


## Techniques of Flight Instruction

<b>Objective</b>	
<p>To ensure the applicant learns the purpose of and can exhibit a clear understanding of the techniques of flight instruction.</p>	
<b>Purpose</b>	
<p>The Techniques of Flight Instruction are the toolbox that flight instructors have for working with students. This lesson introduces the aspiring flight instructor to concepts that they can use during flight instruction to avoid obstacles to learning, and promote safety and solid aeronautical decision-making.</p>	<b>Schedule</b>
<ul style="list-style-type: none"> <li>● <b>Ground Lesson:</b> 15 minutes</li> <li>● <b>Student Q&amp;A:</b> 10 minutes</li> </ul>	<b>Equipment</b> <ul style="list-style-type: none"> <li>● Whiteboard / Markers (optional)</li> </ul>
<b>Student Actions</b>	<b>Instructor Actions</b>
<ul style="list-style-type: none"> <li>● Ask any questions, receive study material for the next lesson.</li> <li>● Watch linked video.</li> <li>● Review listed references.</li> </ul>	<ul style="list-style-type: none"> <li>● Deliver the ground lesson (below).</li> <li>● Answer student questions.</li> </ul>
<b>Completion Standards</b>	
<ul style="list-style-type: none"> <li>● Student can explain the following concepts: <ul style="list-style-type: none"> <li>● Obstacles to learning during flight instruction, anxiety and stress</li> <li>● Demonstration/Performance method</li> <li>● Positive exchange of controls, Sterile Cockpit</li> <li>● Use of Distractions</li> <li>● Integrated Flight Instruction,</li> <li>● Assessment of Piloting Ability</li> <li>● Aeronautical Decision Making, PAVE, CARE, DECIDE, TEAM, 3Ps</li> <li>● 5 Hazardous Attitudes and the Antidotes</li> </ul> </li> </ul>	

## References

- FLY8MA.com Flight Training - "CFI ORAL EXAM: Part 1 | FOI"
  - YouTube - <https://www.youtube.com/watch?v=4lxiQeh0FFI>
- FAA-H-8083-9A (Aviation Instructor's Handbook) - Chapter 8 [Techniques of Flight Instruction]
- FAA-S-8081-6D (CFI PTS) - Area I Task F

## Ground Lesson Outline

- Obstacles in Learning During Flight Instruction
  - Feeling of Unfair Treatment, Impatience, Worry or Lack of Interest, Physical Discomfort, Apathy Due to Inadequate Instruction, Anxiety
- Demonstration-Performance Training Delivery
  - Explanation, Demonstration, Student Performance, Instructor Monitors, Evaluation
- Positive Exchange of Controls
  - 3-Way Exchange
- Sterile Cockpit
  - Prevents Runway Incursions, Prevents Forgetting Critical Items
- Use of Distractions
  - Ensure Ability to Multitask
  - Examples
    - Drop a pencil, Ask for a heading to an airport, Ask student to identify ground objects, etc.
- Integrated Flight Instruction
  - Introduce Maneuvers with External and Internal References
- Assessment of Piloting Ability
  - Review
  - Collaborative assessment
  - Written tests
  - Performance-based tests
- Aeronautical Decision Making
  - D-E-C-I-D-E Model - Simple and logical decision making process
    - Detect, Estimate, Choose, Identify, Do, Evaluate
  - PAVE - Divides risks into categories
    - Pilot, Aircraft, enVironment, External Pressures
  - CARE - Determine level of Risk
    - Consequences, Alternatives, Reality, External Pressures
  - TEAM - Dealing with Risks
    - Transfer, Eliminate, Accept, or Mitigate
  - The Five Hazardous Attitudes
    - Anti-Authority, Impulsivity, Invulnerability, Resignation, Macho
    - Antidotes
  - Stress
    - Physical, Physiological, Psychological
  - 3Ps - Determine best course of action
    - Perceive
      - PAVE
    - Process
      - CARE
    - Perform
      - TEAM

## Ground Lesson Content

- **Obstacles in Learning During Flight Instruction**

- **Feeling of Unfair Treatment** - Students want to feel like they're treated fairly. It gets in the way of their training if they feel the instructor is unfair, or holding them to unreasonably high standards, particularly early on.



