

Course - III  
TCT Activity - (1)  
~~to Samprana~~

# VISUAL AIDS IN THE CLASSROOM

April 2, 2013 by iseymid

## VISUALS IN MY CLASSROOM



Visual images are visual representation of the knowledge that students acquire. I will use visual aids in my classroom to enhance learning. These aids will be used to help me teach written and oral information with oral and graphical representation. Since many students are visual learners, visuals are extremely important in the classroom. Students learning styles are different and they can interact with varied learning experiences. Visual aids will help me and students organize information.

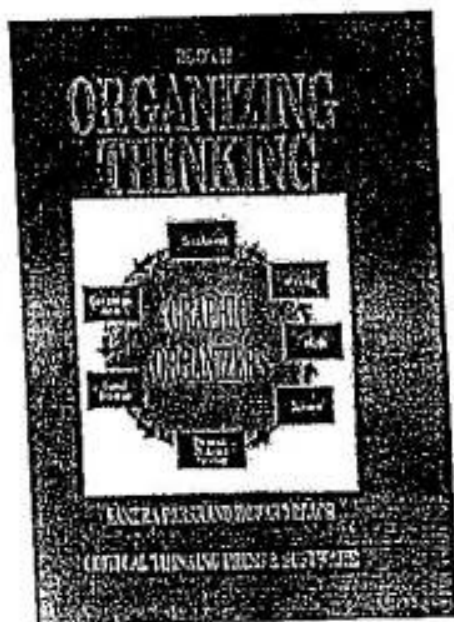
I will also use visuals to help my students bring education into realistic experiences. To help students understand complex ideas, I use different types of visuals in the classroom. Visuals such as educational posters, graphic organizers, overhead projectors, charts, graphs, pictures, maps, power point presentations and models to support learning in the classroom. I plan on having visuals that are well-organized so that lessons can be effective in my classroom. Students will be able to relate and retain information more efficiently. Be prepared to work in groups to develop visual images and express your ideas creating and using graphic organizers.

(1)

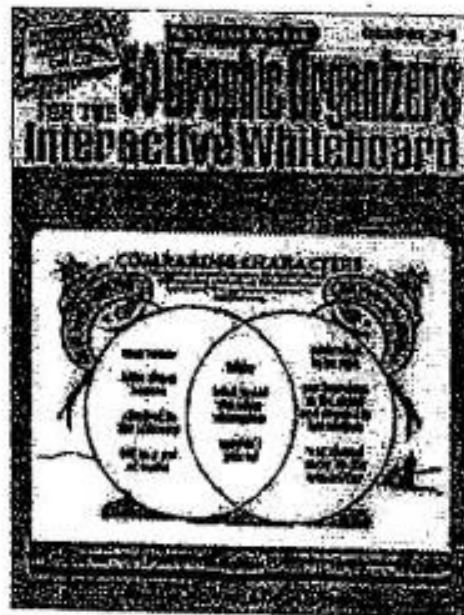
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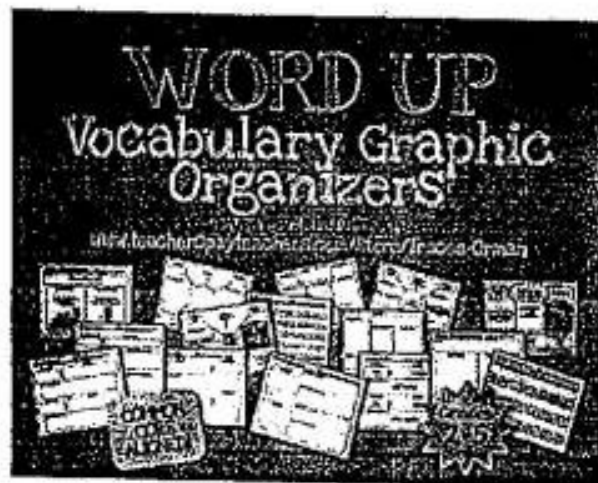
I find when students engage in the classroom it contributes substantially to learning. When I include visual modes in teaching practices it impacts how students think about themselves as learners and scholars. Visuals help students to cultivate habits of feeling and relating with others. I find that students who use visual images as a part of learning discover new concepts and strategies that enhance their knowledge and have a better understanding of the world.



