

***Chapter 9: Using
Indirect Teaching
Methods***

Chapter Nine Objectives

After completing chapter 9, students should be able to do the following:

1. Discuss reasons for using various participatory-teaching techniques as well as advantages and disadvantages associated with their use.
2. Describe the primary roles associated with various discussion techniques and the respective responsibilities.
3. Explain the four areas that must be addressed in effective discussion planning.
4. Identify strengths and limitations associated with various small-group discussion structures.
5. Compare and contrast the purpose and function of the small-group structures of brainstorming, buzz groups, task groups, and panels.

Chapter Nine Objectives—Continued

6. Describe the major purpose, characteristics, teacher role, and desired environment associated with heuristic modes of instruction: discovery, and inquiry.
7. Differentiate between discovery and inquiry learning.
8. Define problem solving and distinguish between the three levels of problem solving.
9. Outline and explain the five-step discovery model, or general scientific method of investigation and the three-step inquiry approach.
10. Identify strengths and weaknesses associated with various heuristic methods.
11. Explain the basic features of Suchman's inquiry learning and the procedures associated with its use.
12. Describe the teacher's function and the appropriate environment conducive to effective implementation of the heuristic methods.

The Discussion Method

- **Functions of Education:**
 - Development of Students' Ability to think.
 - Critically and Perform Independent Inquiry.
- Discussion is an Example of Indirect Teaching Method.
- Discussions are:
 - Carefully Structured Exchange of Ideas Directed Toward a Specific Goal.

The Discussion Method—Continued

- Goals of Discussions:
 - Examine Questions that **Do Not** Have a Simple Answer.
 - Explore Issues from the Affective Domain.
- Elements that Make Discussions **Successful**:
 - Teacher is a Facilitator Keeps Discussion on Track.
 - A Recorder is Necessary to Keep Track of Important Points, Create a Summary and List Conclusions of Groups—this record could be Displayed.
 - Participants should be Prepared before the Discussion Takes Place.
 - Teacher’s Role should be Flexible—Assuming Roles that are Necessary Keep the Discussion Flowing (Consultant, Discussion Leader/Recorder).

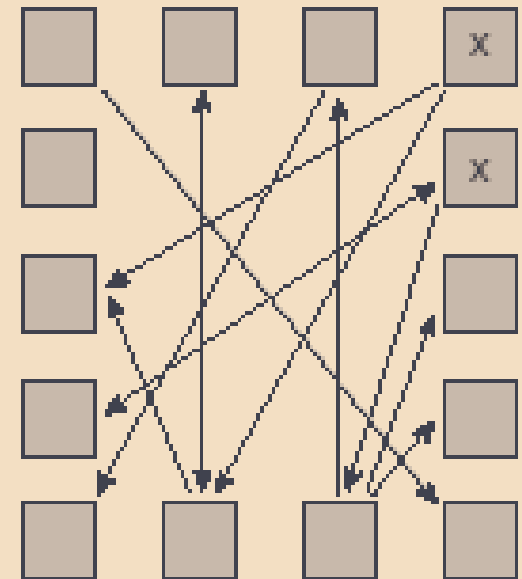
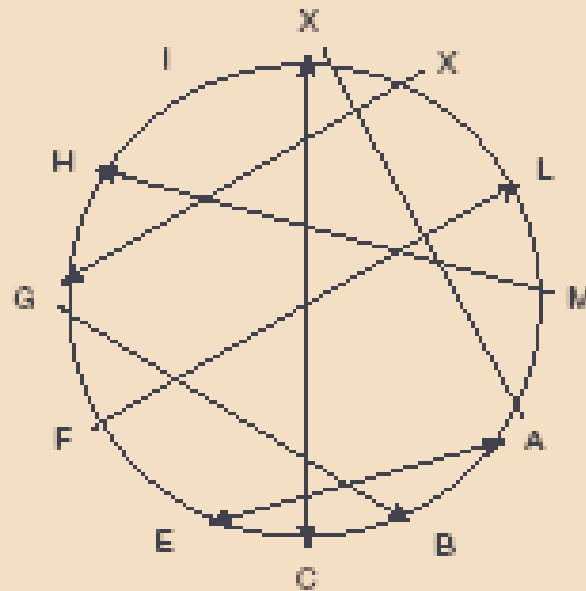
Planning the Discussion

Things to **Consider** when Planning a Discussion:

- Identify Goals of the Discussion.
- Plan how to Prepare Students w/Background Knowledge and Content Prior to the Discussion to Facilitate their Active Participation in the Discussion.
- Decide if the Discussion will be Large Group—Whole Class— or Small Group.
- Plan the Seating Arrangement so that Students can Look at Each Other when they Interact.
- Consider the Time Allotted for the Discussion—it should be Age Appropriate and Specified Prior to the Discussion.

