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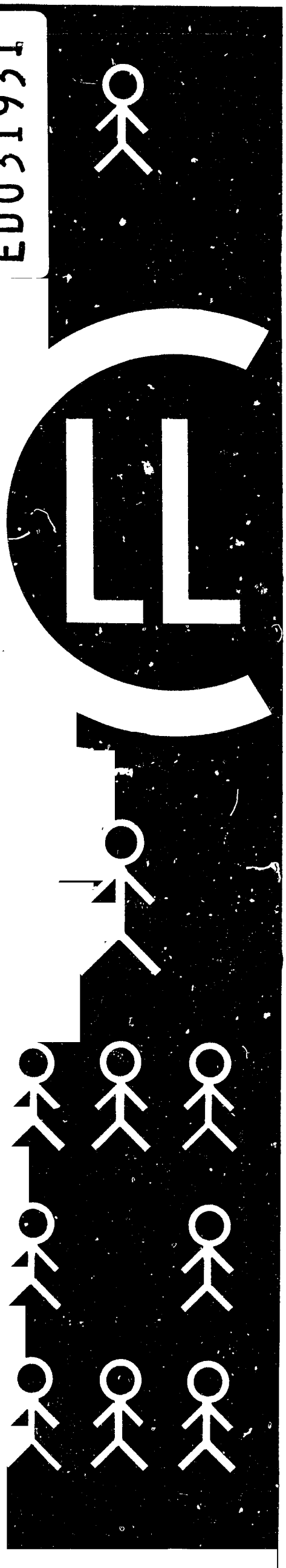
A self-instructional film should be learner-oriented rather than content-oriented. Its objectives should be stated in terms of observable, specific behavior. The distinguishing characteristic of such terms is that they are subject to few interpretations. Objectives should be to identify, name, order, describe, and construct. The foregoing may be regarded as a blue-print for defining a film's objectives. Then there is the problem of selecting a task which the film must perform. Here the point to remember is that a self-instructional film must include two considerations: behavior and subject matter. Finally, it must be asked that when the learning task is concerned with paired-associate learning, the decision may well be not to use a film at all, but rather to use less elaborate and less expensive materials--flashcards, for example. A three-film script is appended. (CO)



STATING OBJECTIVES

MONOGRAPH #11

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CLASSROOM LEARNING LABORATORY

experimental analyses of student behavior

S T A T I N G O B J E C T I V E S

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The Task Must Be Described in Terms of a Learner's Behavior

In order to decide whether or not a particular film should be produced, it is essential to know specifically what the film is to accomplish. Generally speaking, films may be described as either content-centered or learner-oriented. Content-centered films focus on the material to be presented, while learner-oriented films focus on the behavior of the learner after instruction. Each type is described below in greater detail.

Content-centered films. A content-centered film is described in terms of what it contains, that is, the instructional material which is to be presented to the learner. Sometimes the film is described as one which "shows pupils..." or "explains the principles of ..." Such descriptions are centered on what the film does, rather than on what changes will take place in learner behavior. If a catalog tells you that a film will "assist the teacher in motivating children for a unit in ...", it is describing what the film does. If a film's annotation includes such words as "explains what science is" or "shows the inner mechanism of plants", the film is described in terms of its content, or what the film does.

Listed below are five annotations taken from a film catalog. Write the letter of each statement in which the underlined verb describes something that will be done by the film

(a) presents distinguishing features of phylum arthropoda...
(b) raises the question of how we discover arrangements of atoms...
(c) lists in writing the major seaports of Europe...
(d) gives students examples of Cubist tendencies...
(e) deals with the activities of both armies in the final year of the war...

* * * * * * * * *

You should have marked letters a, b, d, and e. The subject of each of these verbs could have been "The film". Letter "c", however, describes something

the learner is to do; while a, b, d, and e describe something the film is to do. a, b, d, and e describe content-centered films, while c does not.

This kit is not designed to help you produce content-centered films. They have been described here so that you will know what kind of film to avoid. In other words, you should learn both what kind of a film to produce, and what kind not to produce.

Learner-oriented films. This kit is designed to help you produce learner-oriented films. Examples of this type of film are not readily available because so few have been produced. However, when you have identified the instructional power of learner-oriented films, you will not wish to produce any other type.