I will use graphic organizers to help students with reading comprehension and learning disabilities to construct meaning. Graphic organizers are a pictorial way of organizing information and constructing knowledge. Using graphic organizers to enhance instruction in the classroom for all subjects will help students to understand what they are learning independently or with a group activity. Graphic organizers come in various shapes, colors and formats from a chart to a diagram. They will be used to structure writing projects that help in brainstorming, problem solving and making decisions in my classroom. The graphic organizers I plan on using will display and convey information that is simple to understand especially for all students at different developmental levels.



I will also use story maps and mnemonic illustrations which are graphic organizers to assist all students in acquiring content information. I will use story maps to improve reading comprehension and organize teaching and learning. It will help students to retain and recall information with better comprehension. I believe that visuals are an important part of learning in the classroom because it gives students an opportunity to learn how to think creatively. Visuals encourage students to write better. It also enhances discussions while working in groups, thus a better understanding of the subject matter.



Think back to when you were a child and started reading a book. Most books for young children have lots of pictures or images that tell a story. Since most students comprehend better reading a story and viewing pictures, visuals are such an important part of learning. It gives a clearer understanding of the subject matter.

(3)

(2, 3)



Overall, I believe that visuals will be able to enhance instruction in the classroom. Visuals aids in my classroom will create an interactive learning experience for students on all levels. In today's society of new technologies, students are visually stimulated by the use of computers, iPads, smart phones, video games, smart boards, Promethean, or white boards. etc. I challenge my students to solve problems and think critically through visuals. Finally, I believe that visuals are important in the classroom because it promotes students to be expressive and creative while learning.

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## COURSE - III

ICT Activity - (2)

~~A Summary~~

### Self Instructional Materials

- special equipment is required.
- **Available to any numbers:** it is available to any no. of learners studying same course at one time
- **Standardized content:** learners receive the same teaching.

#### Standardized Content:

### SELF INSTRUCTIONAL MATERIALS

#### INTRODUCTION : —

This article is about self- instructional materials. It is about how students instruct themselves with self-instructional material without any help of the teacher, its advantages over textbooks. Open universities produce self-instructional materials. IGNOU i.e. Indira Gandhi National Open University, is one of such universities.

#### PRINT-MEDIA

Print as a medium for transmitting information has been the most important component in learning. It has been so even in the case of distance education. It is because print medium is adaptable to many different learning environments. It is economical and it has traditionally been used for pedagogical purposes.

Printed material is prime medium for distance teaching. Most of distance education institutions rely on printed material complemented or supplemented by other media. There are various types of media, which are used in distance teaching. These may be classified into two categories:

1. Print Instructional Media, and
2. Non-print Instruction Media.

The print instructional media is used in correspondence-education or postal-education.

The printed matter and lessons are sent to the students through postal services.



## CHARACTERISTICS OF SELF-INSTRUCTIONAL MATERIALS

As a teacher, trainer, and line manager or as a learner everyone must have used self-instructional material in open, distance or flexible learning contexts. In primary school it may have involved you giving children a work card in arithmetic to complete, a tactile puzzle to solve or directions to follow in playing a game. In secondary school you may have provided directions to conduct an experiment, data to solve a problem or guidelines to undertake project work. In further education & training you may have prepared materials to stimulate fault diagnosis or used multimedia & computer based packages to provide a resource for your teaching. At its simplest you may have given learners a technical report, blueprint, circuit diagram or extract to study together with a series of questions to answer. You may have followed the manufacturers instructions to assemble DIY furniture, programme the time control on the central heating or cooker-with different degrees of success! All of the above could constitute self-instructional material.

If you were involved in producing self-instructional material it would be worth considering what features of these materials you currently exploit plan. If you are planning to be involved you could consider what feature you could incorporate and thus maximize the effectiveness of your teaching.

## DISTINCTIVE FEATURES OF SELF INSTRUCTIONAL MATERIAL

The first paragraph shows that in how many ways the self instructional material can be used in different contexts, whether be it financial, industrial or educational environment.

