. In the case of an examination-oriented system, the students with low grades face a threat to their social identity. The people around us also influence our social identities and the way we feel about ourselves. If a child gets a low grade and rejected by teachers, there are chances that other students and school personnel may reject these and they will be out of different groups in the school. This may further threaten the feeling of security of these children and result in insecurity. This may be extended to the family also, and there are all chances that parents also may put pressure on the child.

In the case of low performers, not only that their unique talents are not encouraged, but they are not even identified. This negligence will lead to several psychological problems like conflicts, depression, low self-esteem, negative self-concept, and further leads to disinterest in academics also.

The following would be the consequences of examination driven schooling on the development of the social identity of children. These consequences would be truer among low achievers.

- Developing a low social identity
- The problem in relating to others
- Further deterioration in studies
- Low self-image
- Low self-concept
- Low self-esteem
- Gradually feel dejected as a result of the above.

**What needs to be done?**

The following considerations seem to be more helpful to overcome this situation:

- Try not to place too much emphasis on performing well in the examination
- Highlight the importance of different talents, skills, and competencies with the level of academic subjects
- Stress the need for developing human values in life which are more important than science and social science or maths.

.

It is normal for your child to feel sad after a disappointment or the loss of a significant relationship, but if you notice that your child is showing symptoms of depression, as a result of the threat to social identity counsel them properly and find the reason for the same and set it right.

- Create an Identity-Safe Classroom: Schools can create identity-safe classrooms, defined as places that foster belongingness and value for students of all backgrounds and varied abilities. This assumes that schooling is a social process that depends on trust, a process in which their social identity is an asset to school success. Because of examination-oriented systems students with different capacities for performance are not considered equal and this their social identities are affected. With identity-safe practices, students become successful learners.

**Check Your Progress - 1**

Mark the statements '√' related to the impact of examination driven schooling on the development of social identity.

1. Students scoring low marks
2. Developing a low social identity
3. Clashes among students
4. A problem in relating to others
5. Further deterioration in studies
6. Lack of interaction between teachers and students
7. Low self-image
8. Low self-concept

#### 4.2.3.2. Impact of examination-driven schooling on the socialization of children

Socialization refers to the ongoing process of learning the expected behaviours, values, norms, and social skills of individuals who occupy particular roles in society. Agents of socialization are the social structures in which socialization occurs. Major agents of socialization include the family and school, but also the media, peer groups, and other major social institutions such as religion and the legal system. Furthermore, socialization can be divided into two types: primary socialization and secondary socialization.

Primary socialization occurs within the family and is where children first learn their identity, acquire language, and develop cognitive skills. Within the family, children are socialized into particular ways of thinking about morals, cultural values, and social roles. Of course, the socialization that results from primary socialization rests heavily upon the social class, ethnic, religious, and cultural backgrounds and attitudes of the family.

Secondary socialization refers to the social learning that children undergo when they enter other social institutions, like school. Characteristics of the school, teachers, and the peer group all influence the socialization of children within school settings. The family remains an important part of children's socialization, even when they enter school. Children, however, will now have other significant people in their lives from whom they will learn the skills of social interaction.

The school setting is where the learning of the new role as a student occurs. When children start school, for example, they are socialized to obey authority (i.e., the teacher) and in how to be a student.

A major objective of socialization in the school setting is to make a child socially competent. A child must develop skills that allow him or her to function socially, emotionally, and intellectually within the school environment. Within the school setting, social competence is achieved when students embrace and achieve socially sanctioned goals. These goals (e.g., learning to share, participating in lessons, working in groups), when embraced, also serve to integrate the child into social groups at school. As experts in the field explain, social approval is obtained when children accept the sanctioned goals of the school setting and they are rewarded and reinforced consistently through social acceptance by teachers and other students.

The school is supposed to pass on the values desirable and significant to society. The school is also expected to filter the values system of the society and give only those that are worth transmitting. But schools give more importance to the values of society, whether they are good or bad, and pass it on through its system creating havoc to the whole system of society. Examination oriented system is one such system that dominates society. This priority for encouraging students to perform well in exams distracts the school from its focus on the proper socialisation process which calls for transmission of more significant and desirable values and practices. This makes the students learn that scoring marks or getting good grades in the examination is the sole value to be achieved in life and they strive for the same. This is certainly a wrong way of socialisation. It teaches competition as a fair path. It promotes more selfish ways of doing things. It leads to learning something for its own sake, as the students forget what they learn. It teaches instrumental value neglecting intrinsic values.

Proper socialisation involves the feeling and practices of sharing, loving each other, understanding a person as a human being, tolerance, cooperation, and such traits. An examination driven school promotes practices against these traits. It promotes competition, selfish ways of doing things, and non-humanistic attitudes. A child with the spirit of scoring more marks than others may not share what he/she has learned. The children may not share reading materials and other academic resources with others.

The teachers make much of those who score more and this promotes undesirable criteria to judge human worth. The same tendency is passed on to students and they also learn to categorise classmates scoring good marks and fewer marks. This may go against the value of cooperation.

Thus, examination driven schools may negatively impact the development of socialisation of students and come in the way of enhancement of the processes leading to these goals.

An examination-oriented education system might possess a noble aim. However, the implementation ought to be done carefully in such a way that it does not affect the social skills of students. Everybody ought to realize that each individual is unique; some may excel academically while other people can rely on hands-on expertise.

Following measures would help to overcome these limitations:

- Consider all children equally.
- Do not prioritise students based on their scores in the examination;
- Identify what each child is good at, and praise every one;
- Scoring good marks is one of the important goals of education.
- Do not give wrong priorities to judge people.
- Highlight the worth of developing human values
- Avoid bringing the idea of stratification in school set up.
- Have the goal of helping students to excel in many fields. Appreciate a child who is a good athlete in the same way you appreciate a high scorer.
- Create opportunities for students to have different talents to grow.
- Adopt strategies like co-operating learning, group learning, experiential learning.

**Check Your Progress - 2**

By now, you know the concept of socialization and the role of schools in achieving this goal. Recall your experiences in school. Analyse how an examination-oriented system has impacted the development of socialisation. Document your observations in writing.

### 4.2.4. Let us Summarise

- Grades are all that matters in an examination-oriented education system. Get a high grade and also you get the affection from the teacher. Low grades invite low-self-esteem and isolation. This is since the students are bound to be highly competitive, among their peers they produce caste. Those that have low grades are seen as unworthy to fit into their circle of peers.
- Developing low social identity, Problem in relating to others, Further deterioration in studies, Low self-image, Low self-concept, Low self-esteem are the effects of examination driven schooling concerning the development of social identity.
- Examination driven schooling comes in the way of the development of socialization of students.

### 4.2.5. Answer to ‘Check Your Progress - 1 and 2’

**Check Your Progress - 1**
1, 3, and 6 - √

**Check Your Progress - 2**
Share your ideas with your colleagues.

### 4.2.6. Unit end Exercises
1. Explain the impact of examination driven schooling on the development of social identity and socialisation.

### 4.2.7. References:

1. https://ecampusontario.pressbooks.pub/robsonsoced/chapter/__unknown__-6/
2. https://www.khanacademy.org/test-prep/mcat/individuals-and-society/attributing-behavior-to-persons-or-situations/v/self-concept-self-identity-social-identity
3. https://plato.stanford.edu/entries/identity-personal/
4. https://en.wikipedia.org/wiki/Personal_identity
5. https://www.oxfordbibliographies.com/view/document/obo-9780195396577/obo-9780195396577-0086.xml
6. https://psycnet.apa.org/record/2011-21802-020
7. https://www.googleadservices.com/pagead/aclk?sa=L&ai=DChcSEwjkgdPu4LHqAhWBOCsKHYAaDtAYABAAGgJzZg&ohost=www.google.com&cid=CAESQeD2YxO9P9beWbyA8e5jPr1_mCKOKuh5fShMg3EDPnGoa5KEDG7PZynzeJ7QdmfDlPvJsysELAQmMRNYvxlYahA&sig=AOD64_0Jb7x7ZgbhzbreSf_cTsB6ACFRsw&q=&ved=2ahUKEwiW28zu4LHqAhUowzgGHRrvAb0Q0Qx6BAgNEAE&adurl=
8. https://www.simplypsychology.org/social-identity-theory.html
9. https://www.verywellmind.com/the-importance-of-a-childs-social-identity-1066758
10. https://www.tandfonline.com/doi/pdf/10.1080/01425690902954620
11. https://www.edutopia.org/blog/creating-an-identity-safe-classroom-becki-cohn-vargas-dorothy-steele

# Block 4 : Examination Reforms

## Unit 3 : CCE in Right of Children to Free and Compulsory Education Act, 2009

**Structure of the Unit**



### 4.3.1. Learning Objectives

After completing this Unit, the student teachers will be able to

- Explain the nature of CCE as per the Right of Children to Free and Compulsory Education Act, 2009; and
- Explain the nature of CCE, especially the flexibility aspect and its procedure.