Suppose someone had produced the films described below. Write the letter of each statement in which the underlined verb tells what the successful learner will be able to do after viewing the film.

(a) locates a dictionary entry, using guide words...
(b) writes the outline for a report...
(c) describes orally four specific restrictions of the Bill of Rights...
(d) identifies example of metaphor...
(e) finds locations on a globe...

* * * * * * * *

You should have marked statements a, b, c, d, and e. If you use "The learner" as the subject of those verbs, you have a statement which describes what the learner can do as a result of viewing a specific film. If a film is described in terms of what a learner can do after using it, it is a learner-oriented film.

Here are five more examples of film annotations. On the basis of these descriptions, write the letter of those which you would designate as learner-oriented films. The test to use is this: if it makes more sense when "The film"

is the subject of the verb, you have a content-oriented film. If it makes more sense when "The learner" is the subject, you have a learner-oriented film.

(a) presents in animated and live sequences all the details on how to operate the projector...
(b) lists in writing the four chief agricultural products of the Central States...
(c) describes orally the difference between a "go" signal and a "stop" signal...
(d) brings to the classroom a rich treatment of the life of desert nomads...
(e) uses animation to show the process of mitosis...

* * * * * * * *

Under ordinary conditions you would expect a learner to be able to do (b) and (c) after viewing the appropriate film. They are learner-oriented films. The other three statements -- a, d, and e -- make more sense if you use "The film" as the subject of the verb. Possibly you could use "The learner" as the subject of any of these three, but you would then have a rather improbable objective.

Summary: You will learn to produce self-instructional films. Such films are always described in terms of <u>what the learner will do after using the film</u>

Stating Objectives--In Terms of Observable Behavior

The practice of defining tasks in terms of performance by the learner is relatively simple to acquire. However, just because you can use "The learner" as the subject of your verb does not necessarily mean that you have an adequate description of the task. You may have chosen a term to describe a performance which cannot be observed, or which can only be observed by inference. This is frequently the case when the term is open to many and varied interpretations.

Non-observable performance terms. A glance at a typical teacher's manual or curriculum guide will reveal many examples of objectives such as "To appreciate the contributions of the Indians to our life today." While there is no doubt that the writer of this objective wants the learner to do the appreciating, there is considerable doubt about what the learner will be doing when he "appreciates". Whatever "appreciating" might be, it is quite certain that it cannot be observed directly unless it is defined in language which is subject to far fewer interpretations.

Consider several other examples:

(a) to know the principles of magnetism
(b) to understand the differences between the Tories and the Whigs
(c) to grasp the significance of the White House Conference on Education
(d) to enjoy music of the Baroque Era
(e) to have faith in the market's ability to recover

* * * * * * * * *

Take example (a) above. What does this objective mean? "To know" is certainly something which the learner is to do, but the problem is to find out which learners "know" and which do not "know". If a learner knows the principles of magnetism does he write several rules? recite a number of statements? identify examples of magnetism? solve specific types of problems? construct an electromagnet? contrast bar magnets with horseshoe magnets? or does he do one or more of

the many other possible behaviors?

Obviously the verb "to know" is open to a great many interpretations. So are the other verbs given in b, c, d, and e above. This is true because such verbs do not describe observable behavior. When such terms are used, you cannot tell what behavior the learner was to acquire, neither will you be able to tell which learners have acquired the behavior, nor when it was acquired.

The solution to the problem is to find verbs which both describe an observable performance and are subject to very few interpretations.

Observable performance terms. Suppose you found the following list of film descriptions. Could you tell exactly what the learner would be doing?

(f) to write the dates for these three events...
(g) to recite the Pledge of Allegiance...
(h) to solve equations of type A using the graphic method...
(i) to list the parts of the carburetor...
(j) to construct an angle equal to a given angle...

These descriptions are quite different from those given in a-e above, primarily because they are open to far fewer interpretations. A learner who "understands" may give evidence of this understanding in a multitude of ways. He may write something, recite a rule, solve a problem, list a number of factors, construct a diagram, or he may perform any of many other acts. Any or all of these could be used as evidence of "understanding". To put it differently, "understanding" is not a behavior which is observed directly. Rather, you must infer that a learner understands on the basis of other specific acts or behavior.