- **Impatience** - Flying circles all day in the traffic pattern is less fun than cross country flying, and many students are impatient to press on with these other activities
- **Worry or Lack of Interest** - Students may not be interested in a particular task, or they may have worries about some aspect of their training, or even non-flying related issues.
- **Physical Discomfort** - Students who are experiencing discomfort won't learn as well
- **Apathy Due to Inadequate Instruction** - Students who feel their instructor is unprepared, or treats them poorly, or does not adequately explain tasks or maneuvers may become apathetic, lose motivation, and give up.

Teaching Tips from Veteran Flight Instructors	
1	Use a tape recorder and/or video camera to rehearse preflight briefings until delivery is polished.
2	Find a mentor to provide a second opinion on how well a student is performing during critical phases of flight training (such as first solo) for the first few PTs.
3	Encourage a high standard of performance.
4	Just because it's legal, doesn't make it safe. Maintain a high level of supervision of PT operations.
5	Develop a safety-culture environment.
6	Assign organized, specific, appropriate homework after each flight session.
7	Use all available tools to supplement teaching and assignments: online sources, seminars, flight simulators, etc.
8	Know the background, credentials, security issues, medications, etc., of the student before climbing into the cockpit with him or her.
9	Thoroughly and carefully document all training events as though the National Transportation Safety Board (NTSB) were going to read them.
10	Postflight debriefing after an FAA checkride is an excellent opportunity for additional learning.
11	Encourage each student to establish personal minimums.
12	Include a review of NTSB accident reports during advanced instructional activity.

- **Anxiety** - Many maneuvers in flight training may produce feelings of anxiety in students, which

impede their learning.

- **Demonstration-Performance Training Delivery** - Useful for skill learning (maneuvers)
  - **Explanation** - Instructor explains the maneuver
  - **Demonstration** - Instructor does the maneuver
  - **Student Performance** - Student attempts to imitate
  - **Instructor Monitors** - Instructor monitors the student
  - **Evaluation** - Instructor evaluates the student performance

Traditional Teaching Process	Demonstration-Performance Method	Telling-and-Doing Technique
Preparation	Explanation	Preparation
Presentation	Demonstration	Instructor tells Instructor does Student tells Instructor does
Application	Student performance supervision	Student tells Student does
Review and Evaluation	Evaluation	Student does Instructor evaluates

- **Positive Exchange of Controls** - Absolutely crucial for safety, there can never be any doubt who is flying the airplane
  - **3-Way Exchange** - Best way to exchange flight controls, confirms both parties understand who is in control
    - “You have the flight controls”
    - “I have the flight controls”
    - “You have the flight controls” (Also visually confirm)
- **Sterile Cockpit** - Important to minimize unnecessary discussion during critical phases of flight
  - **Prevents Runway Incursions** - Distractions by unnecessary discussion can lead to runway incursions
  - **Prevents Forgetting Critical Items** - Pilots can forget checklists or critical checklist items
- **Use of Distractions** - Student pilots should be evaluated by the instructor creating deliberate distractions
  - **Ensure Ability to Multitask** - Ensures that the student can divide attention between flying and other tasks
  - **Examples**
    - Drop a pencil, Ask for a heading to an airport, Ask student to identify ground objects, etc.
- **Integrated Flight Instruction**
  - Introduce Maneuvers with External and Internal References
  - Builds confidence in using flight instruments to supplement outside references
  - Develops habits of cross-referencing the instruments
- **Assessment of Piloting Ability**
  - **Review** - Review of tasks performed on a lesson, i.e. post-flight debrief
  - **Collaborative assessment** - Work with the student to recount the events of the lesson, discuss together what went well, what didn't, help them identify what needs improvement, etc.
  - **Written tests** - Traditional testing
  - **Performance-based tests** - Mock checkrides, etc.
- **Aeronautical Decision Making** - Help pilots maintain a margin of safety by giving a structured framework to make decisions, and avoiding unnecessary risk.
  - **D-E-C-I-D-E Model** - Simple and logical decision making process
    - **Detect** - See a problem

- **Estimate** - Determine whether action needs to be taken
- **Choose** - Choose a course of action
- **Identify** - Identify steps to achieve course of action
- **Do** - Implement the steps
- **Evaluate** - Evaluate the performance
- **PAVE** - Divides risks into categories
  - **Pilot** - Risk factors affecting pilot performance, health (IMSAFE), etc.
  - **Aircraft** - Risk factors affecting the airplane, maintenance, etc.
  - **enVironment** - Risk factors relating to weather, unfamiliar airports, etc.
  - **External Pressures** - Risk factors relating to external pressures, e.g. get-there-itis
- **CARE** - Determine level of Risk
  - **Consequences** - What would happen?
  - **Alternatives** - What else could we do?
  - **Reality** - Be open to recognizing when things are going wrong
  - **External Pressures** - Factors which may influence our risk taking decisions
- **TEAM** - Dealing with Risks
  - **Transfer** - Ask someone else? Get help
  - **Eliminate** - Can we eliminate the risk somehow?
  - **Accept** - Can we just accept the risk? Is it worth it?
  - **Mitigate** - Can we do something to minimize the consequences or likelihood of occurrence?
- **The Five Hazardous Attitudes**