### 4.3.2. Introduction

You have already studied Continuous and Comprehensive Evaluation in detail and you also know that following CCE is a mandatory procedure according to the Right of Children to Free and Compulsory Education Act, 2009. I am sure that you have been following the same method of evaluation in your classrooms. Having been exposed to this concept, analysing the systematic procedure of CCE will help us to understand the scope for flexibility in evaluation in this process. Hence, in this unit let us learn more about the focus of CCE on the flexibility and needs of learners so that our day-to-day tasks become more effective.

### 4.3.3. Learning Points and Learning Activities

#### 4.3.3.1. CCE in Right of Children to Free and Compulsory Education Act, 2009

The Right to Education Act 2009, also known as the RTE Act 2009, was enacted by the Parliament of India on 4 August 2009. It describes the modalities of free and compulsory education for children aged between 6-14 years in India under Article 21 (A) of the Constitution of India. This act came into effect on 1 April 2010 and made India one of the 135 countries to have made education a fundamental right for every child. It prescribes minimum norms for elementary schools, prohibits unrecognised schools from practice, and advocates against donation fees and interviews of children at the time of admission.

Section 29(2) of the RTE Act–2009 requires that the guidelines of curriculum and evaluation procedures are laid down by the appropriate academic authorities. The NCERT, being the apex body in school education at the national level, developed resource materials to address CCE and also disseminated it widely.

Chapter V of the Act on Curriculum and Completion of Elementary Education under Section 29 (1) (h) provides for Comprehensive and Continuous Evaluation of a child's understanding of knowledge and his or her ability to apply the same. This act in total communicates that there should be flexibility in the examination and any evaluation procedure should be followed because of the needs of students and other stakeholders. We can analyse how flexibility has been an inbuilt aspect of CCE, under RTE.

Despite the recommendations of different policy documents from time-to-time, CCE was much talked about and was taken seriously only after the implementation of the RTE Act–2009. The Act ensures the right of each child aged 6–14 years to full-time elementary education of satisfactory and equitable quality in a formal school that satisfies certain essential norms and standards. As per its provisions, Section 29(2) of the RTE Act–2009 emphasises the all-round development of children, building up their knowledge, potentiality, and talent with development of physical and mental abilities to the fullest extent through activities, discovery, and exploration in an environment free from fear, trauma, and anxiety using CCE. Given the obligation that each child should get an opportunity to learn and progress and be supported during this process, CCE can be a potent tool in respecting the intent of the RTE Act by ensuring learning for all children, as an assessment during the teaching-learning process would help teachers observe child's learning progress, provide timely feedback and support to help the child overcome learning difficulties if any. In that case, the state of 'failing' and thus detaining any child at the end of a term may not arise. Therefore, it is crucial to understand and use both teaching-learning and assessment in tandem, one complementing the other to arrive at a realistic picture of students' learning and development to help them accomplish the desired goals of education.

**Nature of assessment:** Under the RTE Act, the Continuous and Comprehensive Evaluation (CCE) is the evaluation mechanism for elementary education. CCE (e.g., paper-pencil test, drawing and reading pictures, and expressing orally) does not mean the absence of an evaluation, but it means an evaluation of a different kind from the traditional system of examinations.

CCE refers to Continuous and Comprehensive Evaluation instead of summative evaluation at the end of a term or semester. This procedure has been recommended from the point of view of the needs of the students, i.e., to help students to learn further to promote learning as a joyful experience.

RTE forbids any public examination until Class VIII and the 'no detention' policy has to continue. While implementing a non-detention policy, it should not lead to no teaching-learning in schools.

CCE can play as a powerful instrument in respecting the intent of RTE on the one hand and ensuring the learning of children on the other, as the 'assessment for learning' would provide for necessary and timely corrective measures.

Broadly, the term 'Continuous and Comprehensive' means that evaluation should be treated as an integral part of the teaching-learning process rather than as an event that follows the completion of teaching the syllabus.

The new paradigm shift suggests that a child's learning and development cannot be viewed in terms of a rigidly defined class-structure, nor can it be fitted into an annual cycle of evaluation and promotion.

In CCE, 'continuous' refers to the fact that the teaching-learning should be continuously guided by the child's response and her/his participation in classroom activities. In other words, assessment should be seen as a process whereby the teacher learns about the child to be able to teach better.

The other 'C' in CCE is 'Comprehensiveness' of the assessment and evaluation process of the child's progress. This word suggests that the assessment needs to be 'holistic'. Neither teaching nor learning can take place in a segregated manner. The nature of learning itself is like that. So, the evaluation needs to be holistic. This again reflects the need of learners. Both teaching and assessment should focus on the all-round development of students.

**Check Your Progress - 1**

1. Explain the important shifts in the evaluation as a result of the implementation of CCE.
2. Collect the opinions of any five teachers about the implementation of CCE and analyse the same.

**4.3.3.2. Flexibility in CCE Procedure**

An analysis of the features of CCE reveals that there is a lot of scope to be flexible in the approach. To follow CCE from the point of view of students' progress, and to adopt flexibility in assessment the following steps need to be followed by teachers:

**Step-1:** Collecting Information and Evidence through Different Sources and Methods: We know that every child learns differently and that learning does not take place only in schools.

In that case, we need to do two things while assessing children:

- firstly, to collect information from a variety of sources
- secondly, to use different ways of assessment to know and understand whether each child is learning while going through a variety of experiences, activities, and learning tasks.

Sources of Information/feedback: Since assessment is part of the teaching-learning process, children themselves can and also need to play an important role in assessing their learning and progress. Teachers can help children assess themselves by enabling them to develop a better understanding of what is required of them through experiences designed to involve them in critically looking at their work and performance.

**Methods of Assessment:** There is a wide choice of methods or tools and techniques. These could be observation assignments, projects, portfolios, anecdotal records, written tests, etc.

Let us now consider why different methods need to be used? This is because:

- learning in different subject areas and aspects of development need to be assessed;
- children need to be given an opportunity as they may respond better to one method as compared to another;

- each method contributes in its way to the teacher's understanding of children's learning;
- no single assessment tool or method is capable of providing information about a child's progress and learning in different areas of development. There could be four basic methods of organising assessments, namely:

1. The individual assessment focuses on each child while she/ he is doing an individual activity or task and on its accomplishments?
2. Does group assessment focus on the learning and progress of a group of children working on a task together to complete it? This method of organisation is found to be more useful to assess social skills, cooperative learning, and other value-related dimensions of a child's behaviour.
3. Peer assessment refers to children assessing each other. This can be conducted in pairs or groups.
4. Self-assessment refers to the child's assessment of her/his learning and progress.

**Step-2: Recording of Information**

In schools across the country, the most common form of recording is through the use of report cards. Most report cards carry information either in the form of marks or grades obtained by children in tests/examinations every quarter. The crucial question that arises is what can be done to improve the process of recording. If the central purpose of continuous assessment is to find out the child's level of learning in a particular subject then it becomes necessary to make and record observations of the child while she/he is on the task or involved in an activity. Classroom interaction provides a wide range of opportunities to make observations of a child's behaviour and learning. Some of the observations are made daily in an informal manner while teaching-learning is going on. Day-to-day observations are easily forgotten if not recorded. Still, others are planned observations of children on activities given to them. This type of observation is planned with a purpose and is thus more formal in nature. To provide a more complete picture of the child's learning and progress, the scope needs to be widened. Recording needs to include records of observations and comments on children's performance on assignments, ratings of what children do and how they behave, and anecdotes or incidents of children's behaviour towards others.

Portfolio as a Record of a Child's Work: A portfolio is a collection of a child's work or activities. This may include projects, assignments, exercises, activities, written and oral tests, drawings and collection of materials, album preparation, and other artifacts.

**Step-3:** Making Sense of the Information Collected: Once the information has been recorded, the third important aspect or the next step is using the available evidence to arrive at an understanding of what has been collected and recorded. This means concluding how a child is learning and progressing. This is necessary to understand 'where the child is' and 'what needs to be done to help the child'.

**Step-4:** Reporting and Communicating Feedback on Assessment

Reporting needs to become more communicative, constructive, and user-friendly. This would be possible if teachers reflect on what information they have with them through their daily experiences and the indicators in a specified area of learning.

(i) Reflection by the Teacher: Teacher's reflection will help in preparing the progress map, viz. a cumulative report that provides a clear picture of a child's progress over a given period of time.

(ii) Communicating Feedback on Assessment: The teacher needs to

- discuss with each child her/his work, what has been done well, not so well and what needs improvement.
- discuss with the child what kind of help the child needs.
- encourage the child to visit/see her/ his portfolio and compare it with the present work with what was done before.
- share positive constructive comments while the child is working or on the work already done.
- encourage children to match her/ his self-assessment with that of peers and teachers.