In contrast, note the descriptions in f-j. One may directly observe the written dates, recitation, solution, list or constructed angle. Moreover, there would be little, if any, disagreement about what the learner is to do. The terms used are not open to many interpretations.

In the following list, distinguish between the two kinds of objectives by writing the letter of any objective which is subject to few interpretations. Do nothing for those objectives which are subject to many interpretations.

(k) to know how to swim
(l) to identify nouns
(m) to have a thorough grasp of the Second Law of Thermodynamics
(n) to believe in the concept of democratic government
(o) to practice patriotism

* * * * * * * * *

Only (l) is a good statement of an objective. Why? Because it is open to few interpretations. To put it differently, think of a typical classroom of 30 students. The teacher has an objective for the lesson: "To identify nouns." Now the teacher must provide some kind of environment in which the pupils can attempt to perform the designated task. He might give the pupils a dittoed paragraph and tell them to underline nouns. He might write a list of words on the chalkboard and tell them to point to the nouns. He might read a story slowly and have the pupils call out "Noun" each time he reads a noun. Or he could provide any of countless other situations in which the learner can demonstrate either that he can or he cannot identify nouns. The important thing to remember about stating this objective is that it should be written in language such that any competent observer should be able to distinguish those who identify nouns from those who do not.

Look at k, m, n, and o above once more. You can see now that a number of teachers could quickly become involved in an argument if they were asked to distinguish, in a class of 30 pupils, those who manifest an attainment of any one of these objectives from those who do not. The words in these objectives are subject to too many interpretations.

The Objectives Should be Stated in Terms Which Have Little or no Ambiguity in Their Definition

At this point you should be ready for a list of terms which you can use to write an objective for a film. The list below covers an amazing number of the kinds of things that pupils are expected to learn in school. While the list is not all-inclusive, it is sufficiently broad in scope to cover all but the very specific behaviors for which little ambiguity exists.

1. Identify - The learner indicates membership or non-membership of specified objects or events in a class when the name of the class is given.

   Examples: Objective - To identify peninsulas.
   (a) On the map before you, is "X" a peninsula?
   (b) Which of the following is a peninsula? 1) A, 2)B, 3)C.

   The learner may respond to each item by writing, underlining, or circling his response choice, or by pointing, touching, speaking, etc.

2. Name - The learner supplies the correct verbal label (in speech or writing) for a referent or set of referents when the verbal labels are not given.

   Examples: 1) Objective - To name the eight parts of speech. List the eight parts of speech.

   2) Objective - To name the eight parts of speech, given a passage containing each part of speech.
   Write the part of speech of each word in the passage below. (No list of the parts of speech would be given.)
   A big black dog was barking loudly at the children. "Quick!" shouted Mary. "Run and hide from him!"

Note that the verbal labels may be supplied for either a generically described class of objects (e.g., the eight parts of speech, the five parts of a flower, etc.) or for specific exemplars of that class (e.g., the name of the part of speech is supplied for each given word or exemplar, rather than simply naming the eight parts of speech but not attaching the name to specific exemplars of each part).

3. Order - The learner arranges two or more referents in the proper order specified in instructions to the learner. The learner may be required to name the referents himself (i.e., to name and order), or a list of referents may be provided for him to order.

Examples: 1) Objective - To order chronologically the important related events during the "Golden Age of England." Arrange these events in the order that they occurred:
a) James I becomes King of England.
b) The death of Queen Elizabeth I
c) The defeat of the Spanish Armada.
d) The death of Mary, Queen of Scots.
e) First English colony in America founded.

2) Objective: To name and order the four things to do to cross the street safely.
Name in order the four things you should do to cross the street safely.

The first example above is an instance in which the learner simply arranges in order a given list of referents. In Example 2 he must both name and order the referents.

4. Describe - The learner generates and names the necessary categories of objects, object properties, events, or event properties relevant to the description of a designated referent. The learner should respond in sufficient detail so that there is a probability of approximately one that any individual who can identify the referent by actually seeing it or reading the textbook description of it can also identify it by hearing or reading the learner's description.

