COMMON INSTRUCTIONAL AIDS



HOW INSTRUCTIONAL AIDS WORK

During the communication process, the brain filters the important pieces of information from the less significant pieces. What is considered to be the most important information is passed to the short-term memory for possible storage into the long-term memory. Instructional aids support learning by highlighting and emphasizing the most important pieces of information for the brain to store in memory.

Instructional aids also:

- attract and hold the cadets' attention;
- involve the two most important senses – sight and sound; and
- help instructors teach more in less time.

CHARACTERISTICS OF INSTRUCTIONAL AIDS

Instructional aids should:

- support the lesson by emphasizing and clarifying important information;
- keep the cadets' attention on the topic;
- contain quality pictures, graphs or text;
- be simple and easy to use; and
- be large enough to be seen and loud enough to be heard.

GUIDELINES FOR USING INSTRUCTIONAL AIDS

During the lesson planning stage the following process can be used to determine if and where instructional aids are necessary:

- clearly establish the lesson objective – the information to be communicated or the task to be accomplished;
- research supporting material to achieve the lesson objective;
- organize the material into a lesson plan; and
- select the important points to be supported by instructional aids.

Instructional aids should be used only if they support learning and should not be made visible until the appropriate time during a lesson so as not to become a distraction.

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VERBAL SUPPORT

Almost all ideas need some sort of clarification, explanation or proof to be understood. If cadets are learning something new, they want proof to support what is being said. The lesson topic, the instructional method, the cadets' background knowledge and the size of the group are factors that determine how much learning support is required.

Verbal support is one type of support instructors use to clarify, prove, illustrate, emphasize or to add variety and interest to information during a lesson. Types of verbal support include:

- **COMPARISONS**

A comparison is a bridge built by the instructor between the known and the unknown. New information can be clarified by pointing out its similarity to a familiar topic, idea or situation. A factual comparison clarifies by highlighting how two or more related things are similar. For example, a factual comparison is used when the **similarities** between two or more different types of uniforms are highlighted. A contrast clarifies by highlighting how two or more things are different. A contrast is used when the **differences** between two or more types of uniforms are highlighted. Figurative comparisons use similes and metaphors to add variety and gain attention. A figurative comparison is used when expressions such as the "ship cut through the water like a knife" or "the ship knifed through the water" are used to indicate the ship's speed.

- **REASONS**

Reasons are logical explanations that satisfy the question "why". Explaining the reason for something often makes it easier for the cadets to accept what is being explained. When instructors cite "safety concerns" as the reason why a task must be completed a certain way, they are using reasons as verbal support.

- **RESTATEMENT AND REPETITION**

Instructors can emphasize main ideas or key points by repeating them. One way to repeat something is to restate it in a different way. Skillful repetition can also persuasively help cadets accept an idea or point of view. Sometimes directions or instructions need to be repeated many times without change for clarity.

- **EXAMPLES**

An example is a specific instance of a general idea used to clarify or simplify information. It should be short and specific and in the cadets' background knowledge so that the cadets can associate new information with something already known.

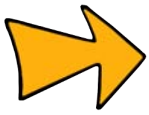
- **STATISTICS**

Statistics are a summary of numerical information about an event or thing. If properly used, statistics help instructors prove or emphasize main points and create interest in the information. Do not assume, however, that verbal support is being used every time a number or figure is quoted. For example, saying "last year's national budget for cadets was approximately $180 million" is a statement of fact but saying "last year's cadet budget was approximately $3 000.00 for every cadet in Canada" is using statistics to emphasize the point that the cadet budget is large.

- **TESTIMONY**

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Testimony is simply using the experiences, words and thoughts of others to emphasize or prove points. Testimonials are believable because they are offered by experts or people with first-hand knowledge. For example, simply saying, “the cadet organization offers many advantages to youth” is not as powerful as quoting or hearing from cadets who have gone through the program and realized its benefits.



The acronym **CRREST** can be used to remember the different types of verbal support.

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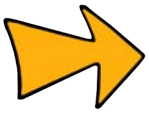
AUDIOVISUAL AIDS

Instructional aids appeal to all five senses. Audiovisual aids are particularly effective because individuals learn and retain over 50 percent of what they both see and hear.

MODELS

A model is a copy of a real object and can be an enlargement, a reduction or the same size as the original. Two types of models are:

- the scale model which is an exact reproduction of the original, and
- the simplified model, which does not represent reality in all details.



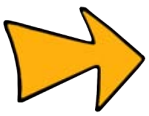
As instructional aids, models are usually more practical than the real object because they are lightweight and easy to manipulate.

Mock-Ups

A mock-up is a three dimensional or specialized type of working model and is used for study, training or testing in place of the real object, which may be too costly, too dangerous or impossible to obtain. The advantage of the mock-up over the real thing is that the mock-up may emphasize the essential elements to be learned by distinguishing them from non-essential elements.

Cut-Aways

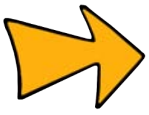
Some models are solid and show only the outline of the object while others can be manipulated or operated. Specialized models, called cut-aways, are built in sections and can be taken apart to reveal an internal structure. Whenever possible, the various parts should be labelled and coloured to clarify relationships.