Large-Class Discussion Seating Arrangements

Figure 9.1
Large-Class Discussion Seating Arrangements (To maximize interaction, students should be seated in a circular or hollow-square arrangement. Arrows pointing through the center indicate that the individual was speaking to the total group. Leader and recorder positions are marked with an X.)



Whole-Class Discussions

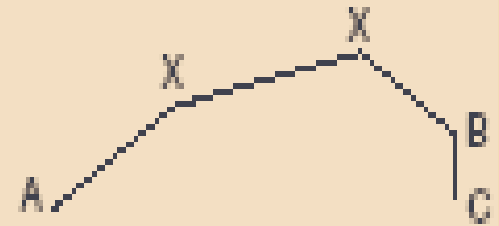
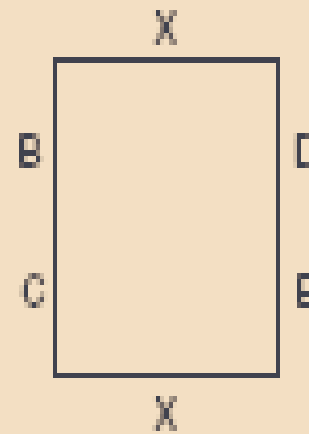
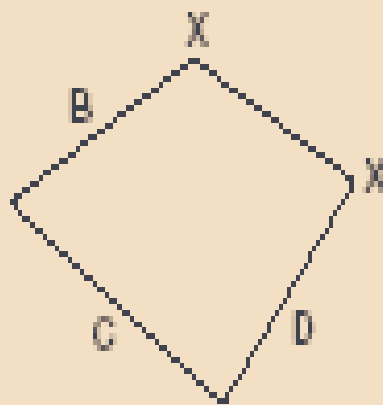
- Teacher's Role is **Passive** Moderator who:
 - Creates, Supportive Pleasant Atmosphere Conducive to Free Interaction.
 - Makes the Discussion Interactive.
 - Ensures that the Topic is Appropriate.
 - Prepares Students w/Information/Content so they can Actively Participate in the Discussion.
 - Lays out Procedures, Time Limits, and Discussion Ground Rules Prior to the Discussion.
 - Makes sure the Discussion Begins w/Lively Springboard that Gets Student Interested and Motivated.
 - Makes Sure that Discussion Points are Brought to a Logical Conclusion—Summarizing Key Points.

Whole-Class Discussions—Continued

- Special Use of Discussions—*Listen-Read-And-Discuss*.
- Steps for *Listen-Read-And-Discuss*:
 - Teacher Provides Overview of the Content of Textbook Pages to be Read—this can Serve as an Advance Organizer/Framework for the Reading.
 - Students Read the Textbook.
 - Discussion Follows the Reading—this Permits Students to Compare their Understanding of the Textbook with the Teacher and their Peers.
 - Teacher Obtains Feedback from the Discussion and Can Evaluate Students’ Understanding of the Content.

Small-Group Discussion Seating Arrangements

Figure 9.2
Small-Group Discussion
Seating Arrangements
(Leader and recorder
positions are marked with
an X.)



Small Group Discussions

Important **Elements** of Small Group Discussion:

- Should Follow Presentation Information:
 - Teacher-Directed Lesson.
 - Assignments.
 - Books.
 - Films.
- Requires Careful Planning.
- Students Need Clear Guidelines Regarding Task and Responsibilities.
- Teacher should Appoint Well Organized Student as a Leader for Each Group—Keep Group on Task and Moving to an Established Goal.
- Recorder should be Part of Each Group—Records Group's Ideas and Conclusions.
- Group Size should be from Five to Seven Students.

Small Group Discussions—Continued

Strengths of Small Group Discussion	Weaknesses of Small Group Discussion
1. Increase Interpersonal Skills —Communication, Leadership, Open-Mindedness and Persuasive Arguing.	1. Students Can Drift Off Task.
2. Positively Affects Personal Commitment to Decisions made by the Group.	2. Sometimes the Activity Disintegrates into Bickering and Become a Waste of Time.
3. Produces Active Verbal Participation.	3. Composition of Groups might Produce Individuals who can not Work Together.
4. Allows for some Physical Movement .	4. Groups Might Consist of Individuals w/Similar/Different Points of View and can not Reach Conclusions.