Q. What is the distinctive feature of the self-instructional material?

Some of the features are,

- **Self-paced learning:** each individual can work at his/her own pace rather than the pace of the group, which can be too fast or too slow.
- **Private learning:** no danger of loss of face as it might be feared in certain kinds of group studies.
- **Available at any time:** learners can learn when they wish rather than according to external timetable.
- **Available at any place:** in students home or while travelling also unless any fixed or s

Learners deserve the best teaching and training material that we can provide; materials that are not affected by the particular preferences of the teacher or trainer. A feature of the self-instructional material is that it enables all learners to receive same teaching material. Furthermore, since the materials are available to others for scrutiny it is possible that the current thinking and arguments are possible to be central-rather than personal views of the author.

In large institutions it is not unusual for the learners to be taught by two or more trainers/teachers- each followings same book or syllabus or scheme of work, however an independent observer would be excused if they judged that two different courses were being taught! Indeed if a same person conducts two classes the difference in presentations is likely to be significant.

### **Expert Contents:**

You may or may not be the expert in your field, however it is the distinctive feature of the self-instructional material that you can include excerpts from the national and the international experts. An obvious way is to publish existing teaching material in your teaching making sure that you don't infringe with the copyrights. These may represent a degree of writings and presentations you cannot improve upon. You can even record a debate with a colleague on the topic on a tape or record a videotape for the learners of the places it would be impossible for the learners to visit, or they can take part in online discussions with the experts or other learners via computer mediated link (CMC).

Of course you don't have to completely agree with the theories, modules put forward by these experts. Indeed you may wish to compare and contrast these views-presenting them to learners and inviting the learners to make up their own mind.

### **Structured Teaching:**

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2,4

## Structured Teaching:-

If you ask a dozen specialists to formulate a material on doing a particular thing you would particularly find a dozen ways of doing it. Some would take longer than others to study some would stress on one element rather than the other and some would consume more resources than the other.

Of course the teachers are expected to provide the briefest of outline for a particular case of study. It is often the list of topics supplemented by two or three sentences. What is more, detailed structure or overview of the material is provided in the course publicity material.

A distinctive feature of self-instructional material is that the teaching structure and sequence is made explicit. Preliminary documents often an introduction and guide provide the general structure of the course, while preliminary pages in each module indicate the structure and sequence of teaching material-and alternate ways through it. If the material is devised by two or more authors or it has the advice of other people it reflects their consensus and is the most effective way of teaching the topic.

### DIFFERENCES BETWEEN TEXTBOOKS AND SELF INSTRUCTIONAL MATERIAL:

Everyone must be familiar with written technical reports, textbooks, chapters, academic results rather than self-instructional materials.

The main difference between textbooks and self-instruction materials is that textbooks assume interest while self-instructional material arouses interest.

As if the learner is not interested why would he purchase the material and sit down to read it.

A typical self-instructional material should prompt, question, and encourage the matter of the material.

#### TEXTBOOKS

- 1) Amuses interest.
- 2) Written for both teachers and learner use
- 3) No estimation of study time
- 4) Designed for all
- 5) Aims and objectives are not specified
- 6) Only one way through it
- 7) Structured according to needs of both learner and teacher
- 8) Does not consider potential difficulties
- 9) Summaries are not always provided
- 10) General style



- 11) Content packed
- 12) Less open layout
- 13) Learner evaluation not always conducted
- 14) Does not provide any study skill advice
- 15) Active response is not required
- 16) Aims at successful teaching

### SELF INSTRUCTIONAL MATERIALS

1. Arouses interest
2. Written for learner use
3. Gives estimate of study time
4. Designed for particular audience
5. Always gives aims and objectives
6. May be many ways through it
7. Structured according to needs of learner
8. Major emphasis on self-assessment
9. Alert to potential difficulties
10. Always offers summaries
11. Personal style
12. Content unpacked
13. More open layout
14. Learner evaluation always conducted
15. Provides study skills advice
16. Requires active response
17. Aims at successful learning

### SELF - LEARNING : —

Self-learning is developed when teaching methods meant for all members of a group- failed to meet the varying needs of individual students. The most common description of self-learning methods is that teaching is directed towards individual students rather than the group of students.

### CONCEPT:

- The learner takes up the responsibility for his/her learning.
- Emphases on learning rather than teaching.
- Teacher role becomes more of a manager, a facilitator or a guide.
- Learner - controlled instruction includes a no. of techniques, which range from the simple assignment to the most sophisticated computer- assisted instruction.