(iii) Sharing Child's Progress with Parents: Parents are likely to be the most interested in knowing how their child is 'doing' in school, what she/he has learnt, how is their child performing and what is the progress of their child over a given period of time. Feedback needs to be in simple and easily understood language on:

- What the child can do, is trying to do and finds difficult.
- What does a childlike or not like to do.
- Qualitative statements and with samples of the child's work.

**Check Your Progress - 2**
You are already working according to the procedure of CCE in Schools. Reflect on your experiences while executing this concept and list the merits and limitations of CCE.

### 4.3.4. Let us Summarise

- The Right of Children to Free and Compulsory Education Act-2009 (RTE Act-2009), implemented since April 2010, has made elementary education a Fundamental Right to all children in the age group of six to fourteen years.
- Chapter V of the Act on Curriculum and Completion of Elementary Education under Section 29 (1) (h) provides for Comprehensive and Continuous Evaluation of a child's understanding of knowledge and his or her ability to apply the same.
- CCE refers to Continuous and Comprehensive Evaluation instead of summative evaluation at the end of a term or semester.
- CCE focuses on a child's progress with her/ his performance over time. There is no need to compare the performance of two or more children.
- The very purpose of CCE is to improve students' learning.
- The word 'comprehensive' suggests that the assessment needs to be 'holistic'.
- CCE offers flexibility for teachers to follow the methods and procedures as per the needs of students. To follow CCE from the point of view of students' progress, and to adopt flexibility in assessment specific steps need to be followed by the teachers.

### 4.3.5. Answers to 'Check Your Progress - 1 and 2'

**Check Your Progress - 1**
Make an essay on "The pros and cons of CCE"

**Check Your Progress - 2**
Share and learn from the experiences of your colleagues.

### 4.3.6. Unit end Exercises

Explain how the concept and procedure of CCE are flexible and how caters to the needs of the students.

### 4.3.7. References


1. https://www.prsindia.org/billtrack/right-children-free-and-compulsory-education-second-amendment-bill-2017
2. https://www.oxfamindia.org/blog/10-things-rte
3. Understanding CCE in the Context of RTE-2009 Professor Manju Jain, The Primary Teacher: July and October 2011-
4. http://nroer.gov.in/home/file/readDoc/598358a316b51cad8ce1d28b/understanding-cce-in-the-context-of-rte-2009.pdf

# Block 4 : Examination Reforms

## Unit 4 : Improving the quality and range of questions in examination papers

**Unit Structure**



### 4.4.1. Learning Objectives

After completing this Unit, the student teachers will be able to

- Select appropriate test items according to the objectives set;
- Frame good objective type questions based on objectives.
- Frame good essay type questions based on objectives; and
- Frame appropriate performance test items based on objectives.

### 4.4.2. Introduction

You have set papers for different examinations from standard 1 to standard 7. Have you ever thought of the validity of the questions you have prepared? This means did the questions you framed assess what it intended to assess? Were the questions answering the objectives set? Were the questions free from the subjectivity of scoring? Most of the time the questions framed for different examinations suffer from several limitations. It is important to know the rules for framing each type of question so that the objectives of the assessment are aptly achieved. Hence, in this unit, let us understand the nature, limitations, and rules of framing different types of questions and also know more about how to maintain the quality and range of questions.

### 4.4.3. Learning Points and Learning Activities

We need to understand the following points while framing questions in the process of setting question papers.

- Pertinent objectives should be focused
- It is better to have a combination of different types of questions to make our assessment comprehensive
- It is important to have different types of questions in terms of the structure of questions like an essay, short answer, and objective type questions; in terms of difficulty level like challenging, average and easy questions and in terms of assessing objectives like measuring understanding, application, analysis, synthesis, and evaluation.

### 4.4.3.1. Choosing appropriate test items

Let us understand the different types of test items

There are two general categories of test items:

1. Objective items which require students to select the correct response from several alternatives or to supply a word or short phrase to answer a question or complete a statement; and
2. Subjective or essay items which permit the student to organize and present an original answer. Objective items include multiple-choice, true-false, matching, and completion, while subjective items include short-answer essay, extended-response essay, problem-solving, and performance test items. For some instructional purposes, one or the other item types may prove more efficient and appropriate.

From the point of view of the ease with which questions are framed, essay type questions are easier to frame than objective type questions. But they are more subjective than objective type questions. There is less scope for guessing. This type of question has less scope to be comprehensive. But both objective and essay test items are good tools for measuring student achievement. But there are particular measurement situations where one item type is more appropriate than the other. Let us understand when to use essay type questions and objective type questions.

Essay type tests are more appropriate when

- the group to be tested is small and the test is not to be reused.
- The intention is to encourage and reward the development of student skills in writing.
- Interest is in exploring the student's attitudes than in measuring his/her achievement.
- The person who assesses is
- more confident of your ability as a critical and fair reader

Objective type tests are more appropriate when

- the group to be tested is large and the test may be reused.
- highly reliable test scores must be obtained as efficiently as possible.
- impartiality of evaluation, absolute fairness, and freedom from possible test scoring influences (e.g., fatigue, lack of anonymity) are essential.
- you are more confident in your ability to express objective test items clearly than of your ability to judge essay test answers correctly.
- there is more pressure for speedy reporting of scores than for speedy test preparation.

Either essay or objective tests can be used to:

- measure almost any important educational achievement a written test can measure.
- test understanding and ability to apply principles.
- test the ability to think critically.
- test ability to select relevant facts and principles and to integrate them toward the solution of complex problems.

In addition to the preceding suggestions, it is important to realize that certain item types are better suited than others for measuring particular learning objectives. For example, learning objectives requiring the student to demonstrate or to show, maybe better measured by performance test items, whereas objectives requiring the student **to** explain or to describe may be better measured by essay test items. The matching of learning objective expectations with certain item types can help you select an appropriate kind of test item for your classroom

exam as well as provide a higher degree of test validity (i.e., testing what is supposed to be tested).

To further illustrate, several sample learning objectives and appropriate test items are provided below:

| Sl. No. | Learning Objectives | Most Suitable Test Item |
|---|---|---|
| 1 | Assess the ability to critically analyse a text | Essay type |
| 2 | Ability to conduct an experiment | Performance test |
| 3 | Ability to classify the given characteristics | Objective type test |
| 4 | Ability for oral communication | Performance test |
| 5 | Ability to use appropriate vocabulary in writing | Essay test |
| 6 | Identify an appropriate definition of a concept | Objective type test |

**Check Your Progress - 1**
Identify at least 4 objectives for which you would like to frame test items. Find out the appropriate type of test items for each objective.

**4..4.3.2. Framing Different Types of Test Items**

**Multiple Choice Test Items**
The multiple-choice test item consists of two parts:
The stem, which identifies the question or problem
The response alternatives.
Students are asked to select the one alternative that best answers the question

Example
Which word begins with a vowel?

1. Lion
2. Tiger
3. Fox
4. Elephant

**Points to be considered while framing Multiple Choice Items**
Let us consider the stem of the item.
1. State the stem as a direct question rather than as an incomplete statement
   **Undesirable:** The source that has more reliability for writing history is _____
   **Desirable:** what is the source that has more reliability for writing history?

2. Present a definite, explicit and singular question or problem in the stem.
   **Undesirable:** Vikramarjuna Vijaya is _____
   **Desirable:** Who is the author of 'Vikrmarjuna Vijaya'?

3. Avoid a long sentence. Try to frame a question that easily communicates your intention.
   **Undesirable:** The Vijayanagar empire was known for its prosperity, culture and architecture. One of the foreign visitor also has praised Vijayanagar empire. So what was it called?
   **Desirable:** What expression is used to describe the greatness of Vijayanagar Empire?
   a. The golden period

b. The magnificent period
c. The great period
d. The grand period

4. Avoid negatively stated stems.
Example: Which of the following is not a capital of Indian states?

Let us consider the alternatives.

5. See that the alternatives are grammatically parallel with each other and consistent with the stem

**Undesirable:**

What do you do to motivate students to learn the topic on hand?

a. Tell stories related to the topic on hand
b. Exhibit pictures related to the topic on hand
c. Uses of learning the topic on hand
d. Involve students while teaching through activities.

**Desirable:**

a. Tell stories related to the topic on hand
b. Exhibit pictures related to the topic on hand
c. Clarify the uses of learning the topic on hand
d. Involve students while teaching through activities.

6. Make sure that there is only one correct answer for the question.

**Undesirable:**

What is the characteristic feature of a democratic teacher?

a. Respecting students' opinions
b. Giving important advice
c. Working along with students
d. Expecting students to be obedient

'a' and 'c' are the answers

**Desirable:**

Change 'c' . For example, – Giving good lectures.