The Five Hazardous Attitudes
<p><b>Anti-authority: "Don't tell me."</b> This attitude is found in people who do not like anyone telling them what to do. In a sense, they are saying, "No one can tell me what to do." They may be resentful of having someone tell them what to do, or may regard rules, regulations, and procedures as silly or unnecessary. However, it is always pilot prerogative to question authority if it seems to be in error.</p>
<p><b>Impulsivity: "Do it quickly."</b> This is the attitude of people who frequently feel the need to do something—anything—immediately. They do not stop to think about what they are about to do; they do not select the best alternative, and they do the first thing that comes to mind.</p>
<p><b>Invulnerability: "It won't happen to me."</b> Many people believe that accidents happen to others, but never to them. They know accidents can happen, and they know that anyone can be affected. They never really feel or believe that they will be personally involved. Pilots who think this way are more likely to take chances and increase risk.</p>
<p><b>Macho: "I can do it."</b> Pilots who are always trying to prove that they are better than anyone else are thinking, "I can do it, I'll show them." Pilots with this type of attitude will try to prove themselves by taking risks in order to impress others. While this pattern is thought to be a male characteristic, women are equally susceptible.</p>
<p><b>Resignation: "What's the use?"</b> Pilots who think, "What's the use?" do not see themselves as being able to make a great deal of difference in what happens to them. When things go well, the pilot is apt to think that it is good luck. When things go badly, the pilot may feel that "someone is out to get me," or attribute it to bad luck. The pilot will leave the action to others, for better or worse. Sometimes, such pilots will even go along with unreasonable requests just to be a "nice guy."</p>

- **Anti-Authority** - "Don't tell me!"
- **Impulsivity** - "Do it quickly"
- **Invulnerability** - "It won't happen to me"
- **Resignation** - "What's the use?"
- **Macho** - "I can do it"
- **Antidotes To Hazardous Attitudes**

Hazardous Attitude	Antidotes
<p><b>Macho</b> Steve often brags to his friends about his skills as a pilot and how close to the ground he flies. During a local pleasure flight in his single-engine airplane, he decides to buzz some friends barbecuing at a nearby park.</p>	<p><b>Taking chances is foolish.</b></p>
<p><b>Anti-authority</b> Although he knows that flying so low to the ground is prohibited by the regulations, he feels that the regulations are too restrictive in some circumstances.</p>	<p><b>Follow the rules. They are usually right.</b></p>
<p><b>Invulnerability</b> Steve is not worried about an accident since he has flown this low many times before and he has not had any problems.</p>	<p><b>It could happen to me.</b></p>
<p><b>Impulsivity</b> As he is buzzing the park, the airplane does not climb as well as Steve had anticipated and, without thinking, he pulls back hard on the yoke. The airspeed drops and the airplane is close to stalling as the wing brushes a power line.</p>	<p><b>Not so fast. Think first.</b></p>
<p><b>Resignation</b> Although Steve manages to recover, the wing sustains minor damage. Steve thinks to himself, "It doesn't really matter how much effort I put in—the end result is the same whether I really try or not."</p>	<p><b>I'm not helpless. I can make a difference.</b></p>

- **Anti-Authority** - Follow the rules, they are there for a reason.
- **Impulsivity** - Not so fast, think.
- **Invulnerability** - It can happen to you.
- **Resignation** - I am not helpless, I can make a difference.
- **Macho** - Taking chances is foolish.
- **Stress**
  - **Physical** - Hot, humid, environmental factors, etc.
  - **Physiological** - Not feeling well, sick, hungry, thirsty, etc.
  - **Psychological** - Worried, anxious, had a fight with spouse, etc.
- **3Ps** - Determine best course of action
  - **Perceive**
    - **PAVE** - Think through risk areas using the PAVE checklist.
  - **Process**
    - **CARE** - Think about each risk using CARE checklist.
  - **Perform**
    - **TEAM** - Decide how to deal with each risk using the TEAM checklist.