- Human beings learn many things from their own efforts. Every individual has natural desire to learn on his/her own
- Every individual is unique. Everybody learns according to his or her abilities.
- Any teaching system based on presentation of information to a group can't take into account the wide variation in the rates at which individual students learn.
- As the students entering secondary education vary in their abilities, interests & needs, there is a pressing need for a wide range of instruction. Individualized instruction is the only panacea for such needs.
- In essence, the auto instructional method promotes the orderly & controlled development of an individual's skill in much the same way as a good tutor might do.

- It gives the student greater importance & role in the teaching learning activity.
- It lays stress on individualised learning or self-learning.
- It requires careful monitoring of students working on their own or in small groups on practice a new skill.
- It Demands your active participation in teaching-learning work.
- Instructional system that is more controlled by the learner results in learner- controlled instruction whereas Teacher controlled instructional methods are lecture, demonstration, and team teaching activity-based instruction
- Emphasis on learning rather than teaching
- Recognition of individual differences
- Active student participation
- Working at one's own pace
- Self-pacing,
- Provision of feedback and evaluation.

### MISCONCEPTION:

Self-learning is not synonymous with independent learning or learning in isolation from other students. Self-learning may encourage independence from the teacher; this, however, is not usually the main aim. During self-learning, the students do not necessarily work in isolation from their peers.

### ADVANTAGES OF SELF-LEARNING:

- The students learn more effectively when they learn on their own. Self-learning develops critical thinking in handling of study materials on one's own and enhances communicative skills and self-reliance.
- Self-learning prepares the student to face the problems in his/her real life.
- Learning on one's own is more enjoyable, exciting and rewarding.
- Self-learning promotes self-discipline in the students.

All classrooms techniques have certain disadvantages in common. Some are given below: -

- Students are not instructed individually.

"A sound knowledge of grammar is essential if pupils are going to use English creatively" (John Hutchinson). Grammar is in fact a tool for making meaning. The learner's attention should be focused not only on the form but on the meanings these forms convey. Grammatical categories such as subjects, objects, verbs, adverbials, tense and modality are some of the ways in which grammar is used to express meaning.

**Content Purpose**

Words are the tools with which a writer builds his imagination and thoughts; without words it is impossible to create a master piece. In writing, it is important to plan the content and establish your aim or purpose.

The content must always have a close relationship with the given topic. The purpose of the content is to evoke and present some vital information and have immediate responses from the readers. The style therefore, has to be simple, direct and individual.

Writers use a variety of techniques to bring their ideas close to the readers. Persuasion is one technique where the writer will present facts as well as opinions to persuade the reader. A writer can also effectively help the reader understand the content through the use of description or storytelling. Another common technique is offering similarities and differences in the content. When comparing the elements of a topic, like the habits of teenagers throughout history, the writer will discuss things that teenagers have always done and are still doing today. In contrast, the writer will provide information on things that are different, like dress styles, music, likes and dislikes etc. It is a good idea to blend all these techniques into a piece of writing giving the reader some different perspectives on the content.

**Relevance**

To teachers, probably the most important shortcoming in students writing essays is when they include material which is not relevant to the topic. Regarding relevance, the question or the scope of the topic should be at first, properly understood. The essays will have to be closely focused on the precise topic. This can be done by assembling all the resources and then 'brainstorming' and generating a list of all the relevant points they can think of in a particular order.

As the students plan, write, re-read or revise the essay, they should check whether each point is clearly relevant and whether they have omitted relevant points. All of the content must be relevant to the set topic and the relevance of each point must be clearly established.

**2.4 Flanders Interaction Analysis Category System (FIACS)**

The Flanders Interaction Technique consists of 10 categories of communication, which are said to be inclusive of all communication possibilities. There are seven categories used when the teacher is talking and two when the pupil is talking. Because the system is totally inclusive coding at a constant rate allows calculation of the proportion of time spent in one or more categories.

