

TRAINING METHODS AND TEACHING TECHNIQUES

1. General.

This Bulletin is to be used primarily as a guide for CAP instructors with little or no professional teacher training or experience. It is by no means an exhaustive or all-inclusive treatment of teaching methods. The suggestions have been culled from study and practice with an eye to describing and emphasizing a few, and only a few ideas which are peculiarly applicable and helpful to the CAP instructor. The method in the preparation of the Bulletin, then, involves selection for the practical value of the suggestions to CAP. If the methods are thoroughly understood and if sincere effort is made to follow them, a steady improvement in results in instruction may be expected. Experience in AAF training has proved the value of two basic tenets in teaching, viz., care in the organization of the lesson and planned activity for the learner. Mere statement of these principles here conveys little meaning, but it is the object of this Bulletin to elaborate and implement these vital considerations with practical suggestions.

2. The Role of Attention and Motivation in Teaching.

a. Anyone with experience in speaking or teaching fully appreciates the necessity of securing close attention from his audience. No learning takes place unless the mind of the student is centered upon the information to be absorbed or the problem to be solved. The effective instructor has a deep appreciation for the importance of attention in learning, an understanding of how to obtain it, and skill in fixing attention and retaining interest. To illustrate the fleeting character of visual attention, let us perform a simple experiment. First, draw a cube in perspective. Try to fix your attention on the initial shape of the cube as it first appears to you. Almost immediately it will change its shape. If you timed this experiment, you would discover that the change in the shape of the object occurred within a few seconds. This simple illustration serves only to show the inability of an individual to fix visual attention upon a static object for more than a few seconds. Sustained attention given to an auditory stimulus is almost as difficult. Speakers with experience and skill never expect an audience to listen to straight exposition presented in an unvaried manner for more than a few minutes. Understanding and appreciation of the problems of holding attention, of centering the mind and the senses upon what is to be taught and learned must precede planning and presenting the lesson. At the same time it must be understood that it is this mobility of mind and senses which makes learning possible. Instruction becomes an art when the teacher so plans and presents the lesson that the energies of the student are directed progressively into the organized channels which lead to desirable goals. If the suggestions outlined in the section of this Bulletin on teaching techniques are followed, much of the battle for securing attention and retaining interest will have been won.

b. All human beings possess certain more or less common drives, wants, desires, hungers which seem almost instinctive in origin but social in their expressed goals. These "wants", as we shall refer to them here for the sake of convenience, change as the individual grows from childhood into youth, from youth into maturity, and so on through life. Nor are they necessarily the same "wants" at all times and places for any one age bracket. The instructor, however, should have awareness of the so called "wants" of his students and plan his instruction with them in mind. What are some of the "wants" which seem common to girls and boys in the age bracket of CAP cadets? Most of them want desperately to be considered as adults, and they therefore want to do the things adults are able to accomplish. They want to learn to fly, or to be a control tower operator, or to play some other part in aviation. But their appreciation of what is involved in learning these things is often hazy and incomplete. In the knotty problems which have to be solved in navigation and weather, for instance, the instructor must constantly keep before them the goal to be achieved, i. e., safe cross-country flying. The instructor must always be prepared to show his cadets in an unmistakable way that if they learn a given set of facts or procedures or learn to solve this problem, their new information brings them one perceptible step closer to

the time when they may pilot a plane. People in the age bracket of cadets hunger for attention and recognition. This "want" may be recognized by an instructor in a number of ways. He may find it irritating, and squelch it as an undesirable trait in the youth; if he so treats a normal characteristic of human behavior, he has missed a bet. Equally or even more unintelligent is the instructor who provides melodramatic stories of "hot pilots" who flaunt accepted procedures, who disregard and scoff at careful preparations for a flight, and who make dare-deviltry admirable. The cadet's imagination is easily stirred; the "hot pilot" becomes the exemplary pilot; his admiration extends to a desire to imitate, to achieve the same acclaim. What is more, if the rules and "book learning" can be disregarded in practice, why learn it at all, since it does require effort and time? Unwittingly the instructor has exploited the cadet by the type of instructional materials which are used. But the instructor who satisfies the cadet that his place in aviation has greater assurance if he learns carefully the rudiments through ground study, that greater prestige, rewards, and distinction come from competence through knowledge, has directed intelligently the cadet's desire for recognition. If the instructor is thoughtful, he will commend each cadet for meticulous and accurate class work, thereby providing immediate satisfactions and giving distinction to the learner. It is not feasible here to provide a lengthy treatment of "wants" and motivation, but the matter requires thoughtful consideration on the part of every instructor who hopes for results from his work. An illustration, an example, a word of encouragement, a reference to tangible and concrete results which may be expected from work satisfactorily accomplished may make the difference between proper application of energy or its misapplication, between discouragement and an eagerness which produces sustained effort. The following treatment of teaching techniques is related to motivation, as well as to problems of securing attention and establishing interest in class work.

