



CIVIL AVIATION AUTHORITY BANGLADESH

INSTRUCTIONAL TECHNIQUE MANUAL

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## FOREWORD

ICAO Annex1(2.8)and FAA Part-141 (Appendix-F-141) require that an applicant for Flight Instructor Rating shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder. Similar mandatory requirement is applicable for Ground Instructor Rating by FAA Part-141 (Appendix-H). It is therefore, necessary that those who wish to become instructors must acquire required knowledge appropriate to the privileges granted to the holder

This Instructional Technique Manual has been developedby a panel of very senior Inspectors of CAAB to suit all categories of future instructors for the aviation industry's training divisions. This manual will help them to acquire necessary knowledge and learn appropriate teaching technique to become effective and successful instructors.However, it must be remembered that this is not an all inclusive manual. No instructor must therefore,ever cease to learn from other sources. He must always systemically and periodically modify, amend, review and synthesize lectures and techniques for reinforcement, re-organization and re-categorization into a larger context as the course develops that he would be conducting.

I am confident that this manual will play its roll to develop better quality instructors to produce better quality aviation personnel to ensure a better margin of safety.



Air Vice Marshal Ehsanul Gani Choudhury  
GUP, ndu, psc  
Chairman  
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## PREFACE

ICAO and FAA require that an applicant for Flight or Ground Instructor Rating shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder, in at least the following areas (as applicable):

- a) Techniques of applied instruction;
- b) Assessment of student performance in those subjects in which ground instruction is given;
- c) Learning process;
- d) Elements of effective teaching;
- e) Student evaluation and testing, training philosophies;
- f) Training programme development;
- g) Lesson planning;
- h) Classroom instructional techniques;
- i) Use of training aides, including flight simulation training devices as appropriate;
- j) Analysis and correction of student errors;
- k) Human performance relevant to flight instruction including principles of threat and error management; and
- l) Hazards involved in simulating system failures and malfunctions in the aircraft.

To have demonstrated a level of knowledge an applicant shall have to pass a CAAB conducted examination. The examination consists 30% subjective and 70% MCQs. A candidate requires scoring at least 70% mark on each part to secure a pass grade.

There has been a need of a genuine reading material for a long time for the guidance of the future instructors to be able to meet the above requirements. This manual has been thoroughly edited from an existing one, format has been re-adjusted and the text up-graded. I am confident that this new look manual shall meet the expectations of all future instructors of the aviation industry.



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## CHAPTER – 1

### TRAINING ENVIRONMENT & ROLE OF AN INSTRUCTOR

#### Introduction

1. An instructor's job is not only a highly specialized profession but also a way of life. A successful instructor requires having a high sense of adaptability, remaining up dated with new ideas and information. And of course a successful instructor never ceases to learn.
2. Instruction is not only transfer of knowledge but how effectively it is done. To make Instruction effective, certain methods and techniques must be learnt and applied.
3. Teaching profession can some time be frustrating but often is rewarding and satisfying. This depends how an instructor is treated and how an instructor views his profession. It depends on the training environment and one's attitude and perception.

#### Training Environment

1. It is necessary to have training environment appropriate to the purpose to achieve undivided attention of the students. It may be achieved in the following manner:
  - a. Indoors: Arrange the class room before the class starts. The seating arrangement should enable all students to hear and see you and the instructional aides. Ensure that distracting noises and movements are eliminated or minimized, lighting is adequate, glare is prevented, ventilation and temperature are comfortable and the equipments are kept orderly and clean.
  - b. Outdoors: Select the best location available. Students should be comfortable and able to hear and see distinctly. Either avoid sunny area or have the sun behind the students. Select quiet locations and be aware of the necessity of transport and other logistic support.
  - c. In-flight: You should be particularly careful that the student can hear, see and understand all directions. Intercom volume, clear pronunciation, seat, harness, etc. should be considered.
2. The most important element in a training environment is student. They are the input and output of a training process. The only observable & measurable product of



training process is a change (hopefully an improvement) in the performance of the students.

3. The most influential, the most critical & the most dominant factor in both quantity and quality of that change is an instructor and his/her role.
4. Instructional Aides are necessary assistance to the instructors for teaching and help students to understand a lesson.

### Role of an Instructor

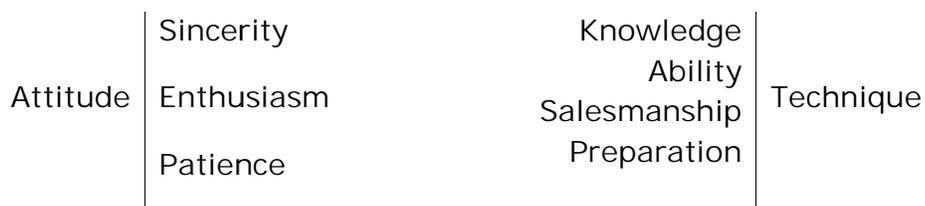
1. The management is expected to provide learning environment, so that the instructor can develop in his students the requisite qualities or change and also check that these have been achieved.
2. The quality of such change is a direct reflection of instructor's attitude and the quantity is the direct reflection of instructional technique. Though both of them are closely linked and each reflects the other, they are separate components of instruction.
3. The way the instructor perceives the students and his relationship with the students are significant factors of the instructor's attitude. A newly graduated instructor brings all extremely positive attitudes to the training environment, such as:
  - a. Students are seen as a challenge;
  - b. Each one is different, an individual;
  - c. Instructional techniques are adjusted to fit varying student needs;
  - d. There is obvious concern for the students and their progress.
4. On the contrary, negative attitude may develop amongst some experienced instructors depending on the individuals, length of teaching time, subject/topic they teach, in the manner that:
  - a. All students begin to look alike;
  - b. They are seen as burden;
  - c. They interfere with more desirable pursuits;
  - d. They are to be tolerated, not nurtured;
  - e. Since they make the same mistakes as their predecessors the same technique is applied to them.



5. These changes in instructional attitude are extremely detrimental to the learning process and considered as the symptoms of burnout, a decrease in an Instructor’s positive attitudes.
6. The individual technique of teaching differs from person to person. An effective instructor will always consider new techniques which directly help learning.
7. Learning is an active process which involves interaction between the students and the instructor is Communication. The factors which assist this process are the level of motivation, reaction and concentration of the students; qualities of instruction; Comprehension by the student is the final result of an effective communication.
8. An instructor must take into consideration the students’ psychology while adopting instructional technique. Students perceive well with the basic technique based on correct attitude of an instructor. However, both the attitude and technique combined are the qualities of an instructor.

Quality of an Instructor

1. Sincerity, enthusiasm and patience are essential for an instructor’s correct attitude. Insincerity is easily detected by students and causes them to lose confidence in an instructor and lose interest in the entire training process. Lack of instructor’s enthusiasm will cause even the best planned training program to fall apart. Patience is needed in any situation, especially where complex skill is being developed like flying.
2. The technique of an instructor becomes effective if he has knowledge of the subject, teaching ability, salesmanship and preparation. Good knowledge of the subject will make the instructor confident and enable him to tackle any problem or question by the students. Teaching ability, a complex skill acquired through study, hard work and determination convinces the students easily and makes it simple to achieve the objective. Adult students do not want to learn unless they can see why they should learn. Good salesmanship will ensure that each student recognizes rewards worth of his work. Lastly, a good presentation of the subject matter makes it easy to learn.





### Conclusion

1. An instructor must understand the training environment and create pleasing atmosphere where students must be led to a positive feelings about themselves. The skills and knowledge to be trained may seem old stuff and easy to the instructor but are brand new to the students and can be confusing and difficult to them.
  2. The instructor who can adhere to the basic instructional technique and maintain correct attitudes throughout his teaching career deserves the highest accolades.
  3. A successful completion of a course in a formal training environment firmly establishes the credentials of an instructor and can be a positive determinant throughout his instructional career.
  4. Learning is a change of behaviour. Next chapter deals with learning process.
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## EXERCISE

### Subjective Questions:

1. List essential qualities of an instructor. Why do you want to be an instructor?
2. Why students are considered the most important element in a training environment?
3. Learning is an active process; explain.
4. How does an instructor's attitude affect learning in the classroom?
5. What are the symptoms of instructor's burnout?
6. How an instructor is the most dominant factor in a training environment?
7. Describe the attitude of a newly graduated instructor?

### Objective Questions:

1. Most important element in training environment is:
  - a. Training aids.
  - b. Syllabus.
  - c. Students.
  - d. Instructor.
2. Most influential factor in both quality and quantity of a training process is:
  - a. Performance by the students.
  - b. Attitude of the instructor.
  - c. Instructional Technique.
  - d. Instructor himself.
3. An instructor's attitude is based on:
  - a. Preparation.
  - b. Patience.
  - c. Sincerity.
  - d. Both b and c.



4. The performance of the students acquired through an organized method of learning is said to be a change both in quality and quantity. This change mainly depends on:
- a. Instructor.
  - b. Student.
  - c. Principal.
  - d. Institution.
5. The technique of an instructor depends on his:
- a. Knowledge of the subject.
  - b. Attitude.
  - c. Teaching aids.
  - d. Management support.
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## CHAPTER – 2

### LEARNING PROCESS

#### Introduction

1. Learning is a change in behaviour. A person has learnt when he is able to do something which he could not do before. Learning demands activity, as such called an active process of acquiring knowledge and making a relatively permanent change in behaviour.
2. The changes that occur due to learning, take place in the following faculties:
  - a. Mental: Solving problems or recognizing differences, delivering speeches, etc.;
  - b. Physical: Motor activities like driving a car or flying an aircraft, etc.;
  - c. Attitude: A state of mind or emotional readiness which effectively responds to a given situation.

#### Learning Process

Learning process will be discussed in the following five sub-divisions:

- a. Ways of learning;
- b. Factors effecting learning;
- c. The Rate of Learning;
- d. The Plateau of Learning;
- e. Forgetting.