Table-2.4: Flander's Interaction Analysis Categories (FIAC)

Teacher Talk	Response
	<ol style="list-style-type: none"> <li>1. Accepts Feeling: Accepts and clarifies an attitude or the feeling tone of a pupil in a non-threatening manner.</li> <li>2. Praises or Encourages. Praises or encourages pupil action or behaviour, jokes that release tension, but not at the expense of another individual; nodding head, saying um, hmn or go on are included.</li> <li>3. Accepts or uses Ideas of Pupils. Clarifying, building or developing of pupil ideas are included but as teacher brings more of his own ideas into play, shift to category five.</li> <li>4. Asks Questions. Asking a question about content or procedures; based on teacher ideas, with the intent that the pupil will answer.</li> <li>5. Lecturing. Giving facts or opinions about content or procedures; expressing his own ideas, giving his own explanation or citing an authority other than a pupil.</li> <li>6. Giving Directions. Directions, commands or orders with which a student is expected to comply.</li> <li>7. Criticizing or Justifying authority. Statements intended to change pupil behaviour from non acceptable to acceptable patterns having authority of previous statements or references.</li> </ol>
Teacher Talk	Initiation

**2.4.2 Principles of Observation**

Flander has listed the following as principles for classroom observation.

- No interaction analysis should be conducted unless the person is familiar with the entire process and knows its limitations.
- Questions to be answered by inspecting the matrix should be developed before the observation takes place.
- Value judgements about good and bad teaching behaviour are to be avoided.
- Emphasis is to be given to the problem being investigated so that cause and effect relationship can be discovered.
- A consultation based on two observations or atleast two matrices helps to eliminate value judgement or atleast control them. Comparisons between the matrices are more likely to lead to principles.

**2.4.3 Ground Rules for Recording or Decoding**

The complexities involved in the categorization have led to the formulation of several ground rules. These rules help in maintaining consistency and making observations uniform.

- > **Rule 1:** When it is not certain in which two or more categories a statement belongs, choose the category that is numerically farthest from category - 5. For eg. if an observer is not sure whether it is 2 or 3, he chooses 2.
- > **Rule 2:** If the primary line of the teacher's behaviour has been consistently direct or consistently indirect, do not shift into an opposite classification unless a teacher gives a clear indication of shift. The trained observer is in the best position to judge whether or not the teacher is restricting or expanding the freedom of action of class members.
- > **Rule 3:** The observer must not be overtly concerned with his own biases or with the teachers intent. Rather he must ask himself the question "what does this behaviour mean to the pupil as far as restriction or expansion of their freedom is concerned?"
- > **Rule 4:** If more than one category occurs during the 3 second interval, then all categories used in that interval are recorded. Therefore, record each change in category, and if no change occurs within 3 seconds, repeat that category number.

Response	8. Pupil - talk - Response. Talk by pupils in response to teacher. Teacher initiates the contact or solicits pupil statement or structures the situation. Freedom to express own ideas is limited.
Pupil Talk	9. Pupil - talk - initiation. Talk by pupils that they initiate. Expressing own ideas; initiating a new topic; freedom to develop opinions and a line of thought, like asking thoughtful questions; going beyond the existing structure.
Silence	10. Silence of Confusion. Pauses, short periods of silence and periods of confusion in which communication cannot be understood by the observer.

**2.4.1 Procedure of Observation - The Encoding Process**

- The observer sits in the classroom in the best position to hear and see the participants.
- At the end of every three-second period he decides which category best represents the communication events just completed.
- He writes down the category number while simultaneously assessing communication in the next period and continues at a rate of 20 to 25 observations per minute keeping his tempo as steady as possible.
- His notes are merely a series of numbers written in a column, top to bottom so that the original sequence of events is preserved.
- Occasionally marginal notes are used to explain the class formation of any unusual circumstances.
- When there is a major change in the class formation the communication pattern or subject under discussion, a double line is drawn and the time is indicated.
- As soon as the total observation is completed, the observer retires to a nearby room and completes a general description of each separate activity period separated by the double lines including the nature of activities, the class formation and the position of the teacher.