7. See that the alternatives are approximately equal in length.

Which is an archaeological source?

**Undesirable:**

a. Coins
b. The books written by great authors
c. Folk literature
d. Ancient stories told by elders

**Desirable:**

a. Coins
b. Books
c. Folk songs
d. Stories

8. Use at least four alternatives for each item to avoid guessing.

**II. True-False Items**

A true-false item can be written in one of the three forms: simple, complex, or compound. The answer can consist of

- two choices(simple),
- more than two choices(complex) or
- two choices plus a conditional completion response(compound).

The instructions for each of these types are as follows:

1. Identify whether the statement is true or false
2. Identify whether the statement is true/ false or opinion
3. Identify whether the statement is true or false. If the statement is false, what makes it false?

**Points to be considered while framing True-False Items:**

1. See that the statements presented are true or false.
   Not Desirable: Democracy is the best form of government.
2. Express the items as clearly as possible
3. Express a single idea in each test item.
4. Avoid selecting and giving statements from textbooks, lectures, and other materials.
5. Avoid stating negative statements.
   Example: Harsha does not belong to the Vardhan dynasty
6. Avoid the use of unfamiliar vocabulary
7. Avoid the use of terms like all, never, always, none, impossible, etc.

**Matching Items**

Matching items normally consist of a column of stimuli presented on the left side of the page and a column of responses placed on the right-hand side of the page. Students are expected to match the responses associated with a given stimulus. For example, 'Match the terms and definitions, pictures and labels, causes and effects, states and capitals, etc.

**Points to be considered while framing Matching Test Items:**

1. In most of the question papers of schools you can find that the instruction for this item is given as 'match the following'. This is not correct. We need to state the basis for matching the stimuli with the responses.

Below are given the states in column 'A' and their capitals in column 'B'. On the line to the left of each state write the letter of the capital that is appropriate.

2. Use only homogeneous material in matching items.

This means in each column the stimulus should belong to the same category. For example, it can be the name of scientists and their discoveries, metals and their properties, etc. You cannot give one metal, name of the state, a scientist in the first column, and give related property, capital, and discovery in the second column.

**Undesirable:**

| | | | |
|---|---|---|---|
| 1 | India | Poet | a |
| 2 | Rabindranath Tagore | Psychologist | b |
| 3 | Idealism | Unity in diversity | c |
| 4 | Piaget | School of philosophy | d |

**Desirable:**

| | | | |
|---|---|---|---|
| 1 | Reliability | the degree to which different persons scoring the answer receipt arrives of at the same result. | a |
| 2 | Validity | practical value from time, economy, and administration point of view | b |
| 3 | Objectivity | the degree to which a test measures what it purports to measure, | c |
| 4 | Usability | Consistency between the measurement of two things | d |

3. Arrange the list of responses in some systematic order if possible (e.g., Chronological, alphabetical)

4. Avoid grammatical or other clues. For example, the words that go with the stimulus like 'a', 'an' 'with' etc
**Undesirable:** squirrel: **an** agile tree-dwelling rodent
Rabbit: a short-tailed mammal

5. See that the response list has short phrases or single words in order to reduce the amount of reading time.

**Completion Test Items**
The completion item requires the student to answer a question or to finish an incomplete statement by filling in a blank with the correct word or phrase.
Example: The two types of criticism to be taken care of in historical method are _____and _____

**Points to be considered while framing Completion Test Items:**

1. Expect the students to fill significant words in a statement.
**Undesirable:** Chlorophyll is a group of green pigments used by organisms that convert sunlight into energy.
**Desirable:** The green pigment used by organisms to convert sunlight into energy is _____

2. Try to bring the completion part at the end.
**Undesirable:**
_____ was the famous king of Vijayanagar empire.
**Desirable:**
The famous king of Vijayanagar empire was _____

3. Avoid giving more than two blanks

4. Avoid giving grammatical or other clues to the correct response

5. Be sure that there is only one correct response

6. See that the blanks are of equal length.

7. Avoid lifting statements directly from the text

8. Limit the length of the response to a word or a phrase.

**Essay Type Test Items**

This is the most popular of all types of teacher-made tests. Generally essay type tests at lower classes are used to test the following:

- To demonstrate his or her ability to
- Recall factual knowledge
- Organize knowledge
- Present the knowledge in a logical form.

There are two types of essay test item.

- Extended response essay item
- Short answer essay item, which has limited scope.

Example for Extended Response Type Item:
Explain the differences between 'assessment for learning' and assessment of learning'. Include in your answer (a) meaning and objectives of each concept, (b) relative merits and (c) tools used in each situation.
Example for Short Answer Essay Type Item:
Explain the meaning and procedure of 'assessment for learning'.

**Points to be considered while framing Essay Type Test Items**

1. Prepare essay items that elicit the type of behaviour you want to measure
   **Learning Objective:** The student will be able to critically examine the novel 'x' in terms of theme, style and technique
   **Undesirable:** write your observations on the novel 'x'
   **Desirable:** Write your critical observations on the novel 'x' with reference to its theme, style and technique.

2. Phrase each item so that the students' task is clearly indicated
   **Example:** write the three major political causes that lead to the first Indian war of Independence.

3. Indicate for each item a point value or weight for answering
   Example: Explain the educational thoughts of Mahatma Gandhi in about two pages (10 marks)

4. Avoid giving the student a choice among optional items as this greatly reduces the reliability of the test.

5. It is generally recommended for classroom examination to administer several short-answer items rather than only one or two extended-response items.

**Performance Test Items**

A performance test item is designed to assess the ability of a student to perform correctly in a simulated situation. This means a situation in which the student will be ultimately expected to apply his/her learning. The concept of simulation is very crucial in performance testing. A performance test will simulate to some degree a real-life situation to accomplish the assessment.

There are number of instances where a school has to use performance tests. The ability of the students to do first aid, to hoist a flag as per the occasion, to sing etc has to be assessed using performance test.

**Points to be considered while framing Performance Test Items**

- Prepare items that elicit responses that is expected
- Make the students clear about what aspects are specifically measured. For example, in assessing the music competency, highlight the points of focus – Shruthi, knowledge of raga etc-.
- Explain the procedure of measuring.

**Check Your Progress -2**

**With the help of this material prepare checklists to validate each type of test items.**

Frame at least 2 items for each of the following types of test items.

1. Matching test item
2. Multiple Choice test item
3. Completions test item
4. Essay type test item
5. Performance test item.

### 4.4.4. Let us Summarise

- There are two general categories of test items: (1) objective items which require students to select the correct response from several alternatives or to supply a word or short phrase to answer a question or complete a statement; and (2) subjective or essay items which permit the student to organize and present an original answer.
- Objective items include multiple-choice, true-false, matching and completion, while subjective items include short-answer essay, extended-response essay, problem solving and performance test items.
- For some instructional purposes one or the other item types may prove more efficient and appropriate.
- Essay type tests are more appropriate when the group to be tested is small and the test is not to be reused, one intends to encourage and reward the development of student skill in writing, one is interested in exploring the student's attitudes than in measuring his/her achievement, assessor is more confident of his or her ability as a critical and fair reader
- Objective type tests are more appropriate when the group to be tested is large and the test may be reused, highly reliable test scores must be obtained as efficiently as possible, impartiality of evaluation, absolute fairness, and freedom from possible test scoring influences are essential.
- Framing of each test item requires one to follow some guidelines.

### 4.4.5. Answer to ‘Check Your Progress - 1 and 2’

**Check Your Progress - 1**

Discuss with your colleagues and validate your answers.

**Check Your Progress - 2**

Discuss the items you have framed with your colleagues and validate the same using the check lists you have prepared.

### 4.4.6. Unit end Exercises

1. Explain the objectives for which you can use essay type test items. Give examples.
2. Explain the objectives for which you can use multiple choice type test items. Give examples.
3. Explain the objectives for which you can use performance test items. Give examples.

### 4.4.7. References


1. https://citl.illinois.edu/citl-101/measurement-evaluation/exam-scoring/improving-your-test-questions
2. https://uwaterloo.ca/centre-for-teaching-excellence/teaching-resources/teaching-tips/developing-assignments/exams/questions-types-characteristics-suggestions
3. https://www.deccanherald.com/content/570385/attributes-good-question-paper.html
4. https://www.k-state.edu/ksde/alp/resources/Handout-Module6.pdf

# Block 4 : Examination Reforms

## Unit 5 : Assessment and Examinations for vocational courses

**Unit Structure**



### 4.5.1. Learning Objectives

After completing this Unit, the student teachers will be able to

- Explain the meaning and characteristics of vocational courses;
- Decide the assessment procedures based on different vocational courses; and
- Explain the features of NSQF and able to apply its criteria for vocational courses.