#### a. Waysof Learning

There are various ways one can learn new things. Some of them are:

- (i) Listening a lecture;
- (ii) Seeing a painting or watching a movie or a game;



- (iii) Doing a thing by Trial & Error;
- (iv) Association of a body;
- (v) Memorizing a lesson;
- (vi) Observing people doing something;
- (vii) By Imitation;
- (viii) By Repetition; and
- (ix) By Solving a Problem.

b. Factors effecting learning

There are six essential factors which affect learning:

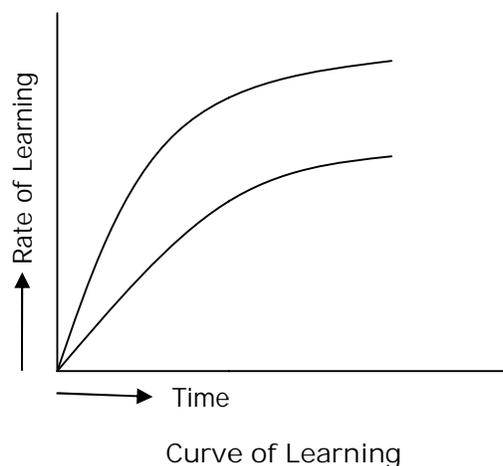
- (i) Motivation: A person wants to learn something if he is interested in it or attracted by it and he sees the purpose of learning it. This want or motivation results from having a definite objective and recognizing the needs to achieve that objective. Therefore, two things are necessary for student motivation:
  - A. A clear knowledge of what is to be learnt; and
  - B. A personal appreciation of why is to be learnt.
- (ii) Reaction: When a student faces new skills, facts or principles, he is in the learning situation and he learns as he reacts to and participates in that situation. The student learns only what you get him to learn or do. This activity may be physical or mental. So, tickle student's curiosity and try to make him think.
- (iii) Attention/Concentration: The fact is that 25% attention does not mean 25% learning. First 25% of attention produces little more than a vague idea of material heard or script read. The really constructive part of learning lies in the upper reaches of attention, 80% of concentration probably gives 50% of learning. The last 20% of concentration is hard to get in most of the learning. A few specific techniques that can help your student's attention are:
  - A. Give real examples and personal experience to add interest;
  - B. Use training aids to give better understanding by engaging at least two of student's senses (Seeing & hearing);
  - C. Make lively presentations to draw students' attention.



- (iv) **Organization:** Here organization means a logical sequencing of development of a subject or an air exercise. A technique for making your organization clear to your student is the use of WHOLE-PART-WHOLE method. This is best summarized as “Tell what you are going to tell them, (then) tell it to them, (finally) tell what you told them”.
- (v) **Repetition:** Few things that happen to us are so clear that they are learnt in one go. But mostly, one needs to repeat things to comprehend and remember well. Any material studied for 15 minutes a day for 4 days will be better assimilated than one hour of continuous study in one go. This is also known as the principle of distributed practice.
- (vi) **Comprehension:** Any academic subject or an air exercise is more easily learnt when the underlying principle is understood. A student when fully comprehends all the implications of a subject or a maneuver; he can apply the knowledge to the best of advantage and even in changed circumstances. This is particularly true in flying where more knowledge of procedures will produce only mechanical crew; whereas full comprehension of underlying principles will enable a crew to handle his aircraft to the limit of its performance.

### c. The Rate of Learning

1. All learning has a rate. Students learn faster when learning starts with easy steps. Hence, do not introduce difficult problems and skills at the beginning as it will discourage the learner. On the other hand, easy steps will give a sense of success and achievement to the student and thus result in a better rate of learning. Therefore, follow simple to complex methods.





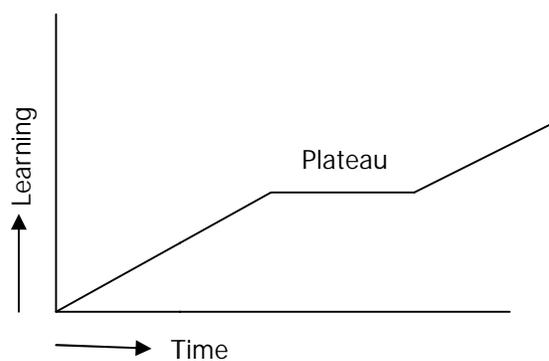
2. However, the rate of learning is be affected by the personality of a learner. Personality depends on intelligence, aptitude, background, interest, motivation, emotional or physical characteristics of a person.

d. The Plateau of Learning.

- (i) Nearly all learning comes to a halt some time or the other. A period comes during which the progress is stationary or is retarded, this is known as plateau of learning and this can happen due to:

- A. Break in Training;
- B. Sickness;
- C. Student has not digested the previous lesson;
- D. Student is using a wrong technique;
- E. Psychological causes i.e. lack or loss of interest;
- F. Instructor is imparting poor knowledge.

- (ii) Whatever may be the cause; a good instructor realizing the fact will exercise patience and will not push the student too hard during this period.



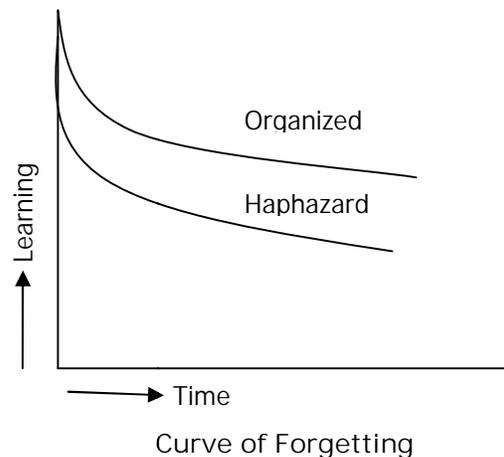
**Plateau of Learning**

- (iii) One must be very careful in distinguishing the plateau and the ceiling. A prolonged duration of plateau is called ceiling where the student do not learn any more.



e. Forgetting

- (i) Forgetting is known as the inability to recall something previously learnt. Before analyzing the reasons of why people forget, it is well to remember that, forgetting may be due to the fact that learning may not have taken place at all.



- (ii) From the above diagram it is understood that:
- A. Forgetting is much more rapid at the beginning.
  - B. Organized learning is retained for a longer period than haphazard learning.
- (iii) Even if the material is correctly, clearly and forcibly impressed upon their minds students may still forget due to:
- A. Disuse: This is the most common reason and one that we are most concerned. Remember, one who graduates today, stops learning tomorrow is uneducated the day after.
  - B. Psychological Reason: Psychological reason may be of:
    1. Emotional interference: i.e. interference due to emotions such as stage fright, death news etc.
    2. Intellectual: i.e. interference due to mental overcrowding such as football, leave, training, test, etc.
    3. Retroactive inhibition: i.e. newly learnt material tends to arrest or inhibit previous learnt material so that it is forgotten.



4. Active or defensive: i.e. if the material to be recalled is unpleasant to a person or against his personality pattern, the mind tends to forget it.
- (iv) Changed Cues: A material is the best remembered in the situation in which it was learnt. Classroom learning cannot easily be applied to situations outside the classroom. Hence, during the learning process contact with real situations should be kept as much as possible. Thus in flying training—learning checks, procedures and emergencies in the aircraft or in simulator is most desirable.
  - (v) Completion: A material when dismissed as of no further value to a person, it is normally forgotten.

### Conclusion

1. For effective learning one must use all five traditional senses i.e. Hearing, seeing, and smelling, tasting and touching.
  2. The changes that occur during learning process are not independent, but occur in combination. Learning must be student centered so that a feedback is noticed. Learning is considered to be successful when a transfer in to a better job performance takes place.
  3. Learning process comes into action through some methods of teaching. These involve certain activities like, telling, showing, doing, checking etc. We shall learn these in the next lesson on instructional method.
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## EXERCISE

### Subjective Questions:

- a. Learning is manifested in a student as a change in behaviour; explain.
- b. What are the general ways that we learn?
- c. What are the factors affect learning?
- d. In learning process how concentration affects learning?
- e. List some ways in which individual differ with respect to how they learn? Explain "whole-part-whole" method.
- f. What is a plateau of learning? What are the causes for a plateau of learning?
- g. Define forgetting. List the causes of forgetting.
- h. Describe how psychological reasons affect forgetting.

### Objective Questions:

1. One of the most essential elements for learning process is:
  - a. Instructor's Attitude.
  - b. Change in behaviour.
  - c. Communication.
  - d. Motivation
2. Motor activity is an example of:
  - a. Attitude.
  - b. Behavior.
  - c. Physical Skill.
  - d. Sports.
3. Memorization is considered as a:
  - a. Mental skill.
  - b. Learning pattern.
  - c. Psychological Training
  - d. Learning Factor.



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4. Rate of learning depends on:
    - a. Easy steps at the beginning
    - b. Aptitude of the learner.
    - c. Background of the learner.
    - d. All are correct
  
  5. Plateau of learning may happen due to:
    - a. Disuse.
    - b. Forgetting.
    - c. Completion of task.
    - d. Sickness.
  
  6. Forgetting is known as:
    - a. The art of negative learning.
    - b. Inability to recall something.
    - c. Total disregard towards training.
    - d. Solving problems for ever.
  
  7. For effective learning one must:
    - a. Guard against forgetting.
    - b. Use all five traditional senses.
    - c. Employ a private tutor.
    - d. Do more self study.
  
  8. One of the factors of learning is concentration. 80% concentration probably gives;
    - a. 40% of learning
    - b. 50% of learning
    - c. 60% of learning
    - d. 80% of learning
  
  9. Instructor imparting poor knowledge causes;
    - a. Break in concentration
    - b. Forgetting
    - c. Plateau of learning
    - d. Boredom



10. Student learn faster when lesson starts with easy steps. However, the rate of learning is affected by the students:
- a. Intelligence & aptitude
  - b. Intelligence & attitude
  - c. Intelligence & psychology
  - d. Intelligence & personality
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## CHAPTER – 3

### INSTRUCTIONAL METHOD

#### Introduction

1. All training is expensive and particularly that of training a crew. It costs a great deal in terms of time, energy, money and human resources. In order to make the training more efficient and economical we must ensure that our instructions are as effective as possible.
2. Effective instructions are the products of good instructional method. A good workman uses proper tools and an efficient instructor chooses the right kind of method to guide his students through the various parts of a lesson to the accomplishment of the objective.

#### Methods of Instruction

1. There are various methods of training. Some commonly used methods of instructions are:
  - a. Lecture;
  - b. Tutorial;
  - c. Discussion;
  - d. Lesson;
  - e. Presentation;
  - f. Assignment;
  - g. Programmed learning.
2. All of the above can be grouped in five fundamental categories, namely:
  - a. Explanation. (Telling or explaining);
  - b. Illustration / Demonstration;
  - c. Repetition;
  - d. Evaluation;
  - e. Motor Learning.