Examples: 1) Objective - To describe a pinata.
Describe a pinata.

2) Objective - To describe the Battle of the Bulge.
Describe the Battle of the Bulge.

5. Construct - The learner generates a construction (i.e., a drawing, article of clothing or furniture, map, outline, etc.) which meets stated specifications. The teacher must decide in advance the amount of variation from

stated specifications that will be acceptable.

Examples: 1) Objective - To construct isosceles triangles.
Draw an isosceles triangle.

2) Objective - To construct sentence outlines containing appropriate topics, subtopics and details. Make a sentence outline of Chapter 3 that includes topics, subtopics, and details.

3) Objective - To construct coffee tables as instructed.
Build a 24" high coffee table with a 28" by 40" top, using these materials.

Now you should be ready to try your hand at re-writing objectives, using well-defined terms.

THE FOLLOWING PRACTICE MATERIALS AND EXERCISES ARE SELF-CORRECTING. TO USE THEM EFFECTIVELY, PROVIDE YOURSELF WITH A 5 X 7 CARD. SLIDE THIS CARD DOWN THE PAGE UNTIL YOU SEE A DOUBLE ROW OF DOTS.

. . . .
. . . .

THEN STOP. READ AND DO WHATEVER THE TEXT TELLS YOU. WHEN YOU HAVE FINISHED, SLIDE THE CARD DOWN UNTIL YOU REACH A ROW OF ASTERISKS.

****

THEN STOP. READ THE MATERIAL JUST UNCOVERED; IT IS THE SUGGESTED ANSWER OR RESPONSE. THEN REPEAT THE PROCEDURE; SLIDE THE CARD DOWN UNTIL YOU SEE A DOUBLE ROW OF DOTS, ETC.

Exercise

Below are descriptions of objectives which can be improved by substituting one of the five well-defined terms. Beside each statement write the term which clarifies the objective. Remember, the defined terms are: Identify, Name, Describe, Order, Construct. Check your answer before going to the next item.

_____ 1. The learner is to tell whether a specified tree belongs to a class of trees or not. He is given a picture of the tree and the name

of the class.

... ...
... ...

1. Identify

****

_____ 2. The learner arranges chronologically the major battles of the Revolutionary War.

... ...
... ...

2. Order

****

_____ 3. The learner classifies six objects as mineral or vegetable. The learner is given the six objects and the names of the two categories.

... ...
... ...

3. Identify. Any classifying or sorting behavior is an example of identifying if both the object (or event or characteristic) and the name of the class are given the learner.

****

_____ 4. Given a slide showing a flower, the learner tells what it is.

... ...
... ...

4. Name

****

_____ 5. Given a tripod, the elarner tells enough about its characteristics or properties to enable someone else to name the object.

... ...
... ...

5. Describe

****

_____ 6. The learner matches the names of plants in one list with the name of the class to which each belongs in a second list.

... ...
... ...

6. Identify:

****

_____ 7. The learner arranges in sequence the steps which one must follow to develop a film.

... ...
... ...

7. Order.

****

_____ 8. The learner creates a graph which meets certain specifications.

... ...
... ...

8. Construct.

****

_____ 9. The learner composes a folk song which meets specified standards.

... ...
... ...

9. Construct.

****

_____10. The learner describes how a microscope works. The description meets a definite specification.

... ...
... ...

10. Describe

****

_____11. The learner writes the correct term for a process involving making carbohydrates when a plant is exposed to light. The term is not given.

... ...
... ...

11. Name

****

_____12. The learner indicates to which class a number of specified objects belong. The three classes given are solid, liquid, and gas. Six or more objects are given. At least two examples are included for each class.

... ...
... ...

12. Identify

****

Now look at Film #1[1]. This film is designed to produce a specific observable learner behavior. As you look at the film, see whether you can write the objective which fits this film. Use one of the verbs from the previous section.

****

Hopefully you selected the first verb from the list: identify. That is all the learner in this film is requested to do. What is he to identify? Obviously, he is to identify statements of observation.

The correct way to describe this film's purpose, then, is to say that the objective of the film, in terms of the learner's performance, is

To identify statements of observation.