### 4.5.2. Introduction

You are familiar with the assessment procedures that need to be followed in general education. General education is nothing but the education given in our regular schools. The objectives of vocational courses differ significantly from the objectives of general education. Therefore, the assessment methods and procedures need to be different in the case of vocational courses. As the name itself suggests, these vocational courses prepare students for one or more specific vocations. It is more practice-oriented. Hence, it demands those assessment methods which evaluate the performance demonstrated by a learner. In this unit, let us understand more about vocational courses that impart vocational education and the assessment procedures to be followed in such situations.

### 4.5.3. Learning Points and Learning Activities

#### 4.5.3.1. Vocational Courses: Meaning and Characteristics

Vocational courses are those which impart vocational education. Let us understand the meaning of vocational education.

A vocational course is a training programme which focuses more on practical work, rather than traditional academic exams. The 'Vocational' part of the name refers to the fact that this course prepares students for a vocation - a particular skillset required in different types of jobs.

Vocational Courses are certain disciplines which enable individuals to acquire skills which are traditionally non-academic and related to a specific trade, occupation, or vocation Vocational education is education that prepares students for work in a specific trade, a craft, as a technician, or professional vocations such as engineering, accountancy, nursing,

medicine, architecture, or the law. Vocational education is sometimes referred to as career education or technical education.

Vocational Education helps people in the better performance of their jobs as they acquire a great learning experience. Working professionals get a chance to improve their skills while making money.

**Particular Features of Vocational Education:**

1. Vocational education is not mere technician training.
2. Vocational education prepares middle-level manpower.
3. Vocational education is especially for vocations based on dairy, fruit vegetable horticulture, medical plant, or those connected with rural health, educational and cultural services.
4. Vocational education involves a good quality general education blended with considerable specific training.
5. Practical work and training are very important components of vocational education.

**Some common characteristics of the vocational courses are:**

- Practice-based curriculum.
- Practical demonstration beside the class lecture.
- Project visit.
- Group-based project building.
- Skilled trade knowledge.
- Industrial training.
- On the job training.

Vocational assessment is important as once a candidate has a vocational qualification, they may become licensed to practice. It is vital therefore that the qualifications are valid, reliable, fair, and fit for purpose.

**Check Your Progress - 1**

1. Enumerate the characteristics of vocational courses

**4.5.3.2 Assessment for Vocational Courses**

The process of selecting or developing an assessment method begins with an examination of the intended uses of the assessment results.

Educational assessments can serve a variety of purposes, and the choice of assessment depends in part on how the assessment information will be used. There are three broad uses for educational assessment, all of which are relevant to vocational education

- To improve learning and instruction
- To certify individual mastery
- To evaluate program success

Vocational teachers use the results of tests and other assessments to monitor the progress of students, diagnose their needs, and make instructional plans. When students complete courses or sequences of courses, vocational programs use assessments to certify that students have achieved a required level of mastery or have met industry needs. Finally, aggregated information about student progress (acquired knowledge and skills, success in courses, etc.) is used to judge the quality of vocational programs.

Although a single assessment may be used for many purposes, for example, standardized test results are used by teachers to identify individual student weaknesses and target instruction, and they are used by legislators and the general public to judge the quality of the state education system it may not be equally effective for them all. Therefore, the choice of assessment should be made with the three possible broad uses of the information clearly in mind. The most common reason for assessing students is to measure their progress as a means of improving instruction and promoting learning. Through direct observation and a variety of formal and informal assessment strategies, teachers keep track of what students learn, which instructional approaches work, and where changes need to be made. To be most helpful for these purposes, assessments should provide detailed information on the specific knowledge and skills that have been taught in the class. They should be administered often and graded quickly, and information should be provided to teachers and students so that adjustments can be made.

One point needs to be noted that the results of vocational assessments are used for more than one purpose unlike using the results of educational assessment.

The results are used for decisions about selection, placement, promotion, and certification. Because of the importance of these actions, extra attention must be paid to the quality of the measures, including their reliability, validity, and fairness. For this reason, in many cases, mastery testing is based on multiple rather than single measures to increase the validity of the results. Assessment can also be used to provide information about the quality of programs, schools, and districts that are providing education and training. This accountability may be based on individual performance or group performance (e.g., a class or school).

The assessment tools used in general education courses can be used in vocational courses also. The vocational courses focus mainly focus on skills or competency development and therefore the assessment procedures include more practical tests and performance tests. Academic courses use more essay type, objective type tests, and fewer performance tests, but vocational courses need to use more performance tests or practical tests and fewer essay or objective type tests. Since vocational courses certainly have a general education component, the tools used in general education can be surely used in vocational courses, especially while assessing the objectives of knowledge and comprehension.

The nature of vocational courses is unique in the sense that no two vocations or skills are similar. Each skill or vocation requires a different set of competencies and therefore the competencies and qualifications are different. This point needs to be taken care of in vocational courses. The vocational courses can use the following tools based on their requirements.

- Performance tests
- Practical tests
- Written tests
- Projects
- Rubrics
- Portfolios

The ways of using each of these tools have been discussed in previous blocks.

To plan the assessment programmes for vocational education, one needs to have a thorough knowledge of the document namely, the National Skills Qualifications Framework (NSQF) in India. Any vocational education programme needs to base its assessment based on the indicators prescribed in NSQF. There are special reasons to understand NSQF. Therefore, let us understand this framework in detail.

**National Skills Qualifications Framework (NSQF)**

The National Skills Qualifications Framework (NSQF) in India was notified on 27th December 2013. All other frameworks, including the NVEQF (National Vocational Educational Qualification Framework) released by the Ministry of HRD, stand superseded by the NSQF.

The NSQF is anchored at the National Skill Development Agency (NSDA) and is being implemented through the National Skills Qualifications Committee (NSQC) which comprises of all key stakeholders.

All educational institutions must follow NSQF norms. All training and educational institutions should compulsorily define eligibility criteria for admission to various courses in terms of NSQF levels.

NSQF is a competency-based framework that organizes all qualifications according to a series of levels of knowledge, skills, and aptitude. These levels, graded from one to ten, are defined in terms of learning outcomes which the learner must possess regardless of whether they are obtained through formal, non-formal, or informal learning. Level 1 of the framework presents the lowest complexity and level 10 presents the highest complexity.

Examples

1. In construction skills, the skill levels are (V) Helper Mason (vi) Assistant Mason (vii) Mason General (viii) Mason Special Finishing (ix) Foreman Concrete (x) Supervisor Structure.
2. In Information Technology, the skill levels are (iv)Domestic Data Entry Operator (V) Technical Writer (vi) Master Trainer for Software Developer (vii) Associate Chain Manager (viii) Management Trainee.

Examples of other skills are plumbing, leather, logistics, security, tourism, and hospitality. The standard prescribed for each skill is known as national occupational standards.

The job roles for each of these skills also have been prescribed. For example, the role of Assistant Mason is

- Concrete mixing
- Plastering
- Laying bricks
- Constructing and finishing walls
- Making frames for doors and windows
- Managing construction-related materials

NSQF levels are not related directly to years of study. It gives an individual an option to progress through education and training and gain more recognition for prior learning and experiences.

Each level of NSQF is described by a statement of learning outcomes in five domains known as level descriptors. These five domains are

1. Process
2. Professional knowledge
3. Professional skills
4. Core skill, and
5. Responsibility.
6. Process refers to the general summary of all the other four domains corresponding to the relevant level.
7. Professional knowledge is what a learner should know and understand about the subject. It is described in terms of depth, breadth, kinds of knowledge, and complexity. This is mostly theoretical in nature and is acquired academically.
8. Professional skills are abilities that a learner should possess. These are described in terms of the kinds and complexities of skills required in the job. These are the actual skills required for doing a particular job.
9. Core skill means basic skills like literacy, numeracy, logical thinking, communication, and information technology skills needed for the job.
10. Responsibility means the nature of working relationships, the responsibility for yourself and others, and the ability to manage change and accountability for action. Lower the level lesser the responsibility.

NSQF has given a qualification pack for different skills. Below you can find the qualification pack for a carpenter.

**Job Role: Carpenter – Wooden Furniture - NSQF level 4**

Role Description: Furniture Maker is responsible for designing, building, and repairing fixtures, furniture, and other items using different types of wood. He/she is required to study the technical drawings, measure, cut, and shape wood, plywood, or other material.

Minimum Educational Qualifications Preferably Class V
Maximum Educational Qualifications N/A
Training (Suggested but not mandatory)
Minimum Job Entry - Age 18 Years

1. Carry out cutting and trimming of the wood
2. Carry out assembling of different parts of the furniture
3. Maintain the work area, tools, and machines
4. Maintain health, safety, and security at the workplace
5. Carry out work effectively at the workplace

NSQF is mainly framed for vocational skills. It is outcome-based, unlike educational training which is mainly input based. When someone is NSQF certified for a particular level, one can be sure that he/she can perform the tasks prescribed. It precisely highlights what a person is capable of doing. This becomes easy for both students and the teacher or the employee and the employer.