3. Teaching Techniques.

a. Organization of Materials into a Lesson Plan. Much teaching fails because it is not properly organized into a definite, unified body of information and activities. Almost invariably skillful teachers prepare a detailed chart of the work to be accomplished in a lesson and the ways in which it will be accomplished. Such a chart is here referred to as a lesson plan. When an instructor has decided on how much he wishes the cadets to learn in an hour, the literature and training aids which will be required to achieve the expected results, and the most efficient methods for stimulating learning and memory, he is ready to prepare his lesson plan. If he has determined these things, why work out a formal chart in writing? It has value. By putting his plan on paper he helps fix it in mind, is able to review the decisions he has made, is able to work out the details of the lesson with care and exactitude, and has provided himself with a reference guide while the lesson is in progress. Moreover, if he retains and files his lesson plans, he has provided himself with a ready set of reference material for the future presentation of his course, and these references will be exceedingly valuable if he notes the results of his experience in using the plan and makes whatever revisions may be required.

b. The Parts of a Lesson Plan.

(1) Objectives. The first section of the lesson should contain explicit statements of what the cadets are to learn in this hour. While these statements reflect what is to be taught, they should be expressed in terms of what is to be learned by the cadets. The latter mode of expression fixes the attention upon the learner, not upon the teacher. It helps to keep the teacher ever mindful of the proposed outcomes of the lesson. In writing down his objectives the instructor will do well to observe the followings:

EXAMPLE

I. OBJECTIVES. At the conclusion of this lesson, the cadets should:

A. Understand the value of check points in navigation by pilotage.

- B. Know the characteristics of reliable check points.
- C. Be able to select reliable check points from the study of a chart.

(2) Instructional Aids. The lesson plan should list the instructional aids which are to be used in the lesson. These instructional aids include reference materials which are used in preparing the lesson, the material which will be introduced into the lesson, and the training aids to be used in the lesson. A listing of these instructional aids in the lesson plan provides a check list of the materials the instructor will need for his presentation of the lesson, and it serves as a reference source for a later date when he may again present the lesson.

EXAMPLE

II. INSTRUCTIONAL AIDS.

- A. TM 1-205, AIR NAVIGATION, pp. 2-28.
 - B. CABul 24, Practical Air Navigation.
 - C. Sectional Aeronautical Charts.
 - D. Plotters, rulers, pencils.
- Etc.

(3) Introduction. The introductory section of the lesson plan should outline briefly the initial activity to take place in the lesson. It will consist usually of the ideas to be used by the instructor at the beginning of his presentation. If the lesson is the first in the course, the introduction should explain the object of the course, its length, the type of materials which will be studied and learned, and the value of the course in helping the cadets on their way to becoming flyers. If the course is properly introduced along these lines, an excellent opportunity is afforded for motivation. If clarity, definiteness, and human interest prevail in the initial presentation of a subject, a positive frame of mind toward the course on the part of each cadet may be expected. The introductory section of a specific lesson serves a somewhat kindred purpose, but one which is more limited in scope. Ordinarily the introduction is used for two purposes, to review briefly by summary or questions the work of the previous lesson in this subject, and to make clear what is to be accomplished in the lesson now in progress. Inasmuch as several days intervene between CAP classes, this step in each lesson is an imperative. It is wise, almost invariably, to begin the lesson by asking a few well phrased questions on the previous lesson. Direct these questions to the average members of the class. Their responses will provide a key as to how much reviewing is necessary before proceeding with the new material. Unless the student is prepared for the next step in learning, he drops out both in a mental and spiritual sense. Finally, the instructor should tell the class exactly what he expects them to know at the end of this lesson. This step is the one which makes known to the class exactly what are the objectives of the lesson. This can be done in a variety of ways. If the objectives are few in number and easily held in mind, the instructor may merely state them orally. He may desire to impress them upon the mind of the cadet by illustrations which highlight the importance of the materials to be learned. He may put them on the blackboard. Many methods can be used in getting across to the class exactly what they will be expected to know at the end of the lesson.

