

## Lesson 4

### Questions

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*Teaching by Questioning =*  
***Developmental Teaching***

# Teaching by Questioning

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- Purpose of questioning.
- Building effective questions.
- How to use questions and handle student questions.
- Why questioning is such a useful tool.
- ***Developmental Teaching*** – guiding learning by questions

# Developmental teaching/ Guided discussion

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- Learning by asking questions.
- One of the oldest and most effective teaching methods
- Student centered philosophy which requires **reasoning with students to guide thought**.
- Use students' **background knowledge**, ask questions which lead students to determine the next step in a procedure, the logical application of a principle, or the solution to a problem.
- Rate of progress governed by the student comprehension.
- Questions should be asked to review previous material.
- Developmental teaching begins when students reason out new material.
- Requires appropriate questions

# Guided Discussion

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- For example a group discussion on the inputs to an engine, fuel, oil, air and how they are used can be directed to an understanding of failures when one of those inputs is affected.
- Interruptions to air such as ice blockage, or discuss what could go wrong with fuel and oil.

# Purpose of Questioning

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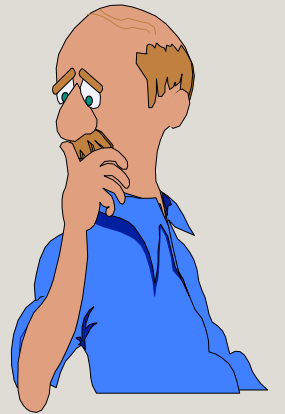
- Practical means of evaluation.
- Can be factual or thought provoking.
- Reveals effectiveness of the training process.
- Checks student level of retention.
- Identify weak points.
- Promote participation.
- Guide student thinking.

# Why are questions so effective as a teaching tool?

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- Makes the student *think* rather than just listen and look (Relationship, Exercise)
- Keeps them interested (Effect)
- Allows you to guide their thinking (Relationship)
- Confirms and reinforces knowledge (Recency, Primacy)

Questions cover all the **Major Learning Factors!**



# Building effective questions

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- Sample questions exercise
- Read following questions
- determine strengths and weaknesses for each.

# Question 1: What's the most important thing about slow flight?

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- STRENGTH: gets the student thinking about slow flight
- WEAKNESS: Number of answers based on opinion
- WEAKNESS: Ambiguous, may never lead to the desired answer
- Question should be asked in a way to lead to the desired response. Let's try another question...



## Question 2: How do you recognize that the aircraft is entering slow flight ?

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STRENGTH: Focused on teaching point

STRENGTH: Easily Understood

STRENGTH: Thought provoking

# Question 3: How will small pitch movements affect the boundary layer when flying near the stall ?

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- STRENGTH: Composed of common words
- STRENGTH: Thought provoking



# The “What” Question

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- “What is the engine failure on take-off drill ?”
- Works for quick review of memory items.....Checklists, procedures
- Most effective followed by “How” or “Why” question
- “What should we do during a short field landing before applying brakes?” Why?
- “What” questions do little to confirm depth of knowledge, understanding
- TKT: “What” level of learning are we using?
  - Rote – Learning Factor of Relationship

# The “how” question

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- Excellent for reviewing and determining level of knowledge
- Excellent for developing procedural and systems knowledge
  - “How do you intercept a VOR radial ?”
  - “How does the landing gear lock down ?”

“How” questions are commonly followed by a “Why” question

# The “why” question

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- Used to motivate or give a reason
- Excellent for developing concepts and theory
  - “Why will using flaps shorten our landing distance?”
- Excellent for evaluating depth of knowledge
  - “Why does the application of carb heat enrichen the mixture?”
  - Commonly follows a “How” question
  - If a student can answer “how and why” questions they usually have a good understanding or “comprehension”. This also satisfies the Learning Factor of Exercise.