Now look at Film #2. Your assignment is the same. Write the objective which describes the performance that this film is designed to develop. Then turn to the next page.

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[1] The script for the films referred to in this monograph is found in the colored pages at the end.

This one should have been very simple, even if you didn't quite get the first one. The performance which this film is designed to develop is

To identify statements of inference.

Summary. You are now able to rewrite objectives using terms which have been well-defined and are relatively free from ambiguity. Obviously there are many specific terms which also are well-defined and lack ambiguity. For example, terms like "spell", "type", "run", and "recite from memory" are quite clear and specify particular observable behaviors. They may be used when writing objectives. However, in the absence of such terms you will reduce ambiguity by using the five terms which were defined for you in this paper.

Selecting a Task

Now that you know something about specifying terminal behavior, you will need to know how to apply this knowledge to instructional problems in a school.

Schools are concerned with both subject matter and learner behavior. Actually, these two rarely, if ever, exist in a pure form in a school. Take subject-matter for example. You may wish to teach something about magnetism but you do so by leading the learner to behave in some manner in a "magnetism context." How does the learner do this? He may construct hypotheses about magnetism. He may describe data related to the magnetism phenomenon. He may identify statements of observation about magnetism. In other words, you can't teach a pupil "magnetism." You can only teach a pupil to behave in some way about magnetism.

Obviously, this is reversible. Just as you cannot teach subject matter only, so you cannot teach behavior only. Take the list of five performance terms again. Can you teach a pupil "to identify"? No! But you can teach him to identify something. And this something is the subject matter.

In the Film 1 you saw a sequence designed to enable the learner "to identify statements of observation." All the pictures and all the statements about the pictures could be included in an elementary science context. In other words, there are two dimensions apparent in this film:

Subject matter = science

Behavior = identifying statements of observation

A film could have been developed to teach the learner to identify statements of observation in the context of history, or literature, or geography, or any of many other subject disciplines. But it is not possible to produce a self-instructional film which deals only with the subject-matter dimension.

There is no such thing as a self-instructional film "about the primary colors" or "about the westward movement".

Now try to apply these principles to a few examples. Suppose someone wants you to produce a self-instructional film which will enable a learner "to define things in operational terms". What would you say?

(a) It can't be done. (Go to p. 17)

(b) It can be done. (Go to p. 18)

(c) Perhaps it can be done, but more information is needed first. (Go to p. 19)

****

Why are you looking at this page? Nowhere were you told to turn to this page. Perhaps yourexperience with theater movies led you to look for a preview of coming attractions.

You should be learning how to make self-instructional films. But you'll never succeed unless you follow directions.

How about a fresh start? No more sneaking a look at what's coming, okay? Go back to page 15 and follow directions!

****

You said it can't be done.

This is a rather strong statement. Actually, it can be done too easily. There are hundreds of self-instructional films that could be produced for implementing the objective "to define in operational terms". However a self-instructional film which teaches a learner to define psychological terms such as "ego" or "id" in operational terms might very well be worthless for teaching a fifth-grade science class to define terms operationally.

The point that you missed is this: in a self-instructional film you must specify a behavior and a subject matter. You did only the former. Now go back to page 15 and try again.

****

You said it can be done.

There's no doubt that it can, but perhaps it can be done too easily. In other words, you might produce a film that does teach a learner to define science terms operationally. However, the economics teacher who ordered the film may find it highly inefficient for his subject matter.

Remember that there are two factors which must be considered before you begin planning a self-instructional film: behavior and subject matter. You forgot the subject matter.

Try p. 15 again.

Right! You do need more information. While this is an adequate description of a behavior, it fails to point out the subject matter which is to govern this behavior. When describing a self-instructional film, always include two points: (a) behavior and (b) subject-matter.

Miss Lassar, the kindergarten teacher, uses many mounted pictures to provide examples of the primary colors. She has beautiful pictures of red apples, yellow sunflowers, the blue sky, and many other examples of primary colors. Miss Lassar wants you to produce a self-instructional film about the primary colors for use in kindergarten art classes.

What do you think of this assignment?