3. Each of the above methods calls for certain activities either by the instructor or by the students, such as telling, showing, doing and checking.

a. Explanation

- (i) Telling or explaining may be used in conjunction with any other method of instruction. A good explanation requires the active participation of every student. It can take place in the following ways:
- A. Lecture;
  - B. Discussion;
  - C. Assigned reading and writing.
- (ii) Use the telling (method) to aid other methods in the development of a lesson. Combine telling with showing and doing and your teaching will be more effective. Use charts and other illustrative materials when you are talking to a large group. Watch your students and make them a part of what is going on. Use notes only as a guide but ask questions to find out if they are with you.
- (iii) The instructor with one student in an aircraft or in an on-the-job training situation, as well as the instructor with several students in a class room will use the explanation method frequently. Success of an explanation method can be seen in the student's performance.
- (iv) The following suggestions may prove helpful in making explanation method a success:
- A. Arouse student interest;
  - B. Keep your explanation brief and simple;
  - C. Observe the behaviour of the students;
  - D. Plan the sequence;
  - E. Get student participation;
  - F. Evaluate the results.



b. Illustration / Demonstration

The purpose of an illustration is to Show how a skill, a procedure or a process is done so that you may aid the student in learning the skill or acquiring the knowledge. An illustration method is used to show the student what is done, how to do it and its application. This method can lead to an answer to a problem, help present an idea, serve as an example or as a standard for evaluating student's performance. Use following suggestions as guide in planning and making illustrations:

- (i) Be sure you can do it;
- (ii) Plan how you will do it;
- (iii) Assemble the equipment;
- (iv) Prepare your students;
- (v) Be sure students can hear and see;
- (vi) Emphasize safety precautions;
- (vii) Check and evaluate.

c. Repetition

- (i) Here, repetition means the performance by the students. Imagine a person trying to play tennis without banging the ball around the court, to swim without getting in the water or to fly an aircraft without getting into one. The skills involved in any of the activities described can be acquired only through performance i.e. by doing it and is shown as Learning by doing. Since training organizations require that the students develop many highly technical skills, they must be given the opportunity to perform.
- (ii) Student activity or doing may occur in many forms. It may involve physical activity such as driving a car, pitching a cricket ball or flying an aircraft. While mental activity involves problem solving, diagramming or writing etc. This activity does not necessarily mean that the student understands what he is doing but he knows why each step is being performed in a particular manner, that he knows the reasons for the sequence of steps or that he knows the relationship between what he is doing and the objective. Performance without understanding is 'doing without learning' and not 'learning by doing'. So



the instructor must use every technique at his command to make sure that the student understands.

(iii) The following suggestions review some important ideas in marking the repetition a valuable learning experience:

- A. Plan for student performance;
- B. Prepare the students;
- C. Guide the performance;
- D. Give individual attention;
- E. Evaluate the performance.

d. Evaluation

(i) To find out whether students are learning or not, a checking of their performance is a must. This is an important aspect of teaching or learning process as it will clarify your success or failure as an instructor. Evaluation is done in the following manner:

- A. Questioning - during learning process;
- B. Test or Examination at the end.
- A. Questioning can be used throughout the lesson and main reasons for asking questions in each part are:

i. Introduction:

- a. Arouse interest in the subject;
- b. Discover the level of knowledge;
- c. Revise.

ii. Development:

- a. Elicit concepts by encouraging logical thoughts;
- b. Maintain interest and attention;
- c. Check on student's progress;
- d. Focus main points.



iii. Technique:

When using questions remember the following points:

- a. Begin with an interrogative to warn the students;
- b. Phrase it concisely and precisely to ensure no ambiguity which could confuse the class;
- c. Sequence the delivery: Question-Pause-Nominate.

iv. Consolidation:

- a. Check memory;
- b. Test understanding.

B. Test or examination can be both written and oral. However, it can be of following type:

- i. Objective type;
- ii. Essay type.

e. Application to Motor Learning

Motor skill, for example flying is based on a combination of many well developed muscular responses. The application of previously discussed methods in development of motor skill can be viewed as follows:

- (i) Briefing (Explanation): This can be of any form such as phase brief / long brief, pre-flight briefing, post-flight briefing etc.
- (ii) Demonstration (Illustration): A good demonstration of an air exercise follows WHOLE-PART-WHOLE method. This brings us to the most important step in teaching a motor skill namely student practice.
- (iii) Student Practice (Repetition): A golden rule to remember when teaching a motor skill is that ten minutes of telling is worth one minute of demonstration and ten minutes of demonstration is worth one minute of student practice.



- (iv) Supervision (Evaluation): An old saying goes “practice makes perfect”. Actually, “Practice makes permanent, supervision makes perfect”. During checking the student’s performance, don’t breathe down the neck of the student or ride the controls.

### Conclusion

1. Considering the above mentioned methods and their practical applicability an effective instructional method will therefore require:
    - a. Student participation: To ensure they are developing.
    - b. Feed back: So that the instructor can assess the progress.
    - c. Control of the learning: So that the instructor can adjust it to meet the needs of the students.
  2. Whatever the method chosen, it is worth bearing in mind that the instruction itself should be characterized by the following:
    - a. Job related. Proper use of objectives will help this.
    - b. Student orientated. Looked at from the student’s point of view, bearing in mind the experiences and requirements.
  3. A good instructor uses a variety of methods, materials and equipment. An effective instructional method will surely demand your careful planning for learning activities.
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## EXERCISE

### Subjective Questions:

- a. What are the categories of instructional methods?
- b. What are the means of evaluation?
- c. Why a question is asked in the development phase of a lesson?
- d. What are the requirements of an effective instructional method? Elaborate them in relation to characteristics.

### Objective Questions:

01. Which one in the following is not a method of instruction?
  - a. Evaluation.
  - b. Motivation.
  - c. Explanation.
  - d. Illustration.
  
02. Questions can be asked during the introduction part of the lesson to:
  - a. Arouse interest in the student
  - b. Revise.
  - c. Check memory.
  - d. Check progress.
  
03. Written or oral tests can be:
  - a. Objective type.
  - b. Essay type.
  - c. Both are correct
  - d. Only a is correct.
  
04. An effective instructional method will require:
  - a. Student participation.
  - b. Feedback.
  - c. Control of learning.
  - d. All are correct.



05. A golden rule in teaching a motor skill is that:
- a. Ten minutes of telling is worth one minute of Demo.
  - b. Ten minutes of demo is worth one minute of practice.
  - c. Ten minutes of practice is worth one minute of telling.
  - d. Only c is wrong.
06. One of the main reasons of asking questions throughout the lesson is to:
- a. Arouse student interest
  - b. Arouse interest in the subject
  - c. Arouse motivation of the student
  - d. Arouse emotion of the student
-



## CHAPTER – 4

PLANNING FOR LEARNING ACTIVITIESIntroduction

1. We, in training organization, often talk about 'Master Plan', sometimes known as blue print. Every activity demands a careful planning for its successful completion. For example, an aircraft manufacturer, before starting construction of an airplane, will have an adequate sets of design and prints; an Instructor, similarly must have a plan of actions before undertaking the job of instruction.
2. This chapter also includes plan for a lesson structure.

1. Planning for Learning Activities

An instructor's plan of actions should be based on the following points:

- a. Initial Information.
- b. Preliminary Planning.
- c. Final Preparation.

- a. Initial Information

Before you can begin the real process of planning there are some pieces of information you will need:

- (i) Syllabus Detail: Your initial reference point is the syllabus. In many occasions you will find the syllabus does not give very clear guidance on the depth to which you have to teach. So, work out on the syllabus in detail before you start your job.
- (ii) Time: The syllabus should tell you about the duration. But for each lesson, you should make an endeavour to finish within the time given in the syllabus.
- (iii) Student Knowledge: Before you can go any further, you need to know how much knowledge the students already have related to the subject you will have to teach. For experienced instructors, this is not much of a problem but new instructor should seek guidance on this point.



- (iv) **Your Knowledge:** Although you are perfectly competent at your job, you will need to go back to the reference to make sure that all your knowledge is accurate and adequate. You will find that if you have researched the topic in depth your confidence in the classroom will be increased because you will have more knowledge than you actually need to instruct.

b. Preliminary Planning

Before you prepare your script, an initial planning should be made in the following order:

- (i) **Determine Objective:** An objective in this particular case is precise statement of what a student must be able to do after he has learned. The statement should contain of the conditions under which the performance must be carried out and the standards to be achieved. In the classroom situation, it is often too routine to include the obvious conditions and standards but the statement of the performance required by the student is essential.
- (ii) **Decide Essentials:** You have already gathered a mass of information which needs censoring. Bearing in the mind the objectives you have to decide what the students must know; what they should know and what they could know. At all costs they must learn the must know material, but the remainder can be taught depending on the availability of time.
- (iii) **Ascertain Sequence:** At this point you have to decide which sequence is right for the material to be taught. There are some simple key phrases which can help in deciding sequences.
- A. Known to Unknown;
  - B. Abstract to Concrete;
  - C. Whole to parts;
  - D. Simple to complex;
  - E. General to specific.
- (iv) **Decide Approach:** Your objectives have virtually determined how you will approach the lesson, but at this point you should double check the materials against the objectives to make sure, as far as possible, that you have chosen the best way to help your students to learn.



### c. Final Preparation

What you have already read in this manual, it should be clear that a great deal of work must be done before you can actually get into the job. In this phase you should do the following:

- (i) Write Lesson Plan: The lesson plan should be the detailed script from which you will work. It should detail the main teaching points you intend to make; normally these will be in the form of key questions, written and made easily identifiable by use of colour.
- (ii) Prepare Aids: During the whole of the preparation phase you should consider what aid will be needed to support your teaching. Right kind of equipment should be arranged on time ensuring its serviceability. You should also scan the training aids you have planned to use. Refer to lesson structure below.
- (iii) Prepare Classroom: Finally you must make sure that the classroom is ready. The seating arrangement should enable all students to hear and see you and your training aids easily. Be sure distracting noises and movements are eliminated or minimized; lighting is adequate; glare is prevented; ventilation and temperature are favorable.

## 2. Lesson Structure

Your lesson plan must have a structure which should act as aid to your successful teaching. It should contain the following parts:

- a. Introduction;
- b. Development;
- c. Consolidation.

### a. Introduction

The introduction must be carefully thought out because within it you lay the foundation of your lesson. It should contain some or all of the components listed below:

- (i) Capture Attention: It is important that your students be put into a frame of mind where they are ready to pay attention to what they are going to learn.



This can be achieved in a variety of ways, including relevant humor, appropriate anecdotes, analogies, surprises, or plain revision.

- (ii) **State Title:** You should tell the students the title of the lesson; the subject that they will learn.
- (iii) **State Objective:** You must tell the students what they will be required to do by the end of the lesson to prove that they have learned.
- (iv) **Motivate:** Adult students in particular, are not keen to learn unless they can see why they would learn. In some cases they will clearly want to learn because they can see the advantages to be gained by passing the course; they are then already motivated to learn. In some cases it might be necessary to show them the carrot and the stick to motivate them.
- (v) **State Scope:** As well as telling the students what they will be able to do by the end of the lesson, you should also tell them the means by which you will help them to achieve the objectives.
- (vi) **Link and Revise:** You should make clear to the student where the particular lesson fits into the course. This is best done by establishing links with what has gone before and with what is to follow. In other words you will be making clear the structure of the course. This can often be done in conjunction with a revision session which will also make sure that the students have the knowledge necessary to cope with the material you intend them to learn in the lesson you are about to teach. A revision session also helps them to lock on to the lesson; it arouses their interest and captures their attention.

b. Development

You cannot expect the development of every lesson to follow exactly in the same manner, but there are certain qualities or characters that every development should have:

- (i) **Logical Sequence:** Logical sequence means different things to different people. You must seek the best sequence for your student to learn, and to achieve this logic could mean one of the followings:
- (ii) **Chronological:** By chronological we mean the order the time in which things happen.