Based on these criteria given by NSQF each institution designs its courses.

Let us observe how one of the units of course i.e., "IT-Level 3" has been framed based on NSQF norms for class 11 by one of the institutions.

| Unit Code & Title | IT-SDA-302: Digital Literacy |
|---|---|
| UNIT DESCRIPTOR | This unit describes the basic understanding of digital literacy required in IT world. It develops the competency in practicing ethics in digital world, follow copyright laws, plagiarism and cyberlaws. |
| DURATION | 20 Hours (Theory and Demonstration: 10 Hours, Practical Hands on: 10 Hours) |

The institutions need to fix the assessment method based on the performance criteria.

For example, the fourth column describes the assessment methods to assess the learning outcomes.

| Sl. No. | Learning Outcome | Performance Criteria | Relevant Knowledge | Assessment methods |
|---|---|---|---|---|
| 1 | Explore ethics in Digital world | Explain the concept of Intellectual property, ownership and transfer rights by examples | Concept of Intellectual property, ownership and transfer rights | Written test |
| 2 | Follow copyright laws Trademark and Patent | Demonstrate about how to protect the document with copyright, demonstrate how to use the copyright documents | Copyright laws, rights, jurisdiction, validity and symbol, Trademark and Patents | Performance tests using simulated situations. |
| 3 | Explore the plagiarism | Demonstrate the process of detecting a plagiarism using appropriate websites | Concept of Plagiarism, Internet Plagiarism, Detecting Plagiarism | Practical tests where the individual has to demonstrate the process |
| 4 | Avoiding Violations | Demonstrate and follow the best practices to avoid copyright violations | Methods & licensing types for publication Impact of violation of copyright laws | Observation |
| 5 | Cyberlaws | Demonstrate the happenings of cyber crime and its treatment by cyber laws | Cyber crime and cyber laws, places of cryber crime, how it occurs, who does it, effect of cyber crime on the digital world | Instruct students to Keep record of the observations and related learning – assess the same in terms of frequency and significant observations of student. |

**Check Your Progress - 2**
Select the learning outcomes designed by anyone of the vocational courses and identify the assessment methods as suggested above.

### 4.5.4. Let us Summarise

- A vocational course is a training programme which focuses more on practical work, rather than traditional academic exams. The 'Vocational' part of the name refers to the fact that this course prepares students for a vocation - a particular skillset required in different types of jobs.
- Vocational education is education that prepares students for work in a specific trade, a craft, as a technician, or professional vocations such as engineering, accountancy, nursing, medicine, architecture, or the law. Vocational education is sometimes referred to as career education or technical education.
- Vocational assessment is important as once a candidate has a vocational qualification, they may become licensed to practice. It is vital therefore that the qualifications are valid, reliable, fair, and fit for purpose.
- The nature of vocational courses is unique in the sense that no two vocations or skills are similar. Each skill or vocation requires a different set of competencies and therefore the competencies and qualifications are different
- To plan the assessment programmes for vocational education, one needs to have a thorough knowledge of the document namely, the National Skills Qualifications Framework (NSQF) in India.
- NSQF is a competency-based framework that organizes all qualifications according to a series of levels of knowledge, skills, and aptitude. These levels, graded from one to ten, are defined in terms of learning outcomes which the learner must possess regardless of whether they are obtained through formal, non-formal, or informal learning. Level 1 of the framework presents the lowest complexity and level 10 presents the highest complexity.
- NSQF is mainly framed for vocational skills. It is outcome-based, unlike educational training which is mainly input based. When someone is NSQF certified for a particular level, one can be sure that he/she can perform the tasks prescribed.

### 4.5.5. Answers to 'Check your Progress - 1 and 2'

**Check Your Progress - 1**
Refer Self Instructional Material 4.5.3.1.

**Check Your Progress - 2**
Discuss the relevance of the methods you have suggested with your colleagues and validate your answers.

### 4.5.6. Unit end Exercises

1. Explain the meaning and features of vocational courses.
2. Explain the role of the National Skills Qualifications Framework in the process of assessment of vocational education.

### 4.5.7. References

1. http://www.bseodisha.nic.in/sites/default/files/news/NSQF-CBC-IT-%20Level%201-4.pdf https://www.rand.org/content/dam/rand/pubs/monograph_reports/MR836/MR836.ch2.pdf

2. https://www.youtube.com/watch?v=KkxEIODPP5Yhttps://www.youtube.com/channel/UCgOtU2kU9vrS5trQV_xjB5Q
3. https://www.youtube.com/watch?v=9q2ASuITxvY
4. https://www.youtube.com/watch?v=9q2ASuITxvY
5. https://www.facebook.com/NSQFIN/?eid=ARDEeaO3aIIV84lcdbBuTmBGPHu4wdWd4Jn5-wgCVDvjVAL1742FWo480DP5-kVD6Ix78Rx5iFj_jSY
6. https://www.facebook.com/NSQFIN/?eid=ARDEeaO3aIIV84lcdbBuTmzBGPHu4wdWd4Jn5-wgCVDvjVAL1742FWo480DP5-kVD6Ix78Rx5iFj_jSY

# Block 4 : Examination Reforms

## Unit 6 : Role of ICT in examination

**Unit Structure**



### 4.6.1. Learning Objectives

After going through this course, the student teacher will be able to

- Identify the need for ICT in the examination;
- Understand the role, importance, and the factors involved in using ICT in the examination;
- Appreciate the benefits of ICT in the examination; and
- Select the right tools for conducting an examination using ICT.

### 4.6.2. Introduction

In the course of your study on the various aspects of education, you have realised the importance of education as a tool in personal development, national progress, and international understanding.

An important activity in the process of education is examination. An examination is a major tool in assessing or evaluating the performance of the individual.

The examination is the pivotal point around which the whole system of education revolves and the success or failure on the parameter of examination is indeed an indicator of the success or failure of that particular system of education. Due to a series of changes in every aspect of life, there is a demand for change in the examinational aspect of education. This major change is the use or adoption of information and communication technology in examinational activities. In this unit, we will deal with the role and importance of ICT in the examination.

### 4.6.3. Learning Points and Learning Activities

The use of ICT in education in India is fairly new.

Its smart use has changed the picture of education and has given a facelift to the educational scenario. We have understood that in an ICT environment, instructional activities do not have to occur in a class all the time. Teachers and students can also communicate through email or other online media. Specifically, about assessment, ICT is used to support assessment practice in various ways. Computers can be used as the medium for testing, score students' tests using automatic scoring software, and as a tool for doing assessment tasks. This

phenomenon is considered a new way of measuring educational outcomes and is well known as a technology-based assessment. John and Wheeler state that because of current advances in ICT, assessment of learning is now experiencing a change in ways that have to lead it to a revision of the methods, rationale, and process of testing. Besides, Jonassen and others point out that the use of technology to support assessment is not only done by converting traditional forms of assessment into a digital format, such as computer based testing, quizzes, or surveys, but it can also be used to assess higher-order learning outcomes.

The term ICT or information and communication technology in examination has been used with different terminologies. The following are a few instances. ICT in education, ICT in assessment, ICT in evaluation, etc. ICT in the examination is a part of all these terms. But in this unit, we will focus on ICT in the examination and use that term to refer to examination related activities only and mainly online examinations. This includes mainly the use of computer-related facilities to write an examination, evaluate the answers, and declare the results.

### 4.6.3.1. Relevance of ICT in Examination

In contrast to the traditional system of examination, where the performance or the knowledge level of the student in a subject was assessed just in a matter of two to three hours through a paper-pencil test, today's examination's focus is on measuring the knowledge of the student in various levels and at various periods in a course of study. A comparison of the characteristics of traditional examination and the present-day examinations will help us in understanding the need for ICT in the examination. Hence, let us understand these features now.