- **Rule 5:** Directions are statements that result (or are expected to result) in observational behaviours on the part of children. Eg. Go to the board and read....., go to your seat etc.
- **Rule 6:** When teacher calls a child by name, the observer is supposed to record a 4.
- **Rule 7:** If there is a discernible period of silence (at least 3 seconds) record one 10 for every 3 seconds of silence, laughter, board work etc.
- **Rule 8:** When the teacher repeats a student's answer and the answer is a correct answer, that is recorded as a 2. This tells the student that he has the right answer and therefore functions as praise.
- **Rule 9:** When a teacher repeats a student's idea and communicates only that the idea will be considered or accepted as something to be discussed, a 3 is used.
- **Rule 10:** If a student begins talking after another student (without the teachers talking) a 10 is inserted between 9's and 8's to indicate the change of student.
- **Rule 11:** Statements such as 'up', 'hu', 'yes', 'yah', 'alright', 'o.k., which occur between two 9's are recorded as a 2 (encouragement).
- **Rule 12:** A teacher's joke, which is not made at the expense of children, is a 2. If a joke makes fun of the child it is coded as a 7.
- **Rule 13:** Rhetorical questions are not really questions. They are merely part of lecturing and should be categorized as 5's.
- **Rule 14:** A narrow question is a signal to expect an 8. If the student gives a specific predictable answer, it is an 8. If the child expands, documents or justifies his answer the observer should begin with 9's.
- **Rule 15:** An 8 is recorded when several students respond in unison to a narrow question.

#### 2.4.4 Decoding Procedure

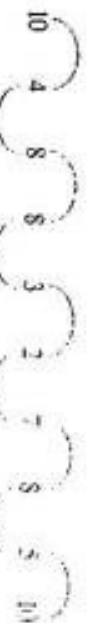
After encoding the classroom events into 10-category system, a 10 × 10 matrix table (10 rows × 10 columns) is prepared for decoding the classroom verbal behaviours. The category numbers of the record sheet are tabulated in the matrix table. Each number is entered in the form of sequence pairs, being used twice, first as the first numbers and second as second number. The row of the matrix represent the first number and the columns the second. In the matrix construction one has to make sure that entire series begins and ends

with the same number. Hence it is customary to add a 10 to the beginning and to the end unless it is already present.

For example an observation recorded is

4, 8, 8, 3, 2, 7, 8, 5

For tabulation it will become



The pairs are then entered into the matrix. Thus in this case, the first sequence pair (10, 4) is placed in the cell located at the 10th row and 4th column and the last sequence pair (5, 10) at 5th row and 10th column.

#### 2.4.5 Interpretation of Interaction Matrix

There are two broad aspects of analysis of the matrix: (i) Quantitative; (ii) Qualitative.

##### Quantitative Analysis of Teachers Behaviour

Four methods are used (i) Interaction Categories; (ii) Areas of Interaction; (iii) Behaviour Ratio's; (iv) Interaction Variables.

##### Method of Interaction Categories

It is the simplest way of interpreting the interaction data. In this the total of each column and the percentage of each column is calculated. It helps in ascertaining the relative importance of each category.

##### Method of Area of Interaction

Flanders divided the tabulated matrix into 10 areas, namely: A, B, C, D, E, F, G, H, I and J, which helps in making an interpretation of the matrix in terms of areas.



Table-2.5: Flander's Areas of Interaction

Area	Category Represented	Calculation
A	Teacher talk - Indirect influence	By combining the percentage of teacher statements falling under categories, 1, 2, 3 and 4.
B	Teacher talk - Direct influence	By combining the percentage of the categories 5, 6, 7.
C	Pupil talk	By adding percentage of categories 8 and 9.
D	Students' criticism	Percentage of category 10 in relation to total tallies
E	Teachers' criticism dealing with students in affective plane	Percentage of tallies in a block of nine cells of 1, 2 and 3 categories i.e., (1, 1) (1, 2) (1, 3) 2, 1-2, 3, 2, 2 (3, 1) (3, 2) (3, 3)
F	Sentiment to difficulties teachers face with regard to direction and criticism in dealing with students.	Percentage of tallies in a block of 4 cells of 6 and 7 categories - i.e., (6, 6) (6, 7) (7, 6) and (7, 7)
G	Teachers responding to termination of pupil talk with indirect influence.	Percentage of tallies in block of 6 cells i.e., (8, 1) (8, 2) (8, 3) (9, 1) (9, 2) and (9, 3)
H	Teachers responding to termination of pupil talk with direct influence.	Percentage of tallies in a block of 4 cells i.e., (8, 6) (8, 7) (9, 6) and (9, 7)
I	Type of statements that trigger students' participation	Represents a block of four cells [(4, 8) (4, 9) (5, 8) and (5, 9)]
J	Sustained pupil initiation or response or one followed by the other	Percentage of tallies of four cells [(8, 8) (8, 9) (9, 8)]

### 2.4.6 Advantages / Merits of Flanders Interaction Analysis

- It is an effective tool to measure the social-emotional climate in the classroom.
- It is an objective and reliable method for observation of classroom teaching.
- It helps in analysing the verbal behaviour of the teacher and classroom interaction.
- It helps in visualising the plan of behaviour and charting out behavioural patterns of teachers.
- It is a powerful tool for giving feedback and hence helps in modifying teaching behaviours.
- It adds and supplements to the teacher education techniques like micro-teaching and team teaching.