- (iii) Operational: It is possible that the sequence of operations is not necessarily chronological. In this case it might be better to follow through the sequence of operation instead of the plain time sequence.
- (iv) Logical: It could be that the subject you are teaching has a clear starting point and a sequence which can be deduced logically from that starting point.
- (v) Best Learning Order: You might find that, although one of the other sequences mentioned above would be reasonable, it would be better to adopt a different sequence, based on your experience of how your students learn best. In such cases use that sequence. In any event, the choices of sequence must always be that the students will learn best that way.
- (vi) Progression: It should be obvious that your lesson should develop in a way which is meaningful to the students. One step in the development should lead inexorably to the next and you should seek to emphasize the steps in the progression. The size of each step is dependent upon the relative difficulty of the material.
- (vii) Stages: The development should be divided into steps as well as stages. At the end of each stage you should recapitulate the material you have covered by asking questions. You will then have an indication of the rate of progress of the students. Again, the size of the stages is dependent on the relative difficulty of the material. Too many recaps will result in boredom and annoyance on the part of your students.

c. Consolidation

The purpose of the consolidation is to 'Ram Home the Main Points' of the lesson. This is best done by checking the achievement of the objectives. It also provides the instructor with the necessary feedback. Finally he should give any references and provide a link to the next lesson.

Conclusion

1. Your teaching success depends more on your lesson planning than it does on your voice, posture, personality or public speaking ability. You win or lose in the teaching game on the basis of your planning of the correct plays. If you compare teaching to a battle, you can easily lose the battle by a faulty lesson strategy.



2. Would you like to be a successful instructor? Then study first then planning you need to make. Your planning will only be successfully executed through presentation and explanation. That's what we shall learn in the next class.
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## EXERCISE

### Subjective Questions:

- a. How initial information contribute to learning?
- b. Describe different steps necessary in the preliminary planning phase of learning activities?
- c. What are the components of a structure part of a lesson plan?
- d. How link and revise help students to “Lock on” to the lesson?
- e. The consolidation phase is “Ram home the main points” of a lesson; Explain.

### Objective Questions:

01. While planning a learning activity, the initial information should include:
  - a. Syllabus, time, student’s knowledge.
  - b. Time, student’s knowledge, instructor’s knowledge.
  - c. Syllabus, time, students and instructor’s knowledge.
  - d. None of the above.
  
02. An objective is what a student must be able to do after the learning and should contain a statement of:
  - a. Performance and condition.
  - b. Condition and time limit.
  - c. Time limit and performance.
  - d. All are correct.
  
03. A lesson Structure should contain:
  - a. Lesson Objective.
  - b. Lesson Title.
  - c. Lesson Consolidation.
  - d. All are correct.



04. While making preliminary planning of learning activity you should:
- Prepare class room.
  - Decide approach.
  - Get the syllabus.
  - Note the time.
05. Development of a lesson plan should contain:
- Chronological sequence.
  - Un-debatable sequence.
  - Best learning sequence.
  - a and c are correct.
06. Each step in a lesson should.
- Relate to the preceding step.
  - Should logically lead into next.
  - Be organized in terms of lesson objective.
  - All are correct.
07. Bearing the objective in mind the instructor must decide:
- What the students must know.
  - What the students should know.
  - What the students could know.
  - All of the above if time permits.
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## CHAPTER – 5

### PRESENTATION AND EXPLANATION

#### Introduction

1. The responsibility of an instructor in the aviation world is to train crews and other staffs. Your efforts as an instructor are aimed at training a student how best to do his job or to apply the principles he has learned. A most important part in a training program consists of giving the student clear, definite, explicit and precise directions and explanations on the best way to perform the task associated with his job.
2. To have a better understanding of the subject matter, this chapter will explain presentation and explanation in the following three stages:
  - a. Planning of the presentation and explanation;
  - b. Process of presentation and explanation;
  - c. Self evaluation.

#### a. Planning of Presentation and Explanation

- (i) Arranging situations in which learning will take place is not the easiest thing you do, however, with proper planning and preparation you can accomplish it.
- (ii) A part of the planning includes organizing presentations and explanations. This will ensure that students understand more clearly and quickly. In making your plans, identify the problems in terms of the lesson objective. Then break it down into steps which students can follow. Each step in the lesson should relate to the preceding step and should logically lead in to the next step in the process. Organize the directions to lead up to the student's ability to try out the task or to apply the principles learned.
- (iii) When organizing the directions, give the most emphasis to the technical explanations which are necessary for the student to do the job. The 'nice-to-know' things have little value in a training situation where time is so important a factor.



- (iv) Sometimes in organizing, it may be necessary to plan for a general or overall presentation, followed by repetition and evaluation and then more specific points of directions and evaluation. Organize only as much as the learner can learn in a given period of time.
- (v) Determine how much explanation of each task is needed before repetition. After the student starts the activity phase, you must be able to recognize the point where the student is ready to go further in the task. You must carefully observe the requirement of repetition of direction and plan to give frequent emphasis and summation of main points in directions that will bring the students more quickly to the state of readiness to do the job.

b. Process of Presentation and Explanation

Good teaching calls for directions and explanations to bring about the desired idea or understanding on the part of the student preparing himself to try out the job. The presentation and explanation can take place in the following forms:

- a. Oral Expression;
- b. Discussion;
- c. Questioning;
- d. Analogies.

a. Oral Expression.

- (i) Oral expressions are the road maps to competent performance. A skillful instructor can develop himself into a competent lecturer by adopting certain basic techniques.
- (ii) The framework of explanations should be rules of actions. These rules should be the kind that the students can understand, can follow and depend on. They must be clear and also convincing. Be direct, precise and definite in your explanations. Often explanations and directions omit action expected of the student. For example, if you say, 'proper connection should be made', will only give the student an idea of what to do, but if you say, 'connect the lead to the positive pole', will clarify the rules of action.



- (iii) Good teaching is measured by student learning. Often, it may become necessary to bring up terms and ideas which are strange or unknown to the students. So, translate your directions into action or image bearing words. Use of support materials with the lecture session makes the lesson more interesting and more understandable, therefore, easier for the students:
- A. Examples: An old Chinese proverb says, 'a picture is worth a thousand words'. Examples are the verbal pictures that make abstract ideas and uninteresting subjects come to life.
  - B. Statistics: Statistics are verifiable numerical facts that have been scientifically collected and classified. They are often used to establish or amplify a point. When used wisely and sparingly, they add authority to the statements and clarify otherwise vague ideas.
  - C. Testimony: A quoted opinion or a paraphrase can also lend strong support for the ideas of the instructor. It must be remembered that the person quoted should be an authority in his field.
- (iv) Oral expression has certain advantages and disadvantages:
- A. Advantages: The oral method used to a considerable degree in most training program is:
    - i.* Time saving;
    - ii.* Manpower saving;
    - iii.* Supplements other methods.
  - B. Disadvantages: This method has some limitations considered as disadvantages like:
    - i.* Limits student's participation;
    - ii.* Inadequate for teaching skills;
    - iii.* Makes evaluation difficult;
    - iv.* Difficult to maintain interest.



b. Discussion

(i) One of the best ways of getting students' participation is to center learning on the problem which is best achieved through discussion. The problem centered approach is automatically a student centered. Discussion is a pooling or exchanging ideas among the students of the class. It is most valuable to you in discovering and clarifying misconceptions which students may develop during your presentation or explanation. It helps you too, in determining those directions which you have not given clearly to develop proper insights. By hearing other students explain, the slow student often understands where he has failed. Here are some tips for you to remember:

- A. Make discussion valuable to all students;
- B. Get all students to participate;
- C. Keep the discussions moving towards the goal;
- D. Emphasize important points and good contributions.

(ii) Discussion is a familiar way to exchange ideas and reach conclusions, ideal for classroom situations. But again, this has, like the oral expression, certain advantages and disadvantages as well:

- A. Advantages: Followings are the advantages of a discussion method of presentation and explanation:
  - i. Promotes student participation;
  - ii. Stimulates effective thinking;
  - iii. Promotes class spirit;
  - iv. Corrects misconceptions;
  - v. Allows student expression.
- B. Disadvantages: Certain disadvantages should always be remembered:
  - i. Time consuming;
  - ii. Benefit limited by class size;
  - iii. Limited to class knowledge & experience.



c. Questioning

- (i) The questioning is one of the most effective teaching devices in developing clear, understandable explanation. In the skillful use of question, more than in anything else lies the fine art of teaching. Good questions are essential for proper communication between instructor and student. A meaningful learning activity can be effectively initiated and controlled through the use of questions. Questions serve a variety of purposes, some of them are:
- A. Get and maintain interest;
  - B. Stimulate and guide student thinking;
  - C. Obtain student participation;
  - D. Determine student's attitude;
  - E. Develop the subject;
  - F. Evaluate and summarize.
- (ii) The entire purpose of questioning is very often defeated by the instructor who has not learned how to question. Some techniques of questioning are:
- A. Ask question in a natural, conventional tone and voice;
  - B. Ask the entire class the question;
  - C. Distribute questions at random;
  - D. Adopt the question to the ability of the students;
  - E. Ask questions to the in-attentive;
  - F. Do not permit group responses;
  - G. Encourage students to ask questions;
  - H. Use thought provoking questions;
  - I. Acknowledge students answers.



d. Analogies

Analogies are tie or link between what the student already knows or learnt and the “mysteries” (unknown) which are about to be revealed to him. They are the devices by which you link something strange with something familiar. Analogies are the “training aids” which you always carry with you. Remember, unless these important devices really connect the known to the unknown, teaching can be difficult and dull. An instructor should continually study students, their backgrounds and experience to find keys for developments of newer, more graphic analogies. There are no established rules by which you can develop and use analogies, but there are some general principles you can follow in making analogies vivid, descriptive and valuable. Be sure that:

- i) Analogies are within the understanding of the student;
- ii) Analogies carry the same meaning for the student that they do for you;
- iii) Analogies show the whole picture, rather than just a part of it;
- iv) Analogies are clear and easy to understand.

c. Self Evaluation

All that you learned about presentation and explanation will be of little value unless they contribute to your doing a more effective job of instructing. Since you want to improve, you must find out your problems and sort them out first. Do not let your problems accumulate. Many instructors hide their problems. Remember, even the most experienced instructor has his problems. Your supervisor can help you in such situation if you only seek advice. As an instructor, you should be manufacturing reasons for success, not excuses for failure. Do the followings:

- (i) Approach your supervisors;
- (ii) Observe other instructors do it;
- (iii) Listen to explanations by student.



### Conclusion

Your presentation and explanation will be successful if the students have acquired the knowledge and skills to the assigned job or to apply learned principles. The result of a good presentation and explanation by the instructor is obviously reflected by the performance and application by the students and we shall learn it in the next lesson.