Production and equipment costs are limiting factors in developing and using models, mock-ups and cut-aways. If a two-dimensional representation will satisfy the instructor’s needs it should be used.

THE REAL OBJECT AND REALISTIC IMAGES

The real object is often the most effective visual aid. To be effectively used the real object should be safe and big enough for everyone to see or small enough and available enough for each cadet to have one. Realistic images, including quality photographs or drawings of the real object, are suitable replacements if the real object cannot be obtained or effectively used.

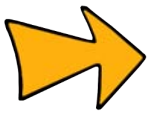


Realistic images and objects are most effective when they are used after a teaching point has been introduced.

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GRAPHICS

Graphics, which include charts, graphs, maps, diagrams, drawings and cartoons, can be used to clarify relationships between concepts or effectively explain a concept that would otherwise require a lengthy description.



Graphics catch the cadets' attention and stimulate thinking by:

- presenting one idea;
- avoiding too many details; and
- using colours, which contrast with the background to emphasize main points.

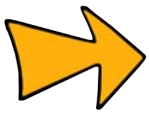
PROJECTED MATERIAL

Projected material includes videotapes, DVDs and slides projected by an overhead projector or computer. Short, high-quality video presentations have become one of the most popular instructional aids.

Passive video, which includes VHS, DVDs and slides, provides motion, colour, sound and in some cases special advanced graphic and animation techniques. The availability, low cost and user-friendly characteristics are important advantages of passive video but instructors should be aware it is often difficult for instructional video to compete with the action-packed entertainment videos and is often considered less exciting and stimulating by cadets. This, in addition to the cadets' often passive viewing style for entertainment videos, can diminish the instructional value of the video.

To increase the value of passive video for instructional purposes, instructors should follow these basic guidelines:

- preview the video to determine the important points and concepts;
- prepare the cadets for viewing the video by stressing what is important to watch; and
- summarize the presentation and answer any questions the cadets may have.

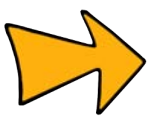


Video presentations are not designed to replace the instructor.

Videotapes and DVDs are generally purchased but slides can easily be developed by hand or by using a computer.

Guidelines for developing slides are:

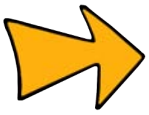
- illustrate key points;
- use key words or phrases as headers for each slide;
- include a maximum of six words per line and six lines per slide; and
- use lettering large enough to be clearly read from the back of the classroom.



Use of projected materials requires planning and practice. Instructors should set up and adjust the equipment and lighting beforehand and always preview the presentation.

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Interactive video refers to software that responds to choices and commands by the user. A typical system consists of a combination of a compact disk and computer with video presentation capability. The software may include image banks of colour photos and graphics as well as questions or directions, which are programmed to create interactivity for students as they progress through the course.



Interactive video solves one of the main problems of passive video in that it increases the cadets' involvement in the learning process. Each cadet receives a customized learning experience.

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Simulators are mechanical or electronic devices that act like the actual equipment or systems and provide the cadets with realistic practice in a safe and controlled environment. They may have various capabilities such as jump, freeze, record and replay which can capture and playback information for instructional feedback. Simulators replicate the real thing at a fraction of the cost.

Some concerns include:

- the need for the provision of background information,
- the requirement for hardware and software maintenance,
- the need for expertise to run the simulator, and
- the need for specialized facilities.

Some of the more commonly recognized simulators include flight simulators, driver training simulators and marine simulators, which simulate normal and emergency situations, which would otherwise be encountered in real life.



Training equipment refers to the use of actual equipment such as boats, air rifles, or gliders for training purposes. The main advantage of this type of aid is that it is the actual piece of equipment or system that the cadet will be expected to use. Despite the benefits of simulators, training is not complete without intensive training in or with the real thing.

Some concerns include:

- the need for subject matter experts,
- the high maintenance costs,
- the need for modifications for instructional purposes, and
- scheduling difficulties caused by external factors such as weather and the availability of the resources.

In short, cadets will only learn to sail, fly or complete an expedition by using a sailboat or glider or travelling to the field.

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SELECT AN INSTRUCTIONAL AID

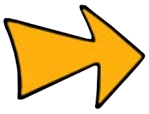
GUIDELINES FOR SELECTING INSTRUCTIONAL AIDS

During the lesson planning stage the following process can be used to determine if and where instructional aids are necessary:

- clearly establish the lesson objective – the information to be communicated or the task to be accomplished;
- research supporting material to achieve the lesson objective;
- organize the material into a lesson plan; and
- select the important points to be supported by instructional aids. Instructional aids are appropriate when:
  - long segments of technical description are necessary;
  - a point is complex and difficult to put into words;
  - instructors find themselves forming visual images; and
  - students are puzzled by an explanation or description.

The selection of instructional aids depends on several factors, which include:

- **Availability.** Which ready-made aids are available? What resources are available to make instructional aids?
- **Facilities.** Does the training area or equipment available allow the instructor to use certain instructional aids?
- **Cost.** Are the instructional aids too expensive to purchase or produce?
- **Class size.** Does the number of people in the class make the use of the instructional aid practical? Does the instructional aid encourage cadet participation?



Instructional aids should be used only if they support learning and should not be a distraction.

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