# Sample sequence of questioning

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- What is the engine fail after take-off drill? (Multi-Engine)
  - How will you maintain control ? -Procedure
  - Why must you bank 5 degrees into the good engine ? Theory/Concept

# Sample sequence

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- What is the stall recovery procedure?
  - Defines objective. We are looking for a very specific answer.
- Why is it important that you learn this procedure?
  - Motivates
- How much pitch change is required to un-stall the aircraft ?
  - Method/Procedure

# The “if/then” questions

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- Forces student to use logic and reason
- Forms the basis of developmental method and allows the student to use Insight

If:  $4a = 8$   
Then:  $a = ??$   
and therefore:  $2a = ??$



# The “scenario or complex” question

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- Excellent for integrating knowledge and judgment
- Effect and intensity
- Keep it realistic
- Great for Precautionary, Diversion etc.
  - You are on a x/c flight and find yourself descending lower and lower to stay below cloud. You decide to turn around and realize you're surrounded by poor visibility. What do you do? Why are you in this position? How do you deal with the situation?

# Oral questioning

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- Characteristics of good oral questions: (FIG pg 10)
  - Easily understood.
  - Use common words. Clear, simple vocabulary.
  - Challenging and thought provoking.
  - Relate to the subject material – Major Teaching Points
  - Appropriate to the students' experience.

# Oral questioning

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- Things to avoid...
  - True/False or Yes/No, unless followed by a “why” or “how”
  - Questions with a thousand answers
  - Broad based questions with vague language
    - Ex) During a crosswind landing, how do we keep going straight?
      - The question should use the correct terminology: During a crosswind landing, how do we prevent drift while keeping the longitudinal axis parallel with centerline?

# Effective questioning technique (fig PG 11)

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- **Step 1:** ASK THE QUESTION CLEARLY
- Have the question in mind prior to speaking
- Have questions prepared for all major teaching points

## Step 2: Pause 1-5 Seconds

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- Gives instructor time to read body language
- Allows students to think about an answer

# Step 3: Name the student

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- Considerations ?
  - Ensure all students are questioned
  - Don't telegraph - look but don't stare at several of the class
  - Make sure everybody is included
  - Challenge the talented and encourage the weaker student - tailor the question
  - Random order

# Step 4: Listen to the answer

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- Considerations ?
  - Avoid the temptation to start thinking about the next question
  - Student feels like you really are interested in them
  - Instant credibility check if you confirm a wrong answer



# Step 5: Confirm the answer

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- Confirm as Correct, Partially Correct, Incorrect
- Tact
- If you can't or class members can't hear the answer, ask student to repeat
- Remember, if you don't get the answer you want, it may be because of the way you asked the question.



# HANDLING STUDENT ANSWERS (FIG PG11)

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- Discourage Group Answers. 6(a)
- Don't make a habit of repeating answers. 6(b)
- Give credit for good answers. 6(c)

# Handling Student Questions (fig pg 12)



- Don't bluff and lose the respect of the student.
- Try to direct the student to the answer or where the answer could be found.
- Occasionally pass a question to another student.
- If you don't know the answer, offer to find out or help them find the answer.
- Ensure the entire class hears the answer
- Should we reject questions?

# Review: how do we ask a question?

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- 1. Ask the question
- 2. Pause
- 3. Name the student
- 4. Listen to the answer
- 5. Confirm or correct the response

# review

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- Which type of question typically follows a "what" question?
  - "how" and "why"
  - List a desired quality of good oral questioning.
  - Easily Understood, Composed of Common Words, Thought Provoking, Major Points

# Teaching by Questions

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Should now understand:

- Purpose of questioning.
- How to build effective questions.
- How to use questions and handle student questions.
- Why questioning it is such a useful tool
- Using Developmental Teaching to draw lesson from student.

# For Next Time:

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- Next lesson FLIGHT INSTRUCTION. Will discuss:
- Ground School
- PGI (Preparatory Ground Instruction)
- Pre-Flight Briefings
- Post-Flight Briefings
- Please read pages 38-43 in the FIG (Flight Instructor Guide)