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## EXERCISE

### Subjective Questions:

- a. The “nice to know” things have little value in a training situations where time is so important a factor; Discuss.
- b. Why an instructor should use discussion? List the advantages and disadvantage of discussion.
- c. What are the characteristics of good oral expression? How does the use of verbal support materials make learning more interesting; explain...
- d. What are the requirements of questioning? Mention some of the technique of asking questions.
- e. What is an analogy? How is it used to develop new ideas and concept?

### Objective Questions:

01. Presentation and explanation can take place in the form of:
  - a. Questioning.
  - b. Evaluation.
  - c. Repetition.
  - d. Revision.
02. One of the disadvantages in discussion method is:
  - a. Time consuming.
  - b. Loses class spirit.
  - c. Promotes student criticism.
  - d. Creates chaos and confusions.
03. While instructing, an instructor may face problems. A good instructor in such a situation should:
  - a. Approach the students.
  - b. Approach the supervisors.
  - c. Try again and again.
  - d. Find excuses for problem.



04. One of the important verbal support materials is:

- a. Motivation.
- b. Praise.
- c. Examples.
- d. Analogies

05. Advantage of discussion method is:

- a. Manpower saving.
- b. Time consuming.
- c. Satisfy supervisors.
- d. Promotes class spirit.

06. A Chinese proverb says, "A picture is worth ....."

- a. A thousand images.
  - b. A thousand examples.
  - c. A thousand words.
  - d. A thousand statistics.
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## CHAPTER – 6

### PERFORMANCE AND APPLICATION (SKILL)

#### Introduction

1. Performance and application are necessary phases in the development of a skill. If a new pilot is expected to fly an aircraft safely, he must have had previous opportunity to fly a plane under carefully guided controlled conditions. The person who plans flight schedule in real time needs to have had previous opportunity to apply principles of strategy under simulated conditions. Thus, it is important to have practices in simulated conditions, so that the application in real situation is a success.
2. Using simulators, simulated flight missions, laboratory activities or in mock-ups are therefore, significant experiences in the learning process. They warrant a great deal of attention from the instructor to make them vital, important and realistic. The performance is learning by doing but not just a matter of trial and error learning. They should rather be experiences in which the student's activity is led to effective development of skills or application of principles. However, the amount of performance and application in each learning activity will vary with the subject, the students, the instructor and the situation.
3. This topic will be explained in the following steps:
  - a. Planning for performance and application.
  - b. Guiding performance and application.

#### a Planning for Performance and Application

In planning for students' performance and application you must give special attention to each specific lesson which is planned. The plans must fit in with your over-all planning for learning. Remember the following while planning:

- (i) Plan for physical facilities: Make special efforts in planning to have all equipment, tools, instruments and devices ready for use by each student when it is needed. The facilities should be as realistic and lifelike as possible.



- (ii) Plan student assignment. Often students tend to group in accordance with ability. Thus the better students work with other better students, and the poor students work with other poor students. By placing a good and a poor student together, you will provide a valuable assistance to the poor student and a challenge to the good student (provided the good student is willing). Well organized assignment sheet is an invaluable aid in scheduling student, equipment and time.
- (iii) Plan a complete job or task. These ties in with the 'whole-part-whole' relationship previously discussed. The understanding of the relationship of the parts to the complete task motivates the student to gain skill in each part. Though, how the whole task constitutes is open to debate, by experience, practice or advice from others you can select a complete job within the range of accomplishment of the student.

b. Guiding Performance and Application

The objective of student practice is to give them an opportunity to apply the directions and explanations they have received. So, it should be centered on problems or student difficulties. Your job is to guide students in the solution of problems, difficulties or questions they have concerning the job they are being trained. A number of things you must do in guiding student's performance and application:

- (i) Make it realistic: Realism, naturalness and genuineness in practice sessions will yield the best job experience. In some fields of training you may be able to give your students realistic practical training by having them to do actual operations. In other fields, you will have to arrange closely similar substitutes for actual job situations, using methods, tools and working arrangements that simulates the actual situation. Not only should equipment and working conditions be life like, but the working process should also be realistic. In flying it is necessary to use real equipment and real situations to teach the student to do the job.
- (ii) Guide the students: The performance phase of learning is important and critical, should be done in a planned, controlled and adequately guided situation. You cannot give a man a plane and let him learn to fly. But you can avoid being too hasty about taking the controls away from him. Mistakes which might result in injury or damage to equipment must be foreseen, prevented and corrected before they happen. Also, allow student to discover for himself certain mistakes. Make the performance phase, as much as possible, a continual discovery and new experience for your student.



- (iii) Start with easy activities: Your students should be aware of what he is to achieve in each lesson as well as of his final objective. The order of his learning experiences should be from easy to difficult. This easy-to-difficult idea is not quite the same as simple-to-complex in all cases. For example, in a map making lesson the simplest is to put a 'dot' to represent a water tank. A more complex would be a line representing highway and much more complex would probably be an irregular line to indicate lake. This simple-to-complex order of map making is a bad sequence. Instead an easy-to-difficult approach to map making might begin with making of a WHOLE map. The spots, lines and outlines of natural features might be a bit out of proportion. During the later lesson, more accuracy or proportions may be gained as the student works on different 'parts' of the map more specifically. This approach permits the learner to succeed the first time and to progress to refinements of more intricate skills without loss of interest. Thus, the easy-to-difficult approach is in terms of student understanding, interest and ability but not in terms of subject matter organization.
- (iv) Get each student into the act: Skills can only be acquired by doing or solving problems. In using a problem-centered approach consider each student individually. Give the students a chance to get at their needs, interests and problem, not yours. As such, ability to line up your lessons with their interest is absolutely essential to your success. You will, of course have students with varying degrees of ability and different levels of skills. If you are a competent instructor, you will use these differences to both your advantage and that of your students by planning a suitable student assignment. Do not expect every student to reach the same level of skill in the same length of time. It is your job to find the particular difficulty in each student and guide him through a solution of the difficulty which is peculiar to them.
- (v) Integrate with other methods: Presentation and explanation are aimed at good performance vis-à-vis the activity or application part of learning gives meaning to your explanation. Often a student fails to develop a clear picture of what was told or shown until he actually is doing the task. "Oh! I get it now", is proof of the need for application to develop complete understanding. Performance and application cannot proceed in an orderly manner without continuous evaluation. Oral critiques - praise of the good and pointing out of the bad - can make the next experiment or effort a greater success.
- (vi) Evaluate student progress: Good evaluation will have no secrets as to what is to be checked. Students and the Instructor should both be let in on the mystery concerning what is wanted and what standards are to be judged



errated. Evaluations should be frequent, not far apart and in time. You check students in a manner so that it can help them to do better in the next attempt. Evaluation works as a guide to a selective re-teaching of necessary parts of your presentation and explanation or even dictates the need of re-performance by the student. Self-evaluation by the student also can be valuable source of information concerning the student's ability to perform effectively.

### Conclusion

1. In all training, learning experiences of the student include a great deal of performance, be it be pilots, cabin crew or ground personnel. The best way to learn is by practice and then the success of an instructor can be seen through the quality of application by the student.
  2. Without motivation to learn, there will be no learning. The next lesson deals with motivation.
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## EXERCISE

### Subjective Questions:

- a. Discuss the planning phase of performance and application.
- b. What is easy to difficult idea? How does it differ from simple to complex method?
- c. Establish a relationship between “easy-to-difficult” and “whole-part-whole” technique.
- d. Justify the need of integrity of performance with other method of learning.

### Objective Questions:

01. While planning for performance and application you must remember:
    - a. Physical facilities.
    - b. Student assignment.
    - c. Whole task.
    - d. All are correct.
  
  02. The guiding performance and application phase of learning should be:
    - a. Guided properly.
    - b. Realistic in nature
    - c. Integrated with other methods.
    - d. All are correct
  
  03. The amount of performance and application in a learning activity varies with the:
    - a. Subject and students
    - b. Instructor and situation
    - c. Both a and b are correct
    - d. None of the above is correct
  
  04. The performance is:
    - a. Learning by doing
    - b. Learning by trial and error
    - c. Learning by seeing others
    - d. None is correct.
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## CHAPTER – 7

### MOTIVATION

#### Introduction

1. An urge to do something is motivation. Motivation for the purpose of this course is a desire to learn. Without motivation to learn there will be no learning. A well motivated person is well on the way towards being a good learner. Good motivation creates a readiness, eagerness; a desire to learn which is not satisfied until learning is achieved.
2. Various methods or incentives may be used depending on number of students, their abilities, their backgrounds and their attitudes. However, as an instructor you should remember the followings:
  - a. Bases of motivation.
  - b. Methods of motivation.
  - c. Conditions obstructing motivation.

#### a. Bases of Motivation

Motivation is based on two types of needs, such as:

- (i) **Physiological need:** The desire for personal comfort is the primary factor of motivation. Hunger, thirst, etc. automatically motivate someone to look for food and water thereby engaging him into activities.
- (ii) **Psychological need:** The desire for personal gain; approval, social security, recognition etc. makes someone to be motivated. To attain the standard which shall give him the social status, one goes even out of his ways which is a basis of motivation.

#### b. Methods of Motivation

To use the right kind of techniques and tools for motivation are important task for the instructors. A wrong technique or tool may lead the learning process towards failure. Some important ways of motivation are discussed below:



- (i) Praise and Reproof: Numerous studies made to bring forth the following conclusions:
  - A. Praise and reproof is better than ignoring the efforts of a student;
  - B. Praise and reproof motivates equally in the short run;
  - C. Praise is more effective in the long run;
  - D. Praise is more effective in the slow student.
- (ii) Using student background: When students see a tool, a piece of equipment or an operation, which they have seen before, they may tend to become interested in the part of the lesson. Your students have a wide variety of background and experiences and using their background and experiences you can get them more interested and motivated.
- (iii) Using your experiences: Your experiences, both at work and during leisure, may prove a constant source of material which you can use in promoting the desire to learn. Tell them about the personal satisfaction you felt in doing a certain job. Be careful not to make your students bored by relating too many.
- (iv) Using anecdotes: We all like stories; humorous, interesting, unique or strange; they all seem to catch our interest. Sometimes, stories carry more meaning than explanations, if given in a factual manner. However, you must use them with discretion. Tell them when they are necessary, promote interest and clarify a point.
- (v) Competition: This is quite an effective way for motivating to learn. The students attempt to equal or excel individuals recognized as more skilled than them, i.e. the instructor. The students may compete with each other or involve in self-competition. This is best suited for weaker students.
- (vi) Rewards & Punishments: These are more concrete expressions of praise and reproof. Both of these are powerful. However, these may have certain disadvantages too. Severe punishments and too many rewards at times make students lose interest in learning.

c. Condition Obstructing Motivation

The student's personal feelings, physical conditions and the physical surroundings in which he works influence his attention and interest to a great extent. You must,



therefore, be constantly aware of the factors that tend to distract the attention and interest of your students and do your utmost to alleviate the conditions which may foster any of the following attitudes in your students:

- (i) **Self-Consciousness:** Many students are lost in a maze of new surroundings that make demands upon them for adjustment to a system that appears tremendously complicated. They become hesitant and self-conscious and afraid to react in a positive way. Try to overcome this hesitancy and lack of self-confidence by making them feel at home in the training environment.
- (ii) **Antagonism to Company Procedures:** A student may experience feeling of antagonism towards the rules, policies and procedure of the company. He can see no reason for them and seems pointless and unnecessary. Try to explain to him the purposes of them. When he understands the reasons, his antagonisms to company procedure will probably vanish.
- (iii) **Feeling of unfair treatment:** When a student feels that he is being unfairly treated, given more than his share of assignment, his interest may wane and his progress may suffer. You must try to rectify any genuine complaint and also remember that pampering may eventually do more harm than good to a student.
- (iv) **Impatience:** The over enthusiastic student with the "give me the gun and let me fight" spirit wants to get into the field immediately, without seeing the need of the preliminary/advance training. Make it clear, in terms of knowledge requirement for the performance for each phase of training.
- (v) **Worry and lack of spirit:** Emotional upsets and worries can keep a man from developing any interest. When a student enters a class room or an aircraft, he brings with him his interest, his enthusiasm, his fears and his disappointments. Though you are not responsible for his out-of-class or out-of-aircraft experiences, you cannot ignore them. You must give due importance to humane aspect in your training program.
- (vi) **Feeling of physical discomfort:** Physical discomfort may be due to illness or poor classroom management. The light may be poor, the ventilation bad and the seating arrangement unplanned. Noises and other distractions may also be present.
- (vii) **Feeling bored by poor presentation:** Poor presentation by the instructor may cause a student to become bored because the work may be too simple for him, or instructions may have been repeated too often. On the other hand, he may be confused because of too many or too complicated ideas are being



presented. These feelings can be counteracted by a good presentation. In fact, good instruction will overcome most of the factors which obstruct motivation.

### Conclusion

1. Motivation is something more than a pep talk at the beginning of the class period. It is not mere cosmetic makeup to make learning attractive. You must realize that the desire or determination to learn must come from within the student. Motivation is not limited to one part of the lesson; it may arise at the beginning of the period, in the middle, at the end, or may not arise at all. The skillful instructor senses the need for motivation and selects the best means at his disposal for arousing and stimulating student interest at the right time.
  2. The next lesson will describe what are the instructional aides and their uses. It also contains a guide how to manage all equipments and administered in a class room.
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## EXERCISE

### Subjective Questions:

- a. What are the bases of motivation? Explain.
- b. List the methods of motivation.
- c. How praise and reproof help in motivating the learner?
- d. List the conditions that obstruct motivation.
- e. How self-consciousness obstruct motivation?

### Objective Questions:

01. Which one of the following is not a physiological need?
  - a. Hunger
  - b. Headache
  - c. Thirst
  - d. Promotion
  
02. Praise is an effective method of motivation:
  - a. In the short run
  - b. On the slow students
  - c. In the long run
  - d. All are correct
  
03. One of the basic methods of motivation is:
  - a. Rewards and punishment
  - b. Counseling
  - c. Showing the scope of learning
  - d. Avoiding tough questions
  
04. Factors that obstruct motivation are:
  - a. Self-consciousness
  - b. Impatience
  - c. Physical discomfort
  - d. All of the above



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## CHAPTER – 8

INSTRUCTIONAL AIDES AND MANAGEMENTIntroduction

1. In the development of an effective training program, major consideration must be given to the selection of appropriate instructional aides. The construction of a fire-extinguisher, valve action in an automobile engine or a flight maneuver cannot be described by words only. As such, instructional aides are used in almost all areas of training. An equally important consideration has to be made for using them effectively.
2. This lesson will be divided in the following stages for better understanding:
  - a. Instructional Aides:
    - (i) Effect of instructional aides on learning;
    - (ii) Types of instructional aides;
    - (iii) Selection of instructional aides;
    - (iv) Techniques for effective use of instructional aides.
  - b. Management:
    - (i) Instructor-student relationship;
    - (ii) Physical comfort of students;
    - (iii) Preparation of teaching environment;
    - (iv) Students' safety consciousness;
    - (v) Administration.

a. Instructional Aides

- (i) Effect of instructional aids in learning: In a learning situation the retention of the input is essential. The greater is the retention, the greater is the learning. In human, there are 5 (five) senses that to retention, namely; ears, eyes, nose, tongue and body. Retention by only ears and eyes are 57.5% and 40% respectively. So, only by engaging two of the human senses you can achieve



97.5% of retention. But using training aids too often too many for a lesson may take everything and result in nothing except wastage of time and resources.

(ii) Types of instructional aids: Primarily they can be classified in 3 major types:

A. Visual: This kind of aids is maximum in numbers and can be divided as:

i. Non-Projected:

- a. White board;
- b. Diagrams;
- c. Posters;
- d. Graphics.

ii. Projected:

- a. Over head projector;
- b. Slide projector;
- c. Video tape;
- d. Close circuit TV.

B. Audio: Examples of audio training aids are:

- i. Tape recorder;
- ii. Record player;
- iii. Cassettes.

C. Audio-visual: This type captures both the senses of sight and sound. Such as:

- i. Films;
- ii. Television;
- iii. CBT.

In addition, training devices like mock-ups and simulators, training literatures like technical manuals or precise or publications and even at times field trips serve as effective instructional aids.



(iii) Selection of Instructional Aides:

The plan of instruction normally includes certain instructional aides to be used. However, the instructor must remember following factors while selecting an aid:

- A. Size of the audience and the aides: The size of the group to which you are intending to show the aid or make them listen to your aides must be considered to verify the ease of it. You must make a study on the aides so that it is visible or audible by the students.
- B. Easy to manipulate: Training aids which are complicated to handle or require great deal of manipulation have little value unless they simulate actual conditions.
- C. Suitable: In using instructional aides, make complete plans and preparations, so that the aid will relate to your explanation being given. Unless the aid contributes to the development of the learning objective, students' understanding and mastery, it is of no value.
- D. Realistic: The students must be able to connect the instructional aides with the real thing to develop the ability to apply his learning to the actual job.
- E. Simple: All aides whether they are printed materials, drawings or items of equipment, should be designed to meet student need and as such, made simple enough for students' understanding.
- F. Available: When assessing availability, ask the question, "Can the aid be used at the time when it is needed?" If the answer is no then either discard it or try to find other type.
- G. Colorful: An instructional aid is useful when its color, design, content or other characteristics make it pleasing and interesting to the students.

(iv) Technique for Effective use of Instructional Aides:

The technique in which an instructional aid is used determines how the aid influences learning. The instructor's roles in using the aid are the key to its effectiveness and thus remember the following points:



- A. Make your visuals visible: Use large charts, even for small audience. For big audiences use slides or films.
- B. Avoid glare: Adjust charts to minimize reflection.
- C. Allow ample preparation time: Don't be too lazy to prepare slides or view foils and rehearse them thoroughly.
- D. Check on the worst seat: Centre your screen or charts for the people on the extreme right and left. Mount it high enough for all to see.
- E. Check all arrangements before you go on: Go without breakfast, lunch or dinner if necessary, but make sure you have done everything humanly possible to prepare for a smooth presentation.
- F. Keep your visuals moving: Parallel your flow of words with a flow of visuals.
- G. Control the volume: Maintain a reasonable volume of audio aids as well as audio visual aids for loud and clear hearing by your students.
- H. Focus and align the picture: Check to see that the projections stand or table is not disturbed; picture is not uneven on the screen and has not slipped out of focus.
- I. Preview the film: You must be thoroughly familiar with the content of a film in order to relate it to the students effectively.
- J. Check electrical items: Make sure that your electrical connections, switches, bulbs etc. are serviceable. Be sure electricity for projector will not go off when house lights are turned off.
- K. Have an alternate plan: You must have an alternate plan of instruction in mind in case the materials are not available or equipment fails.
- L. Let your marker talk: White board can be used effectively by following these suggestions:
  - i. Use large letters and figures.
  - ii. Stand on a side of it and then explain.
  - iii. Present only one idea at a time.
  - iv. Erase only after your students have seen it.
  - v. Use color to emphasize, not to beautify.
  - vi. Erase materials not required.
  - vii. Keep your work neat, clear end orderly.



b. Management

An instructor must establish a receptive and co-operative working relationship with his students as soon as possible if his instruction is to be effective. He must assist the student in gaining a sense of responsibility and confidence. The instructor should also take personal interest in the students to develop the sense of belongingness in them. It is important to an effective instructor-student relationship:

(i) Instructor-Student relationship:

Students respond to and tend to reflect your attitude. If you are natural and enthusiastic, your students will tend to be friendly and eager to learn. So, be friendly with your students without being chummy. If you want students to respect you, rather than resent or fear authority, you must be friendly but fair and firm. Some suggestions which will aid you in acquiring those important qualities are given below:

- A. Show no partiality or favoritism;
- B. Never try to bluff;
- C. Acknowledge own mistakes;
- D. Never be hasty in judgments;
- E. Be loyal to your class, superiors and policies;
- F. Act decisively and with conviction;
- G. Abide by decision;
- H. Respect the rights of your students;
- I. Be courteous, enthusiastic, cheerful and business-like;
- J. Encourage class participation;
- K. Secure the co-operation of your students;
- L. Encourage initiative and self-reliance.



(ii) Physical comfort of your student:

- A. No matter how good an instructor you are or how interesting your presentation may be, students will have difficulty paying attention for a long period of time unless they are comfortable, at least as comfortable as is possible under existing circumstances. Physical conditions are important because they constantly influence presentation during every minute of instruction.
- B. Physical comfort is a great aid to learning. Try to see for the physical comforts of your students and take steps to help them to be more comfortable whenever possible.

(iii) Preparation of Teaching Environment:

Preparing a teaching environment is aimed at achieving undivided attention. It is discussed in the following manner:

- A. Indoors: Arrange the class room before the class starts. The seating arrangement should enable all students to hear and see you and the instructions. Be sure distracting noises and movements are eliminated or minimized; lighting is adequate; glare is prevented; ventilation and temperature is comfortable, and finally equipments are kept orderly and clean.
- B. Outdoors: Select the best location available. Students should be comfortable and able to hear and see distinctly. Avoid sunny area or have the sun behind the students. Select quiet locations and be aware of the necessity of transports and other logistic supports.
- C. In-flight: You should be particularly careful that the student can hear and see and understand all directions. Intercom volume, clear pronunciation, seat, harness, etc. should be considered.

(iv) Students' safety Consciousness:

- A. Safety consciousness is an attitude that must be developed in students to focus their attention on the prevention of accidents. They should develop safe working habits and an awareness of the hazards of handling equipments.



- B. Whenever you demonstrate a new skill to be learned by your students, show them the reasons for safety practices. Emphasize the physical and human elements that cause accidents.