(a) She'll have to give me more information. I'm not certain what she expects the film to do for her. (Go to p. 20)

(b) It sounds great! Let's get to work on it. (Go to 21)

(c) It's impossible. The motion picture medium can't be used to teach what Miss Lassar wants. (Go to p. 22)

You said that you'll need more information. And right you are! Miss Lassar's request is completely subject-oriented. You don't have the foggiest notion of whether she wants her pupils to identify the primary colors, to name the primary colors, or to do something else about the primary colors.

Before you can produce a self-instructional film for her, you'll have to find out what behavior is of concern to her.

If you feel quite certain that you know what two elements are involved in task selection, go to p. 26 . However, if you'd like to work through one more example, try this one.

Mr. Togrof, the high school history teacher, wants a film which will enable his students to arrange certain events in chronological order. He gives you a list of four events related to the Congress of Vienna and asks you whether you can do the job. How do you feel about this task?

(a) Togrof is so immersed in his subject that all he's concerned about is content. He doesn't care what his pupils are supposed to do. (Go to p. 23)

(b) Togrof is my boy! He has given me a task that is suitable for a self-instructional film. (Go to p. 24)

(c) Togrof is so preoccupied with behavior that he loses sight of the subject he's supposed to teach. (Go to p. 25)

You said that the idea sounds great. You want to get to work on it. While I admire your zeal, I'm afraid that you'll have to channel it a bit more precisely. If you were to start work on this film on the basis of the information you now have, you'd likely end up with a great deal of activity and very little product.

Remember, there are two things you must know before you can label a task as being suitable for a self-instructional film. It must deal with some kind of subject matter. In this case, it's art. But you forgot about the behavior. What are these kindergarten pupils supposed to be able to do when the film is over? Miss Lassar didn't tell you. The task she has given you is too vague for a self-instructional film.

Go back to p. 19 and try to do better!

You said the task is impossible because the motion picture can't be used to teach what Miss Lassar wants. Apparently you can read Miss Lassar's mind, because your answer implies that you know what she wants to teach.

She told you that she wants a film about the primary colors. But that's only half a task. If you want to decide whether a task is suitable for the self-instructional film medium, you'll need to know something other than the subject matter of the proposed film. Remember, a self-instructional film is never a half-task job.

What is the learner to do after seeing the film? Is he to identify the primary colors? Is he to name them? Or what? You see, Miss Lassar didn't tell you what behavior she expects from the learners. So you can't say that it's impossible to produce her film. Wait until she tells you more about it before you render this kind of verdict.

Now see if you can do better. Go back to p. 19 , but don't select a half-task answer this time.

Oh, come on now! Togrof told you what the pupils are to do. He wants them to order certain specified events. We happened to use the verb arrange in this instance, but that's perfectly legitimate.

Now you'll have to do two things to get back in the game. First, go to page 8 and read the definition for ordering and then return here.

Now you ought to be able to recognize ordering, even when a synonym is used for it. You should be ready to return to page 20. Do so!

You and Togrof hit it off well, don't you! You should, because he gave you a task which is amenable to the self-instructional film medium.

Onward and upward! You are ready for a new topic, so move to p. 26.

Togrof didn't lose sight of the subject matter, but apparently you did. He gave you a list of four events related to the Congress of Vienna. What more do you want?

Try again. Go back to p. 20.

You know that a task, in order to be suitable for implementation by means of a self-instructional motion picture, must be defined in terms of behavior and subject matter.

Another matter to which you must give some thought before beginning production is the question of whether or not the task is suitable to the motion picture medium. At first glance it would seem that this question is quite easy to answer. If the task demands (a) pictures and (b) motion, then a motion picture seems to be justified.

But are there tasks for which a motion picture film would be a desirable instructional medium if the film contained either no pictures or no motion? Consider the problem of the art teacher. He wants his pupils to describe specified characteristics of six of Renoir's paintings. He has a set of 3 1/4 x 4 lantern slides showing these paintings. If he could add an arrow pointing to a characteristic in each painting and a word which describes each characteristic, he feels that he would have increased the power of his instructional materials. For the moment do not worry about whether or not his technique is self-instructional. Instead, answer the question, "Is this material suitable for the motion picture medium?"