| Traditional Examination | Modern Examination |
|---|---|
| Purpose: To evaluate if the students have learned the content; to determine whether or not the students are successful in acquiring knowledge; to ascribe a grade for them; to rank and compare them against standards or other learners | Purpose: to measure students' proficiency by asking them to perform real life-tasks; to provide students many avenues to learn and demonstrate best what they have learned; to guide instruction; to provide feedback and help students manage their learning; to also evaluate students' competency |
| Provides teachers a snapshot of what the students know | Provides teachers a more complete picture of what the students know and what they can do with what they know |
| Measures students' knowledge of the content | Measures students' ability to apply knowledge of the content in real-life situations; ability to use/apply what they have learned in meaningful ways |
| Requires students to demonstrate knowledge by selecting a response/giving correct answers; usually tests students' | Requires students to demonstrate proficiency by performing relevant tasks showing an application of what has been learned |

| | |
|---|---|
| proficiency through paper and pencil tests.Students are asked to choose an answer from a set of questions (True or False; multiple choice) to test knowledge of what has been taught. | |
| Provides indirect evidence of learning | Provides direct evidence of learning/competency; direct demonstration of knowledge and skills by performing relevant tasks |
| Requires students to practice cognitive ability to recall/recognize/reconstruct the body of knowledge that has been taught | Provides opportunities for students to construct meaning/new knowledge out of what has been taught |
| Tests and strengthens the students' ability to recall/recognize and comprehend content, but does not reveal the students' true progress of what they can do with the knowledge they acquired. Only the students' lower level of thinking skills, (knowledge and comprehension), are tapped. | Tests and strengthens the students' ability to reason and analyze, synthesize, and apply the knowledge acquired; Students' higher level of cognitive skills (from knowledge and comprehension to analysis, synthesis, application, and evaluation) are tapped in multiple ways. |
| Teachers serve as evaluators and students as the evaluatees: teacher-structured | Involves and engages the students in the teaching, learning, and assessment process: student structured |
| Assessment is separated from teaching and learning. The test usually comes after instruction to evaluate if the students have successfully learned the content. | Assessment is integrated with instruction. Assessment activities happen throughout instruction to help students improve their learning and help teachers improve their teaching. |
| Provides limited ways for students to demonstrate what they have learned | Provides multiple avenues for students to demonstrate best what they have learned |
| Rigid and fixed | Flexible and provides multiple acceptable ways of constructing products or performance as evidence of learning |
| Standardized; valid and reliable | Needs well-defined criteria/rubrics and standards to achieve reliability and validity |
| Curriculum drives assessment. | Assessment drives curriculum and instruction. |

| | |
|---|---|
| Examples:<br>True or False; multiple-choice tests<br>standardized tests<br>achievement tests<br>intelligence tests<br>aptitude tests | Examples:<br>demonstrations<br>hands-on experiments<br>computer simulations<br>portfolios<br>projects<br>multi-media presentations<br>role plays<br>recitals<br>stage plays<br>exhibits |

Further, the problems faced or the disadvantages of the traditional system lead us to strengthen the necessity for the relevance of ICT in the examination. Let us focus on these disadvantages now.

- **Absence of real-world context:** Traditional assessment methods have the disadvantage of lacking real-world context. Students answer questions one by one without the need to apply long-term critical reasoning skills. They also lack chances to demonstrate their reasoning skills despite a lack of knowledge about a question's specific subject matter.

- **Inaccessibility:** Administering paper-based examinations in a class may exclude certain students from participating. Students who are absent from class, or who have impairments, may not be able to access or complete the examination. The inability to accommodate all students in the process can lead to incomplete, skewed feedback with a very narrow viewpoint.

- **Lower quality data:** Many factors can affect the quality of data retrieved through in-class paper evaluations. Students may feel that their responses are not anonymous and worry that instructors can trace the feedback to them. They may feel their anonymity is compromised due to their writing or by the comments they divulge. This causes students to be less open and honest on their assessments. Other issues such as peer pressure and in-class evaluation time limits can also negatively affect the quality of the data collected.

- **Limited flexibility:** Using traditional paper-based assessments often does not allow for the customization of questions. The questions used may be standard, the university set queries without instructors being able to add tailored course-specific questions. Using a paper-based process also doesn’t afford much flexibility in terms of the reports that can be generated for instructors and faculty. Standard reports are often used without the ability to present results differently, whether showing results over time or across multiple courses.

- **Lengthy process:** The process of administering paper-based assessments is a lengthy one. It can take several months to complete the cycle from administering the forms to collecting and analysing the results, sharing reports, and acting on the feedback

obtained. As instructors do not receive results quickly, valuable time is lost in responding to student concerns and implementing possible course changes.

- **High cost:** A major disadvantage of using paper assessments is the high cost associated with the process. The number of personnel involved as well as the printing, distributing, scanning, rekeying, filing, and archiving is very costly. When institutions move to an online system these significant costs can often be reduced by at least 50 percent.

- **Non-eco-friendly**: A lot of paper is needlessly wasted in the traditional evaluation process. Wasting such a valuable environmental resource often goes against the institution's 'green' initiatives and university-wide goals.

- **Societal pull**: The major impetus for change to an alternate approach of examination is the societal pull. Frauds and corrupt practices in society are increasing in academic activities. The major factors causing academic fraud are expanding. Higher education, competition among students and institutions, globalization which is resulting in the international mobility of students, use of the traditional method of management of examination system, poor rules and regulation, and lack of accountability are all coming in the way of examining its real sense. Hence, the characteristics of the modern examination system and the disadvantages of traditional examination call for major changes and ICT takes the lead.

**Check Your Progress - 1**
**Answer the following questions**

1. List any five features each of traditional examination and the present-day examination
2. What are the drawbacks of the traditional examination?

**4.6.3.2. ICT Tools for examination**

Planning for effective use of ICTs in examination necessitates understanding the potential of technology to meet different educational objectives and, consequently, deciding which of these objectives to pursue. This decision affects the choice of technologies and the modalities of use. The tools required for conducting an examination is determined mainly by the objective/s of the examination. They are to be considered both from the hardware side and the software side. On the hardware side, some form and an internet connection to meet the objectives are the basic requirements. A suitable software has to be selected depending on the type of examination, the level of students, and the requirements of the examination. Hence the major steps involved in this process are the following.

- Determine the objectives of the examination
- Set the levels of students
- Select the right software

While the first two factors are taken care of easily, care has to be taken to select the right software for the right examination. At the heart of all examination that uses ICTs are materials specially designed to exploit the full potential of the available technologies. These materials normally include content in the form of texts, l "books of readings," specially developed for open-book examination, audio and visual materials. These resources, along with appropriate support systems, complete the examination environment. There are two ways by which institutions acquire these materials. They design and develop them either by themselves or in partnership with like-minded collaborators, or they purchase, lease, or

acquire through other arrangements materials already developed and adapt them for their unique needs. While the indigenously customised examination material suits the examination best, it calls for many challenges on the part of the designer/developer. Several commercial products available in the market can also be customised to suit the specific requirements.

Following factors are to be considered while selecting the tool for the examination

- Does the product meet national and/or institutional objectives?
- Does the product contribute to the aims and objectives of the examination?
- Is the content current, unbiased, and politically and socially sensitive?
- Is the use of text and media appropriate for the needs and objectives of the course?
- Can the product be used with locally available resources?
- Is it cost-effective to purchase the product?
- How well does the product fit the testing environment?
- Does the product create barriers to examination (language, cost, technology)?

The tools used in the examination vary with a wide range of technology and material. It can be from an ordinary e-mail to a sophisticated virtual exam. A vast variety of software is available using the online examination.

The following are only a few of them given as examples.

**Flexi Quiz:** *Flexi Quiz is widely used across the World by teachers, university lecturers, governments, clubs, online tutors & HR execs within small & large organisations.* Flexi Quiz is designed to be easy to use with 100's configurable features to help anyone quickly create engaging tests, quizzes, or courses. Offering 8 question type templates, time limits, progress bars, question banks, certificates, email notifications & the ability to add logos, images, videos, or audio. Content can be shared publicly or privately using password protection or respondent accounts. Flexi Quiz also offers powerful reporting tools to view data on an individual or quiz level.

**Class time:** A flexible online exam solution that allows large and small schools and businesses to create exams using nine different question types, a large public library, time limits, advanced scheduling, analytics, instant, data-based feedback, real-time grading, and anti-cheating features. The other features include

- Assessments
- Automated Proctoring
- Automatic Grading
- Candidate Management
- Certification Management
- Online Tests
- Question Branching
- Question Library
- Quizzes
- Randomization
- Reporting/Analytics
- Surveys & Feedback
- Test Scheduling
- Time Limits
- Weighted Questions

**Think Exam:** Think Exam is an Online Examination System to create tests, assign assessments, define instructions, anti-cheat settings, and depth reports. Furthermore, multiple tests can be clubbed together to create a product that can be purchased by the candidate and would contribute to the revenue generation.

In India a host of examination software's integrated with teaching and learning across the school levels is available.

Edunika, MyClass Campus, Ekalavya, Testbook are a few examples. While many of them give a set of common features, they can be customised to suit your needs.

Besides, the centre and state government education boards like NCERT, CBSE, Karnataka State Board also have developed and help in developing suitable ICT features in the examination. Their services may be used as applicable. The best example of using ICT in examination in India is the National Institute of Open Schooling on Demand Examination System.

A brief account of it is given below.

- Over the years the National Institute of Open Schooling (NIOS), India, has been endeavoring to weave certain learner-friendly inputs in its examination system.
- Multiple sets of question papers are used for testing the competencies indicated in the question paper design and blueprint.
- Continuous assessment through Tutor Marked Assignments is an integral part of the learner's evaluation.
- There is a facility of credit accumulation, transfer of credits from other Examination Boards, and freedom of choice of subjects.
- A learner gets nine changes over a period of five years to complete a course.
- The examinations are conducted twice a year at a fixed schedule where the learning objectives and contents are tested.