(v) Administration:

Instructional administration is an essential part of your job as an instructor. The principles and procedures you adopt in handling necessary details not only affect your efficiency rating but also contribute to your success and failure. Some suggestions that will help systematize the large amount of administrative detail are given below:

- A. Begin and end the class in-time;
- B. Introduce yourself;
- C. Check attendance;
- D. Look at your class and rotate attention;
- E. Appoint a class leader;
- F. Rotate class leader.

### Conclusion

1. Instructional aides are to be considered as only supplements to what the instructor presents. They are never used to replace an instructor but to help him in the training process.
2. Instructional management and classroom administration may seem to be only indirectly related to instructional effectiveness. Nevertheless, management and administrative aspects of your work is of great importance. It can set the tone for the rest of the entire instructional job and determine, to large extents, whether your students learn and you enjoy.
3. Better you systematize your work, more you eliminate distractions– physical, mental, and personal, the more you will be able to concentrate on the most enjoyable aspect of your job–the teaching process. We shall see it in the next lesson–skill training.

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## EXERCISE

### Subjective Questions:

- a. What are the major divisions of instructional aides? List the technique of using whiteboard effectively.
- b. How do instructional aides promote learning? State the factors to be considered while selecting instructional aides.
- c. "Instructor-Student" relationship affects learning to a great extent; explain.

### Objective Questions:

01. Factors to be considered when selecting instructional aides are:
  - a. Suitability
  - b. Colorfulness
  - c. Make of the training aid
  - d. Both a and b are correct
02. Retention is most effective by:
  - a. Hearing
  - b. Seeing
  - c. Both 'a' & 'b'
  - d. Seeing is lesser than hearing
03. Effective use of whiteboard depends on:
  - a. Using colour to aid beauty
  - b. Erasing the un-necessaries
  - c. Keeping your work neat and orderly
  - d. Only 'a' is wrong
04. Which of the following does not fall under effective use of an instructional aide?
  - a. Having alternate plan
  - b. Making sufficient rehearsal
  - c. Avoiding complicated equipment
  - d. None is correct



- 
05. A healthy 'Instructor-Student' relationship helps a student to:
- Gain a sense of responsibility.
  - Develop the sense of belongingness.
  - Make him eager and ready to learn.
  - All are correct.
06. Preparing the teaching environment means:
- Preparing training notes for the students.
  - Arranging classroom before class starts.
  - Ensuring students physical comfort only.
  - Displaying sufficient charts and graphics.
07. As a good instructor you should be concerned with:
- The comfort of your students.
  - Economical use of material.
  - Safety consciousness in your students.
  - Only 'a' and 'c' are correct.
08. Instructional management and training administration contribute to:
- Economizing resources.
  - Creating safety consciousness.
  - Increasing student comfort.
  - All are correct.
09. A good instructor teaches his students to do a job:
- Safely and effectively.
  - Exactly as he does.
  - As per company directive.
  - None of the above.
10. Qualities of good classroom management are:
- Begin and end class promptly.
  - Introduce yourself.
  - Even distribution of attention to all students.
  - All of the above.



11. For a good 'Instructor-Student' relationship, an instructor should not be:
- a. Cheerful.
  - b. Slow in judgment.
  - c. Enthusiastic.
  - d. Courteous.
12. To achieve an 'Instructor-Student' relationship an instructor:
- a. Should not act decisively.
  - b. Should act with convictions.
  - c. Should be tough to students.
  - d. Should be quick in judgment.
13. Which one of the following is not considered as instructional aide?
- a. Photograph.
  - b. Painting.
  - c. Field trip.
  - d. All of the above
-



## CHAPTER – 9

### SKILL TRAINING

#### Introduction

1. As an instructor you will influence your students. Your influence will help to develop certain attitudes in your students to the learning process.
2. Your student will be affected by you, your attitudes, and your approach to training, long after leaving the training environment. Remember, you are preparing the students for his future career life. So, what you should do at the beginning or during the learning sessions or even after the sessions are of paramount importance.
3. This topic will be described in the following headings:
  - a. Before the training session;
  - b. Briefing session;
  - c. Training session;
  - d. Early part of training;
  - e. Learning new tasks;
  - f. General rules for the training;
  - g. De-briefing session.

#### a. Before the Training Session

- (i) Before the training session begins, you should review the student's records. If the student is just entering into the training phase, then ensure the documents are ready and contain the basic data. If the student is beyond the first training session, then look over the training record so you are familiar with previous training. Look for trends; has the student made the same error over and over? You will want to keep this in mind during the training session.
- (ii) Review the events that will be taking place during the training requirement. You will want to be intimately familiar with all of the required events and their



sequence. You can identify potential problem areas and be on the lookout for them. You may want to decide if any optional events should be added.

- (iii) By knowing your student and the required training, you will be better prepared to give the needed training and be aware of potential problems areas.

## b. The Briefing

- (i) You must provide sufficient time before the training session to sit down and talk with your student. There may be a group briefing, which may be considered sufficient for ground operations personnel but not for flight training. There are basically four things to cover in the briefing:
  - A. Firstly, review the basic elements of the training session, discuss any new procedures and explain any significant events to watch out for. This is very important in early stages and becomes less important toward the end of the program when less new information is added.
  - B. Secondly, answer any questions that the students may have about certain events. This is not a time to play "I've got a secret". The student should walk into the training environment with correct and complete information. This may mean going over a procedure or explaining a concept to the student's satisfaction.
  - C. Thirdly, discuss the problem trends that you noted while reviewing the student's records. Try to find out why the student has had problems in a particular area. Offer suggestions that haven't been made before. Discuss the possibility of using additional training to correct the deficiency.
  - D. Lastly, explain how you will conduct the training session. Explain that you will interrupt to explain or demonstrate new events of procedures. Tell the student that you will stop the training if safety conditions warrant it or to point out a serious error. Also, point out that the student should not be concerned about any writing that you do. Writing notes don't always mean that you are pointing out errors; it could mean positive comments about an exceptional performance.
- (ii) The student should leave the briefing and go into the training session with a feeling of confidence and desire to meet the challenge.



c. The Training Session

The training session should be a training that seems like the real thing. As the instructor, you will affect this concept. Your approach should be in low key, available to answer a question or point out something, but not breathing down the student's neck or interrupting frequently while the student is performing. Of course, flying a simulator and flying a real airplane aren't the same. The simulator might malfunction, but it is unlikely to crash. You must not let your concentration wander from your student, especially if you are training in the real world. You might be required to take over the controls, should safety be affected.

d. Early Training Session

- (i) In the early training sessions you will be more actively involved in the training process. The first time you will demonstrate how a procedure is done. You will move the controls, push the buttons, turn the knobs, or talk the mike. Take each procedure step-by-step. Don't rush in. An excellent demonstration at this point could save a lot of grief or anxiety later on. You should remember to go from the known to the unknown. Show the relationship of the new tasks to old ones. Explain what you are doing, why you are doing what you are doing and the results.
- (ii) Once you have completed the demonstration, allow the student to do the procedure or task under closely monitored supervision. Initially you may need to prompt and let the student do. You may also need to go over the task several times. Remember, a mistake or error at this point is not the end of the world. An error should be corrected before the end of the lesson so the students only remember 'how to' do a job and not 'how not to'.
- (iii) If the student is having unusual problems; then re-demonstrate, assure him and assist him while he is doing it. The combination of observing and then doing is the best way. However, remember to be patient. The student will normally approach his first experience in the new environment with a certain amount of apprehension. Be positive, offer support, and be motivating. The first few hurdles are the toughest. If you establish a good relationship and rapport at this stage, training later on should be easier.



e. Learning New Tasks

- (i) Once the student has shown proficiency in one task, move on to the next. With each new task accomplished the student will gain confidence, knowledge and proficiency.
- (ii) After a while, the new tasks will probably become just variations of the ones already done. In these cases, it is not necessary to demonstrate the task. Just point out the appropriate controls or describe tasks, allowing the student to actually do it. As with the basic tasks, point out any errors and let the student do it again.
- (iii) In some cases, certain tasks can be done in varieties of ways; however, each instructor will have his favorite technique. You can explain that particular technique which is recommended. Be careful about advocating your way as the only way to do it.

f. General Rules for the Training Session

- (i) As the student becomes proficient, your job will be more of an observer. In this role, it is imperative that you keep good notes. If your student commits a minor error that doesn't really affect anything, you probably shouldn't interrupt; just make a note of it and cover it in the de-brief.
- (ii) However, if the student commits a serious error, you probably should interrupt and make a correction. This should not be an all-inclusive rule, however, because it may be best to let the student continue especially if the student is sure to catch the error himself while performing. The Impact will be greater than if you point out the error.
- (iii) Sometimes, it is very useful to use a question or series of questions to make a point to the student. If you see an error, you might interrupt and ask why did you do that? "Or" Are these the correct indications? This will force the student to review his actions and hopefully, the student will point out the correct action. This helps the student save face and admit the error. All you need to do is ask the question and acknowledge the correction.
- (iv) During early stages and in some cases, later on, it is important to praise correct actions, positive motivation is extremely important. It will help build confidence in the students. If the student only hears negative statements or things he has done wrong, then you will probably notice a less motivated student. Some people can point out errors and never make a student feel bad while another



instructor will always make a student feel lousy and distressed. You might need to be firm in a crucial situation, but there is no reason being rude and loud. Remember to treat your student as you would like to be treated. You will gain the students' respect by being a professional human being than by being 'know it all', out to show up the dumb student. If your object is to prove how much you know and put down the student, then you are in the wrong business.

g. De-briefing

- (i) There are basically two ways to handle the de-briefing of the training session. The first is to discuss the session from the beginning to the end. In this situation, you will want to talk about each event, with each event tell the student how he handled it. If the student did it correctly, say so. If the student did it exceptionally well, say so. If the student did something wrong, then identify what was wrong. Pointing out an error should be done by pointing out the incorrect act. For example, the student depressed the wrong button, or turned the dial to the incorrect position, or used the incorrect words. As an instructor, you don't want to say, "That was a dumb thing to do" or "you are a dummy". Remember, identify the incorrect act. Then tell the student how to do the act correctly. Or better yet, have the student explain the correct action. If you can use the equipment, do so. The student must go out of the debriefing knowing the correct actions. You need to reinforce the positive; 'how to', and 'not how not to'.
- (ii) The second method is the cover all of those areas in which mistakes were made, and then cover those tasks that were done correctly. The Instructor would have to determine which method could be the most appropriate.
- (iii) In some cases you need to explain why a particular action is improper and may be the ramifications of continued improper acts. Just pointing out the incorrect act simply may not be enough. Students normally will respond if they can associate the reasons behind doing something a certain way, of course, you have to watch out for the student who questions everything. This student will drive you crazy with question about the simplest procedures or unrelated matters. Just tell the student that you would be willing to discuss the other areas later, but now is the time for the de-briefing of this session.
- (iv) If during the review of the student's records, you noticed a problem trend, then you will want to discuss this with the student now. If you have noticed the same error being made in this training flight or repeating the same mistake he has done before, you may seriously need to think about remedial training. If the deficiency is serious, you may need to discuss the problem with your



senior/superior. You may even need to recommend action. If the student did not make the same error, he should be offered encouragement.