Obviously, the material is pictorial, so it qualifies on the first count. But what about the motion? Why use a motion picture film to present still pictures? Why not use a set of slides, or a filmstrip? The answer lies not so much in the nature of the material as in the problem of accessibility. If the art teacher's materials are put on 8mm film and cartridged, the material becomes highly accessible to pupils and teachers alike. It is easier to use a cartridged 8mm film than it is to use a set of slides or a filmstrip.

The criterion of motion, then, is irrelevant. Whatever might be presented on slides or on a filmstrip is legitimate material for an 8mm film, particularly if the film is intended for use in a cartridge projector. Furthermore, sometimes still picture material must be put on 8mm if you wish to use the zoom lens to accent specific elements or if you wish to superimpose textual materials or if you wish to add animation to still materials. These and other techniques are available to the imaginative film maker.

One final aspect of instructional materials must be considered. Sometimes the learning task is concerned with what psychologists call paired-associate learning. A good example is the learning of a foreign language. Suppose that you are confining yourself to presenting a word in one language and expecting as a reply its equivalent in another language. Whenever the learner's task is to be able to recall a specific response when a specific stimulus is presented, we have an example of paired-associate learning.

A set of arithmetic flashcards is an example of instructional material which involves the pupil in paired-associate learning. On the question side of the card he sees "2 + 2 = ", while on the answer side he sees "4". The question is exposed to him, and he replies, until he can always make the response quickly and without error. A few more examples of paired-associate learning include the following:

Stimulus	Response
states	capitals
colors	names of the colors
functions of tools	names of the tools

The question to ask yourself when you encounter a case of paired-associate learning is, "Could this be done as easily on a set of flashcards?" If the answer is yes, you probably don't need to go to the trouble and expense of producing a film. If the answer is no, or if motion is involved, you probably have material for a film.

Later on, when you study principles of programming, you may find another reason for not filming paired-associate tasks. At this point, however, you have merely to ask the "flashcard" question in order to make a decision.

Suppose that the driver education teacher wanted a film to teach his pupils to name three kinds of hand signals which a driver observes in moving traffic. He asks you to produce it. You immediately recognize the task as one involving paired-associate learning. What will you do?

(a) I'll tell him to put it on flashcards. (Go to p. 29)

(b) I'll tentatively decide to film it. (Go to p. 30)

Apparently you don't like the driver education teacher. Why tell him to put it on flashcards? That's no way to present a stimulus which involves motion. Remember, he observes the signals "in moving traffic." If you chose this answer because you considered it an example of paired-associate learning, you could be on the right track. However, you'll have to learn something about programming before rejecting an idea such as this one on that basis.

Now apologize to the "driver ed" man and select the correct answer on p. 28.

You tentatively decide to film it. Right! The stimulus contains elements which are in motion. You can't put that kind of material on flashcards. True, this may be paired-associate learning, and that's another factor that must be considered before you make a final decision, but you needn't worry about that until you have learned principles of programming.

Nikolai Lausiv, the curriculum director, wants to cut down the time that it takes first graders to learn to read three words: cut, color, paste. His idea is simple. Produce an 8mm self-instructional film which presents the word "cut" to the learner for five seconds. Then add a picture of scissors and have the child say what he does with a scissors. Next, present the word "color", then add a picture of a box of crayons and have the child say what he does with crayons. Finally, follow the same procedure with "paste".

What are you going to tell Lausiv?

(a) This is no material for a self-instructional film. You haven't specified behavior. (Go to p. 31)

(b) This is a good idea. I'll have your film for you when the teachers return in September. (Go to p. 32)

(c) I think I could accomplish your objective just as well, and at considerably less expense, by using another medium of instruction. (Go to p. 33)

(d) I don't know what to say, Mr. Lausiv. I'll have to review the notes I made last summer during the workshop on self-instructional film production. (Go to p. 34)

You're right and you're wrong. Mr. Lausiv has specified the behavior. Given certain stimulus conditions, he wants the children to name an activity. In this instance the naming is called reading.

However, Lausiv is making a mistake of another kind. And so are you! Go back to p. 30 and try to correct your error.