Small Group Types

1. **Brainstorming:**

- Purpose to Generate a **Quantity of Ideas.**
- **Steps:**
 - Teacher/Leader Introduces a Concept/Problem.
 - Each Small Group Generates Responses to the Leader's Request.
 - Groups Concentrate on Generating Ideas not Discussing/Commenting on them.
 - Groups Share their Responses and they are Recorded & Discussed.
- Brainstorming can Serve as Initiating Process for: another Discussion, Research, Problem-Solving and Small-Group Activities.

Small Group Types—Continued

2. Buzz Group:

- Consists of Four to Seven Members Selected by Simply by Counting Off/Having those in Proximity Form a Group.
- Meets **NO** More than 15 Minutes to Share Opinions, Viewpoints/Reactions.
- Buzz Session should be Followed up w/Whole Class Discussions of the Conclusions/Findings.

Small Group Types—Continued

3. Task Group:

- Consists of Four to Eight Members.
- **Purpose:** Solve a Problem/Complete a Project in a Supportive Environment.
- Group Members have Specific Roles.
- Teacher-Directed:
 - Teacher Selects Tasks.
 - Teacher Assigns Roles/Responsibilities to Group Members.
 - Monitors the Work of Task Groups.
- Task Group Work is Suited for Students who are Fairly Self-Directed.

Small Group Types—Continued

4. Panels/Round Tables:

- Consists of Five to Eight Members.
- Members Prepare to Discuss an Issue to be Presented in Front of a Class—Issues are Relevant to the Class are More Effective.
- One Student Acts as Panel Chair and Directs the Discussion.
- Each Member Starts with an Informal Opening Statement.
- Members then Discuss the Issue Using a *Give and Take Format*.
- Class Discussion/Questions should Follow the Conclusion of the Panel Discussion.
- Panel Chairperson should Conclude the Entire Session w/ a Summary of Important Points.

Discussion Models

TABLE 9.1 Discussion Methods

Method	Description
Whole-Class Discussion	All students in class exchange and share ideas regarding an assigned topic.
Small-Class Discussion	Five to eight students interact and/or work together in reaching conclusions, generating ideas, or completing a task.
Panels	Five to eight students prepare and discuss topics in front of class.

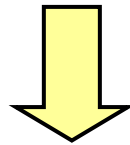
Heuristic Methods

- Heuristic Methods are Ways of **Organizing** Teaching.
- **Elements** of Heuristic Methods:
 - Active.
 - Somewhat Self-Directed.
 - Involves Problem Solving.
 - Reflective in Nature.

Heuristic Methods—Continued

1. Problem Solving:

- Intentional Elimination of Uncertainty Through Direct Experiences and Under Supervision.



- Students are Required to Solve Problems Through Direct Experiences Provided by the Teacher.
- Problems Relevant to the Students Provide a Better Chance for Successful Work.

Levels of Problem Solving

TABLE 9.2 Levels of Problem Solving

Level	I	II	III
Problem Identification	Generated by teacher or textbook	Generated by teacher or textbook	Generated by student
Processes for Solving Problem	Decided by teacher or textbook	Decided by student	Decided by student
Establishment of Tentative Solution to Problem	Determined by students	Determined by students	Determined by students

Heuristic Methods—Continued

2. Discovery Learning:

- Is Intentional Learning.
- Through Supervised Problem Solving Following the Scientific Method of Investigation.
- The **Levels of Discovery Learning:**

Level I—Guided Discovery	Carefully Guided by Teacher.
Level II—Modified Discovery	Modified Guidance is Used by the Teacher.
Level III—Open Discovery	Very Casually Supervision by the Teacher.

Heuristic Methods—Continued

Discovery Learning Strategies:

- 1. Selecting the Problem**—Guide Students to Identify a Problem and Clarify it.
- 2. Proposing Possible Solutions**—Hypothesis should be Generated and Data should Begin to be Collected.
- 3. Collecting Data**—Each Hypothesis Must be Tested and Additional Data Must be Collected.
- 4. Data Analysis and Interpretation**—Data must be Carefully Examined and Evaluated so that Conclusions are Supported by the Data.
- 5. Testing Conclusions**—Findings must be Tested and Revised.