EXAMPLE

III. INTRODUCTION.

- A. A short review by spot questions on the use of maps and charts in navigation.
- B. Review of map and chart symbols by actual reference to those symbols on available charts.
- C. Introduction to the subject of check points.
 - 1. Definition of check points.
 - 2. Point out several usable check points by reference to charts.
 - 3. Cite actual illustrations and stories to demonstrate the use which is made of check points in pilotage.

(4) Lesson Procedure. This division of the lesson plan should contain a brief outline of the material to be learned, the teaching methods to be used in presenting it, and the approximate time which is to be allotted to each section of the lesson. Every lesson should be divided into steps. Some goal should be reached with each step. The attention of the class will waver unless there is a definite feeling of progress and accomplishment from time to time in the lesson. Nothing provides as strong a motivation to learn more about a subject as does a recognition of having learned some new thing, that one is now qualified to move on to something new, that he is "getting somewhere". Within a lesson then, it is necessary to have stages with each stage having its own goal, and the totality of these intermediate goals should represent an achievement of the objectives outlined at the outset by the instructor. That part of the lesson plan here referred to as "Lesson Procedure" is to be organized into what we choose to call steps or stages. Each step or stage in the lesson plan brings together what is to be taught and how it is to be taught. The subject matter notes or "what is to be taught", should consist of one or more key points in a lesson. Usually there will be several. A key point is a statement which expresses the central meaning of an idea, or it may serve as an introduction to a set of facts or principles to be learned. It is a sort of topic sentence around which related material clusters. The key point, then, and the sub-points of subject matters which are arranged under it constitute an outline of the information and skills to be taught. In conjunction with this subject matter outline, it is helpful to outline the way or ways in which this subject is to be taught. The mechanics for arranging these two bodies of different yet related types of material on a page is not a vital matter, but the following example is one workable system. It is advisable to estimate the time you expect to spend in teaching the unit and to write the estimate in the margin.

EXAMPLE

IV. LESSON PROCEDURE.

(Key Point)

A. Navigation by pilotage is performed by visual reference to the ground.

1. Subject Matter Notes.

- a. Determination of reliable check points is essential to navigation by pilotage.
- b. In addition to providing reference points by which the pilot can locate himself, check points also help to:

5 Minutes

- (1) Estimate time.
 - (2) Estimate distance.
- Etc.

2. Method of Presenting Key Point and Subject Matter.

- a. Exposition of material contained in Key Point.
- b. Narrative accounts of experiences of various pilots to illustrate the value of proper care both in selecting and using check points.

(Key Point)

B. Check points may be selected on the basis of practical tests by which they may be judged.

1. Subject matter notes.

- a. Is the object unique in the area in which it is located, i.e., can it be distinguished from surrounding objects or terrain?
- b. Is the object of sufficient size that it may be seen from the altitude at which you will fly?

12 Minutes

Etc.

2. Method of presenting Key Point and Subject Matter.

- a. Have cadets draw a course line from to and permit them to select reliable check points at appropriate intervals.
- b. When each has selected his check points, discuss the merits of the check points chosen. This part of the lesson should be in the nature of organized discussion with opportunity for each cadet to make a case for his selection.

(Key Point) C. Etc.

(5) Testing. Each lesson should provide an opportunity for both the instructor and the cadet to gauge the success of learning. This is best accomplished by any one or all of three methods. In every lesson the instructor should ask spot questions to review materials and to determine whether the cadet "got" it. This can be done by providing a definite spot in the lesson for this activity, at the beginning when the previous lesson is reviewed, at the end of a unit within a lesson, or at the end of the lesson. In addition, however, spot questions should be sprinkled throughout the lesson. A second way of testing learning is to assign a problem, as was done in the example of the step called "Lesson Procedure", where students were responsible for selecting check points. A third way is to give short written tests of the short answer variety. If the results of these several methods of testing are poor, the instructor will do well to examine critically the methods he employs in teaching the class and/or his methods of testing. It also is good motivation to post in some conspicuous spot the records of those who make high grades.