Considering the frequency of assessment as the major challenge, NIOS has introduced the noble concept of ICT based On-Demand Examination System (ODES). It provides an opportunity for quality assessment of the competencies of the learner. The assessment takes place when the individual learner considers himself/herself ready for examination. Not only ODES is independent of time but it also allows the learners to improve their performance till they are satisfied. A huge database of items containing different forms of questions from the learning objectives (knowledge, understanding, application, and skill) has been developed. A unique question paper is generated randomly with the help of a specially designed Software package using standardized question bank. The implementation of ODES in NIOS has facilitated in making the public examination system learner-centric and stress-free. It has also established a higher level of transparency in the examination system by monitoring the conduct of examination through a close circuit camera.

The major benefits of using ICT in the examination are the following

- **Security of Examination Paper:** An online exam provides flexibility and security to the examination process. Once all the questions are uploaded in the system, the system can shuffle and give questions in different orders to different students. This minimizes the chance of cheating. However, this is not possible for a paper-based exam, the paper cannot be printed differently for every student, and thus it gives way

for malpractices. The paper also can get leaked while passing it to different examination centers, this risk is mitigated by the use of an online examination system.

- **Quick Result Processing:** In an online exam, the results are calculated instantly and accurately. In a paper-based examination, there are a lot of steps involved, resulting in the paper evaluation process to take up a lot of time and making it prone to human errors.

- **Get rid of Examination Centres:** In an online examination system, the exam can be conducted wherever the candidate is. The exam surveillance can be conducted with the help of a web camera and microphone. Such a method of conducting an exam is called Remote Proctoring. When an exam is conducted remotely, hundreds of thousands of students can appear for the exam, without the need to spend on travel and accommodation. This also solves the problem of scheduling exams across various exam centers, hiring invigilators, providing security to these centers, etc.

- **Reduced Logistics Costs:** In an online exam, the logistics cost is minimum. The examination process is managed using technology. It is beneficial when you are looking to conduct the exam for multiple candidates at different locations. The result processing is also done online and hence the logistics cost is limited. In a paper-based exam, the logistics cost is high, since a lot of factors like exam centres, hiring invigilators, etc, has to be considered. Question papers, answer sheets need to be delivered at designated exam centers within a defined timeline. Also, there needs to be a system to collect back answer sheets from all exam centers to a central location for further processing.

- **Compatible for Subjective exams*:*** There are online subjective exams available where a candidate needs to write answers in simple English language with special symbols/ diagrams etc. Online Subjective exams can be managed with facilities like speech to text, uploading images of diagrams drawn by the students for an answer related to exam questions. Examiners can evaluate subjective answers easily using individual login.

- **Reduced Examination Cost:** Due to the flexibility of online examination systems, the cost of the exam per candidate is around Rs. 10 to Rs. 50. Meanwhile, for paper-based exams, the cost per candidate is Rs. 300 to Rs. 400. Thus the online examination system becomes a more affordable, feasible choice to conduct exams.

- **Remote Supervision:** Online Exam can be managed in **auto surveillance mode** where a web camera connected to the system would take snapshots of the student for the exam and can act as an invigilator/supervisor; which is again cost and time-efficient. This would ensure that the same student is appearing for the exam and the system can keep track of the student during the exam. While in a paper-based exam there is a need to hire an invigilator for a designated set number of students.

- **Question Paper Generation:** Designing a question paper for a digital exam is relatively easy and it also reduces the chances of paper leakage. While designing a question paper for a paper-based exam is a daunting task. There is an endless number of logistical activities right from manual question selection, design of the paper, the

printing of the paper, distributing the question paper to various exam centers in a secure manner.

- **The flexibility of Exam Management:** An online exam gives you the flexibility to design exam papers, evaluate and grade them, there can be the same or different questions for students also. However, in a traditional exam, there is little to no flexibility, last-minute changes or corrections are also not possible.

- **Result Analysis and Ranking:** In an online exam, result analysis is easy and instant. The online exam can provide detailed analysis, ranking, rations subject, or topic wise analysis. It is helpful for further decision making or shortlisting process. In a traditional exam result processing is a manual and huge administrative task. Many examiners are involved in the compilation of the final result. Such a result is also error-prone.

But the use of ICT in the examination is also challenging. The following are some of the challenges.

Integrating ICT in the examination system has undoubtedly great potential to improve the functioning of the examination system. Despite this great potential, its integration is also facing a lot of challenges in the country. The Indian examination system is presently in the process of change from manual to ICT based. The integration of ICT can improve the whole functioning of the concerned institutions and also help in improving student satisfaction from the system. ICT based examination system is quite costly in the initial stage. Some of the main challenges of integrating ICT in the examination system are listed below:

- A lot of investment is needed on the part of universities and school examination boards as technology are quite costly.
- Lack of ICT trained people is another challenge, for which proper training programmes in a regular manner are to be organized. •Less initiative taken by the state universities to integrate ICT in the examination system due to lack of funds.
- The maximum student population of the country is living in rural areas and not has access to new technologies.
- Changing the mindset of the people presently using the manual system and making them trained.
- Orienting students to adopt new technology before shifting to the ICT based examination system.

**Check Your Progress - 2**
**Answer the following questions**

1. List any three major tools connected with ICT
2. What are the factors to be considered while selecting ICT tools?
3. What are the advantages of using ICT in the examination?

**4.6.4. Let us Summarise**

The necessity for ICT in examination has arisen to overcome the drawbacks of the traditional examination which mainly includes the following.

- Absence of real-world context
- Inaccessibility
- Lower quality data:
- Limited flexibility

- Lengthy process:
- High cost:
- Non-eco-friendly:
- Societal pull:

Factors to be considered while selecting the tools for ICT in examination

- Does the product meet national and/or institutional objectives?
- Does the product contribute to the aims and objectives of the examination?
- Is the content current, unbiased, and politically and socially sensitive?
- Is the use of text and media appropriate for the needs and objectives of the course?
- Can the product be used with locally available resources?
- Is it cost-effective to purchase the product?
- How well does the product fit the testing environment?
- Does the product create barriers to examination (language, cost, technology)?

Challenges of integrating ICT in the examination system are the following

- A lot of investment is needed on the part of universities and school examination boards as technology are quite costly.
- Lack of ICT trained people is another challenge, for which proper training programmes in a regular manner are to be organized. •Less initiative taken by the state universities to integrate ICT in the examination system due to lack of funds.
- The maximum student population of the country is living in rural areas and not has access to new technologies.
- Changing the mindset of the people presently using the manual system and making them trained.
- Orienting students to adopt new technology before shifting to the ICT based examination system.

### 4.6.5. Answers to 'Check Your Progress - 1 and 2'

**Check Your Progress - 1**

For answers to question under this refer Section 4.6.3.1 of this study material

**Check Your Progress - 2**

For answers to question under this refer Section 4.6.3.2 of this study material

### 4.6.6. Unit end Exercises

What are the ICT tools you have used in your examination? List their characteristics. If you have not used any tool till now, what are the factors coming in the way of using the tool?

### 4.6.7. References


1. https://www.ukessays.com/essays/education/ict-based-examination-system-a-review.phphttps://elearningindustry.com/15-benefits-of-computer-based-testing
2. https://www.researchgate.net/publication/256461759_The_Use_of_ICT_for_the_Assessment_of_Key_Competences
3. https://www.researchgate.net/publication/322708592_INFORMATION_AND_COMMUNICATION_TECHNOLOGY_ICT_AND_ITS_ROLE_IN_EDUCATIONAL_ASSESSMENT

4. http://www.ibe.unesco.org/en/glossary-curriculum-terminology/e/e-assessmentict-based-assessment
5. https://www.gjimt.ac.in/wp-content/uploads/2017/10/6_Anurag-Sankhian_Resdesigning-Indian-Examination-System-through-Technology.pdf
6. http://technicaltoday.in/ict-interventions-in-evaluation-system/
7. https://www.paatham.in/blog/upcoming-education-trends-in-the-year-2020/
8. https://www.blog.epravesh.com/reasons-online-examination-system-schoolscolleges-university/
9. https://eppi.ioe.ac.uk/cms/Default.aspx?tabid=462
10. International Journal of Research in Engineering, IT & Social Sciences (ISSN 2250-0588) IMPACT FACTOR: 5.07 (Volume 4, Issue 12, December 2014) website: www.indusedu.org, email id:- editorindus@gmail.com Page 30 3
11. https://explorance.com/blog/6-disadvantages-of-traditional-paper-based-course-evaluations-2/
12. https://abdao.wordpress.com/2015/07/18/traditional-vs-authentic-assessment/