### Conclusion

1. The success of an instructor will depend on the proper understanding of the instructional technique and effective application in to the practical field. A combination of all methods, chosen accurately suiting the need, will probably lead you reach the ultimate goal. You need to work hard with determination and sincerity to become a successful Instructor.
  2. The quality of the job the student produces after being trained, can only be seen through evaluation, the next lesson.
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## EXERCISE

### Subjective Questions:

- a. Differentiate between early session and those at a later stage.
- b. Describe the stages of a briefing session.
- c. Explain how a de brief should be carried out.

### Objective Questions:

01. The student should leave the briefing into the training scenario with a feeling of:
    - a. Doubt to meet the challenge
    - b. Fear of environment
    - c. Tension to achieve the goal
    - d. Confidence
  02. During de-brief you should:
    - a. Discuss the session from beginning to end
    - b. Cover all of those areas where mistakes were made
    - c. Review student's previous records
    - d. Only a and b are correct
-



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## CHAPTER-10

### EVALUATION

#### Introduction

The purpose of all training endeavour is to promote student learning. Student learns through teaching and success or failure of your teaching is obvious from the extent to which the student has mastered the desired skills or knowledge measured by evaluating student learning. As an instructor you should understand:

- a. Definition and tools of evaluation;
- b. Characteristics of evaluation;
- c. Types of evaluation;
- d. Common error in rating.

#### a. Definition and Tools of Evaluation

Evaluation may be defined as an appraisal of success or failure in achieving the major objective of a training programme. There are many tools and methods used in evaluating the students' performance. Some of these are:

- (i) Written or oral tests;
- (ii) Practical or flight tests;
- (iii) Quiz tests;
- (iv) Class participations;
- (v) Exercises or projects;
- (vi) Interviews.

#### b. Characteristics of Evaluation

Some of the characteristics which distinguish a good evaluation from a poor one are described below:

- (i) **Validity:** It is an important characteristic of evaluation. An evaluation may be valid for one part or purpose and not for another. As an example, a student's



ability to handle an aircraft should not be affected by his inability to recall checks. So, while evaluating its validity must be checked.

- (ii) **Reliability:** A reliable test is one which yields consistent results under identical conditions. A student will perform differently indifferent conditions. An examiner must find out the reliability of performance having conditions constant as much as possible. If the condition cannot be kept constant let the student perform a maneuver or task more than once to check the reliability.
- (iii) **Objectivity:** The personal judgment of the examiner should not affect the score. This can be avoided by designing objective type of questions for knowledge tests and standard assessment form for flight tests.
- (iv) **Comprehensiveness:** The test must include enough points or have adequate sampling of the objectives you are evaluating. It should contain major divisions of activities or information being evaluated.
- (v) **Differentiation:** To make your student's evaluation reliable on the basis of achievement, you should differentiate with his own performance or performance of others. So, plan the flight profile or examination method in such a manner that it will detect small but significant differences in achievement.
- (vi) **Economy:** A flight or academic test must be confined to a reasonable time length.

### c. Type of Evaluation

It is necessary to check students understanding and to detect and correct misconception. Still more important, is the checking student's actual knowledge or performance. Evaluation can be of following two types:

- (i) **Knowledge Evaluation:** Evaluation of the student's knowledge is somewhat like looking at the raw materials from which an airplane is manufactured before test-flying the plane when it is finished. Evaluation of knowledge must be continuous through questions, observations, discussions, interview to see whether the student is acquiring the desired knowledge level required for the job. In selecting the type of tests one must remember following points:
  - A. Objective type tests are generally considered more reliable than essay type. It saves time and gives a wide coverage of the subjects. It is free of instructor's bias and student's performance is not affected by his failure to write correctly, legibly or rapidly.



- B. An essay type test usually requires student to organize his knowledge and express ideas. It is time consuming too. But it is quite possible that a competent instructor can secure more information concerning the learning of his students through a carefully designed essay type test.

However, each test has its advantages and disadvantages and may prove more suitable under a certain conditions than the other.

- (ii) Performance Evaluation: The term performance indicates physical skill of a student. An effective performance test normally is based on the following principles:

- A. The spirit of a good performance checking should always be that of assisting someone to do well.
- B. Good evaluation will have no secrets as to what is to be checked. Student and instructor both should generally be aware concerning what is wanted and what qualities are to be judged or rated.
- C. Evaluation of the test performed should be diagnostic. To say that, a student made a bad landing is not enough. You should pin point the fault i.e. his approach speed was high, or he did not 'flare out' properly. Similarly, appropriate diagnosis should be made for cabin crew or ground personnel evaluation.
- D. 'Progress evaluation' of a student's skill may be very important. Even though he is not doing very well, he may be doing twice as well as he did last week. To know that he is on the right track is not only a spur to effort but a guide as well.

e. Common Errors in Rating

Rating is a process of 'evaluation by judgment'. Wherever question of judgment or opinion comes, it becomes subjective and prone to errors. By having knowledge of common rating errors you can avoid them and make rating less subjective. These are:

- (i) Error of Central Tendency: Many instructors, particularly the inexperienced ones, hesitate to give either extremely good or extremely bad ratings. They normally grade in the centre. However, with the introduction of a standard assessment scale, the grading can be made more objective and the error is reduced substantially.



- (ii) Error of Standards: Rating differs from instructor to instructor due to their own standards. Again, inexperienced instructors are more prone to this error. Therefore, they must discuss with experienced ones and in case of flight evaluation a junior instructor should fly with a senior instructor to learn to rate.
- (iii) Logical Error: When an instructor fails to consider and rate each part separately, this error creeps in. A bad touchdown need not mean a bad flare out, thus instructors must guard against it and assess each part of a manoeuvre separately.
- (iv) Error of Familiarity: When an instructor flies with his student on regular basis for a considerable period of time, he loses some of the grading objectivity. He gets used to some of the student's weaknesses which might develop into a dangerous trend. Instructors therefore, should attempt to step back and get a new perspective. It can be secured by exchange of students for a day between two instructors.
- (v) Error of Halo Effect: Many instructors tend to assign ratings after being influenced by their general impression of the individual. Halo effect is so called because the grades cluster like a halo around the instructor's general impression. Through logical rating one can overcome this problem.
- (vi) Error of Narrow Criterion: A new Instructor normally tends to consider performances of his students representing the whole range of students. As a result, weak students get better grades or good students poor grades depending upon the standard of his students. On the other hand if an instructor has more weak students, the better one gets too high ratings. Similarly, if the instructor has more good students, the weaker students get poorer grading. To avoid such situations, senior Instructors should fly with the 'good' and the 'weak' students to see if this is happening.
- (vii) Error of Delayed grading: The ideal way is to grade the student in the air as he performs a manoeuvre. The next best thing is to grade immediately after the flight and the worst to grade a day later.

f. Grading System

- (i) Standard grading system is prescribed in the Operations Manual Part-D for the flight crew, in the Dispatcher's Manual for the operations officers, in the Cabin Crew Manual for the cabin crew and in the Ground Operations Manual for the ground personnel of the Air Operators, and in the Training and Procedure



Manual for the Approved Training Organizations. Grading system can vary from operator to operator as long as it is approved by the authority.

(ii) Sample Grading system

The following sample is a widely used grading system:

Proficient (1)– Student is able to easily perform a procedure or maneuver and is the obvious master of a procedure or the aircraft with the successful outcome of the procedure or maneuver never in doubt.

Normal Progress (2) – Student is making satisfactory progress towards proficiency in the procedure or maneuver but still require assistance from the instructor. However, the instructor is satisfied that, with additional practice as provide in the standard syllabus, the student will become fully proficient in the procedure or maneuver.

Additional Training Required (3) – Student's progress is not satisfactory. However, the instructor is of the opinion that additional training over and above that specified in the syllabus will enable the student to become proficient.

Unsatisfactory (4) – Student has basic deficiencies such as lack of knowledge, skill or ability to perform the required procedure or maneuver. If the present level of performance or progress is maintained, it is doubtful that the student will become proficient. Further training shall be given only after review by operator.

Satisfactory with Briefing (SB) – This designation indicates that the item has been performed to a standard that the examiner is unable to pass or fail him. In such cases the examiner may opt to brief and pass him.

Discussed (D)– This designation indicates that the procedure or the maneuver was not performed due to time constraint, operational or environmental reason and the examiner considers that such non-performance of the item(s) shall not adversely affect the outcome of the test. In such cases the examiner may opt to discuss the item(s) and certify pass subject to satisfactory knowledge of the procedure or maneuver.

(iii) Other forms of Grading System– There are many other forms of grading which are widely used. Some of them are:

A. S– Satisfactory, a pass grade;

U – Unsatisfactory, a failing grade;



N- Not Performed, due to time constraint, operational or environmental reason and the examiner considers that such non-performance of the item(s) shall not adversely affect the outcome of the test. In such cases the examiner may opt to discuss the item(s) and certify pass subject to satisfactory knowledge of the procedure or maneuver;

NA – Not Applicable;

C-- Examiner has a comment to make and normally is unsatisfactory.

B. In figures-

1 and 2 – Passing grade;

3 – Two 3s in a test is Failing grade;

4 – Single 4 is a failing grade.

OR

10 and 9 – Excellent grade;

8 and 7 – Above Standard grade;

6– Passing grade;

5 – Two 5s is a failing grade; and

4 – Single 4 is a failing grade.

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## EXERCISE

### Subjective Questions:

- a. Define evaluation. List the tools of evaluation.
- b. What are the characteristics of evaluation? Describe any these.
- c. What are the types of evaluation? State the principles of performance evaluation.
- d. Evaluation serves as diagnostic tool for both instructor and students—discuss.
- e. Discuss rating in terms evaluation characteristics.
- f. What are the errors in rating? Discuss any four.

### Objective questions:

01. An exercise performed in the same manner may be graded differently by different instructors. This happens due to:
  - a. Error of central tendency.
  - b. Error of standards
  - c. Error of delayed grading
  - d. Error of Halo effect
  
02. Evaluation is the measurement of:
  - a. Success or failure
  - b. Achievement of objective
  - c. Rate of performance
  - d. All of the above
  
03. Which one of the following is not considered as a tool of evaluation?
  - a. Interview
  - b. Progress check
  - c. Quiz test
  - d. Motivation



04. Qualities of a good evaluation are:

- a. Reliability
- b. Comprehensiveness
- c. Validity
- d. All are correct

05. Some of the characteristics of a good evaluation are:

- a. Identity, Validity & Reliability.
  - b. Validity, Reliability & Objectivity.
  - c. Reliability, Objectivity & Quantity.
  - d. None of the above.
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