(6) Conclusion and Assignment. Each lesson plan should make provision for a section which lists the summarizing statements and activities to be used in rounding out the work of the period. This section should also include an explicit statement of any reading or problem assignment which the instructor may make, and of how the fulfillment of the assignment by the cadet will contribute to the latter's progress.

(7) Summary of Headings To Be Used In Lesson Plan Outline.

- I. OBJECTIVES.
- II. INSTRUCTIONAL AIDS.
- III. INTRODUCTION.
- IV. LESSON PROCEDURE.
 - A. (Key Point)
 1. Subject Matter Notes
 - a.
 - b.
 2. Method of Presenting Key Point and Subject Matter
 - B. (Key Point)
 - Etc.
- V. TESTING OF LESSON.
- VI. CONCLUSION AND ASSIGNMENT.

c. Cadet Activity in the Learning Process. In planning a lesson, the instructor should remember that learning is an active process. The mind of the cadet is not a sponge which soaks up whatever information the instructor may choose to present.

The cadet learns best by doing, by performing, by solving problems. Some lessons may require a considerable amount of lecturing by the instructor, but the straight lecture method should be employed as little as possible. Some student discussion may be introduced into almost any lecture period. In general it is wise for the instructor to re-examine every lesson in which he expects to use the lecture method for the possibility of varying it with some laboratory or problem solving activity. Variety of procedure is most desirable, and this variety should apply to all phases of cadet activity in learning.

d. How to Use the Lesson Plan. The lesson plan is essentially a preparation device. Once completed, critically reviewed, and fixed in mind by sufficient re-readings, it has served its real purpose. No instructor should attempt to follow it slavishly in the classroom. A class session is too much of an ever changing scene to put it in a straight-jacket. The instructor must be prepared to adapt to the pace and mood of the class. He must be prepared to make changes in previously made plans. If this is true, then what is the purpose of the lesson plan? Its main purpose is to provide a chart, a framework for the ideas which must be learned. Moreover, it compels the instructor to think through the actual methods by which the subject is to be taught, and it helps him to arrive at methods appropriate to the material. Finally, if the lesson plan is taken into the classroom to be used by the instructor as a reminder, it is advised that he avoid pouring over it point by point during the class hour.

e. Oral Presentation of the Lesson. The voice, manner, enthusiasm, and attitude of the instructor affect the interest of the cadet toward his work. A dull, flat, monotonous voice and an unenthusiastic manner will kill interest. If an instructor prepares well for each lesson, cultivates a taste for teaching, and makes a deliberate effort to "pep-up" his presentation, if he does these things there is small chance that the lesson will be dull. Let the instructor put some energy into his teaching. Two hours spent in successful teaching should require a force and vigor which leaves the instructor exhausted. One other thing. Load each lesson with examples, illustrations, and pertinent stories which illuminate the subject. The key to good presentation is liveliness in manner and liveliness in material. Invite into your classroom people in whom you have confidence, and urge them to give frank criticisms and suggestions.

4. General Comments Upon the Conduct of a Class Period.

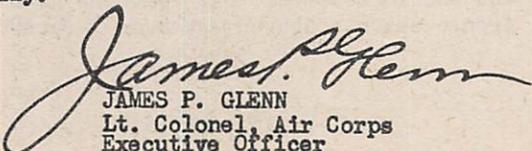
a. He who is concerned about discipline will do well to keep in mind while preparing and presenting his lessons that student discipline is obtained through interest in the subject. If the cadet achieves a sense of accomplishment, he will demonstrate neither restlessness or objectionable behavior. If, on the other hand, the lesson is unorganized, fumbled, and appears purposeless and futile, trouble can be expected. In the rare instances of cadets who fail to bring to class a normal curiosity and desire to learn, military classroom discipline and punishment may be invoked as the last resort.

b. Strict attention should be paid to ventilation, heating, and light, not only in the interest of the cadet's health, but also for the influence of these matters upon learning.

c. Observe strictly the time schedule and time limits for each class. Failure to begin on time makes for disrespect and laxness. Failure to end on time makes cadets restless and indignant. Begin on the hour and finish on the minute.

d. Finally, instructors should maintain a careful record of attendance and grades. Good students take pride in regularity of attendance and in work accomplished. The latter should be reported to them periodically.

BY ORDER OF THE ACTING NATIONAL COMMANDER:


 JAMES P. GLENN
 Lt. Colonel, Air Corps
 Executive Officer

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