Heuristic Methods—Continued

The Strengths and Weaknesses of Discovery Learning:

Strengths	Weaknesses
1. Active Learning Producing Intrinsic Motivation.	1. Less Competition Prohibits a Constant Flow of Feedback and this Leads to Uncertainty.
2. Increased Learning and Retention.	2. Progress/Effectiveness of Work is Difficult to Identify.
3. Develops Social Skills—Planning, Interaction, Following Procedures.	3. Time Consuming and Limits the Amount of Material Covered.

Heuristic Methods—Continued

3. Inquiry Learning:

- Problem Solving Technique.
- Process Used is More Important than Finding a Solution—i.e., Solution is Not Required.
- Utilizes Three Levels: Guided, Inquiry and Open Inquiry.
- **No** Established Pattern/Steps are Followed—Students Can Develop Individual Strategies.

Heuristic Methods—Continued

Inquiry Learning's Three Step Procedure:

- 1. Identifying the Problem**—Teacher Might Need to Provide Guidance w/Clarifying the Problem.
- 2. Working Toward Solutions**—Students Should be Given the Opportunity to Try Creative Strategies/Ideas to Solve the Problem.
- 3. Establishing Solutions**—Emphasis in Inquiry is the **Process** not the Solution (Success is then Measured by the Amount of Talent, Ideas, Skills, and Judgments Students used).

Heuristic Methods—Continued

- **Suchman Inquiry Learning**—the Steps:
 - **Analyzing the Episode**—Film/Event is Presented and they Must Follows these Rules:
 - Teacher Questions must have a **Yes/No** Answer.
 - One Student can have the Floor and Ask as Many Questions as S/He Wants.
 - Teacher Will Not Respond to Any Question that Asks for Support of a Student Originated Theory/Hypothesis.
 - **Gathering Information**—Students Work Independently Conducting Experiments, Reexamining Discrepant Events, Engaging in Questioning Sessions w/Teachers and Evaluating Data.
 - **Reaching Conclusions**—Draw Conclusions.

Heuristic Methods—Continued

The Strengths and Weaknesses of Inquiry Learning:

Strengths	Weaknesses
1. Students Develop Creative Solutions to Problems.	1. Classroom can become Chaotic.
2. Challenges Students to Solve Problems to Very Limits of their Abilities.	2. Anticipating and Securing Materials is Difficult Because of the Undisciplined Process of Inquiry Learning.
3. Impossible to Fail in this type of Learning.	3. Evaluation may be Difficult.

Table 9.3 Heuristic Methods— Continued

Method	Description
Discovery	<ul style="list-style-type: none">• Intentional Learning through Supervised Problem Solving Following the Scientific Method.
Inquiry	<ul style="list-style-type: none">• Flexible Yet Systematic Process of Problem Solving.
Suchman Inquiry	<ul style="list-style-type: none">• Inquiry Approach whereby Students are Presented with and Asked to Explain Discrepant Events.

Heuristic Methods—Continued

4. Systematic Problem Solving:

– Process Utilized Developed by *The International Technology Education*

- Steps Used:

1. Define the Problem.	7. Developing a Design Proposal.
2. Brainstorming.	8. Make a Model Prototype.
3. Research & Generate Ideas.	9. Testing & Evaluating the Design Using Specifications.
4. Identifying Criteria and Specify Constraints.	10. Refining the Design.
5. Exploring Possibilities.	11. Creating/Making the Solution.
6. Selecting an Approach.	12. Communicating the Processes & Results.

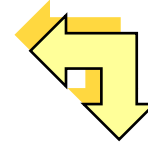
Teacher's Role in Indirect Approaches

- Facilitator.
- Continuously Monitoring Students.
- Alert to Problems and Rectify them Immediately.
- Deal w/Management Problems/Discipline Problems.
- Work One-On-One w/Students.
- Support/Scaffold Students' Work During Systematic Investigation of Problems.
- Systematic Planning.
- Flexible.

Classroom Environment

- Supportive Classroom that Promotes: Encouragement, Cooperation, Trust, Self-Control, and Conviction.
- Flexible
- Schedule both Problem-Solving Episodes and Teacher-Directed Lessons.
- Plentiful Supply of Materials and Equipment.
- High Expectations for Work.

Reflection



Based on Your Reading of this Chapter, Please Answer the Following Questions:

1. What are the **Benefits** of Self-Directed Learning?
2. Would You **Use it** in Your Own Classrooms? **Explain.**

The End!