- Different matrices can be made and used to compare the behaviour of teachers at different age levels, gender, subject etc.
- The analysis of the matrix is so dependable that even a person not present when observations were made could make accurate inferences about the verbal communication and get a mental picture of the classroom interaction.

### 2.4.7 Limitations of Flanders System of Interaction Analysis

- FIAT essentially presents part of classroom interaction since it studies and analyses only verbal interactions and neglects nonverbal behaviours.
- The method is content free and no effort is made to code content aspects.
- The observers have to be trained in order to code correctly.
- It does not provide scope for value judgements and grading of lessons as good / bad.
- Equating silence with confusion is not appropriate. Sometimes silence in the form of pause could be purposive - to draw attention and here it is equated with confusion.
- Certain activities like demonstrating and experimenting in science, map pointing in Geography, Model reading in languages are underrepresented in this system.
- The system of coding and decoding is laborious, time taking and expensive.
- Classroom interaction of pupil-pupil type is not considered here.



1. Explain the concept of communication?
2. What are the elements of communication?
3. What are the elements of communication?
4. Explain Barrier to communication?
5. What methods do you suggest to overcome barriers to communication?



Computer-based instructional programs for individual learners. The term most often refers to drill and practice, tutorial, or simulation exercises used as stand-alone instruction or as supplementary materials. A more recent term is e-learning.

See also: instruction

# ~~ORIGINAL DEFINITION~~

## Computer Assisted Instruction (CAI) :-

A self-learning technique, usually offline/online, involving interaction of the student with programmed instructional materials.

Computer-assisted instruction (CAI) is an interactive instructional technique whereby a computer is used to present the instructional material and monitor the learning that takes place.

CAI uses a combination of text, graphics, sound and video in enhancing the learning process. The computer has many purposes in the classroom, and it can be utilized to help a student in all areas of the curriculum.

CAI refers to the use of the computer as a tool to facilitate and improve instruction. CAI programs use tutorials, drill and practice, simulation, and problem solving approaches to present topics, and they test the student's understanding.

### Typical CAI provides

1. text or multimedia content
2. multiple-choice questions
3. problems
4. immediate feedback
5. notes on incorrect responses
6. summarizes students' performance

7. exercises for practice

8. Worksheets and tests.

### **Types of Computer Assisted Instruction**

1. **Drill-and-practice** Drill and practice provide opportunities for students to repeatedly practice the skills that have previously been presented and that further practice is necessary for mastery.

2. **Tutorial** Tutorial activity includes both the presentation of information and its extension into different forms of work, including drill and practice, games and simulation.

3. **Games** Game software often creates a contest to achieve the highest score and either beat others or beat the computer.

4. **Simulation** Simulation software can provide an approximation of reality that does not require the expense of real life or its risks.

5. **Discovery** Discovery approach provides a large database of information specific to a course or content area and challenges the learner to analyze, compare, infer and evaluate based on their explorations of the data.

6. **Problem Solving** This approach helps children develop specific problem solving skills and strategies.

### **Advantages of CAI**

- one-to-one interaction
- great motivator
- freedom to experiment with different options
- instantaneous response/immediate feedback to the answers elicited
- Self pacing - allow students to proceed at their own pace
- Helps teacher can devote more time to individual students
- Privacy helps the shy and slow learner to learn
- Individual attention

- learn more and more rapidly
- multimedia helps to understand difficult concepts through multi sensory approach
- self directed learning – students can decide when, where, and what to learn

### **Limitations of CAI**

- may feel overwhelmed by the information and resources available
- over use of multimedia may divert the attention from the content
- learning becomes too mechanical
- non availability of good CAI packages
- lack of infrastructure

Read an article on Computer Assisted Instruction and Learning Issues



# MATTER

**Solids, Liquids, Gases & Plasma**

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**States of Matter**

Four States of Matter