Apparently you aren't a very busy person or else you just love to run film through a camera. Why put this task on film? What is there about 8mm, which is a relative expensive medium of instruction, that makes you want to use it for this task? I'm certain that if you think about it for just a moment, you'll recognize that this task doesn't require the film medium. Go back to p. 30 and try again.

Good for you! Don't use a film for every task under the sun! In this instance you might do just as well with a mimeographed exercise constructed in a programmed or self-instructional form. Or, as the text suggested a few pages back, you might put this entire task on flash cards.

At any rate, you wouldn't use a film, even though pictorial material is needed for the stimulus.

Let's try one more example before proceeding to another topic. Elsie Benson, the language arts supervisor, thinks that you should use self-instructional films to teach spelling. She thinks that it would be a good idea to present the new word in its entirety, then have the learner write the word while the screen is blank and then present the word again to give the pupil immediate knowledge of results. What are you going to say to charming Miss Benson?

(a) Unless you want to use the 8mm to control rate of presentation, this isn't a filmic task. (Go to p. 34)

(b) It's a good idea providing we can add pictures or illustrations to the film. For example, instead of the blank screen while the pupil writes, let's present a picture to illustrate the meaning of the word. (Go to p. 35)

(c) (This answer is for unmarried males only)
Miss Benson, I know a charming little French restaurant where we could have dinner by candle-light tonight, and we could discuss your wonderful idea then. (Go to p. 36)

You're (1) diplomatic, (2) honest, and (3) not as well-informed as you ought to be. Mr. Lausiv is all wet, and you'll have to inform him of this fact --- in a tactful way, of course.

Remember this: if you can do it on a set of flashcards or on dittoed work-sheets, you probably don't need a film. Now go back to p. 30 and review. Then see whether you can't select a better answer.

You're really becoming a first-rate film producer, aren't you! I'm particularly impressed by the fact that you talk about a "filmic task". Keep up the good work. You are now ready for the next unit.

You really blew this one! How could you possibly get any benefit from pictures projected on a screen while the pupil is writing? He can't write and watch at the same time.

No doubt you didn't mean to choose this answer. Go back to p. 33 and try again.

Point 1 - You're not really unmarried, so forget about Miss Benson.

Point 2 - Miss Benson is going to be married next week, so forget about her.

Point 3 - You're supposed to be learning about self-instructional films, so forget Miss Benson and get on with her request. Go back to p. 33.

Script for "Observation and Inference"

Film #1

Pictorial Stimulus	Textual Stimulus	Seconds
1. Red apple	The apple is red. Does this tell what you see? yes no	10
2.	Yes. You see that the apple is red.	5
3. Boy eating a red apple.	The apple is sweet. Does this tell what you see?	9
4.	No. You do not see that the apple is sweet.	4
5. Boy eating a red apple.	The boy is eating his lunch. Does the statement tell what you see?	10
6.	No. The statement does not tell what you see.	5
7. Boy eating a red apple.	The boy has a red apple. Does this tell what you see?	9
8.	Yes. This is a statement of observation. It tells what you see.	4
9. Boy eating a red apple.	The boy is hungry. Does this tell what you see?	8
10.	No. A statement of observation tells something you see, not what you have to guess.	7
11. Boy eating a red apple.	The boy is bigger than the apple. Is this a statement of observation?	9

The pictorial stimuli and textual stimuli from each frame are presented simultaneously in the same film scene. That is, frame 1 represents one scene and the pictorial and textual stimuli from it are presented together in the first scene of the film, etc.

Pictorial Stimulus	Textual Stimulus	Seconds
12.	Yes, it is a statement of observation because it tells what you see.	5
13. Boy eating a red apple.	The boy likes the apple. Is this a statement of observation?	9
14.	No. This is not a statment of observation. It does not tell what you see, but something you have to guess.	6
15. Car moving, no parked or standing cars visible. Aerial on front fender is clearly visible.	The car is moving. Is this a statement of observation?	8
16.	Yes, a statement of observation tells what you see.	4
17. Car moving, no parked or standing cars visible. Aerial on front fender is clearly visible.	The car's motor is running. Is this a statement of observation?	10
18.	No. You cannot see the motor.	4
19. Car moving, no parked or standing cars visible. Aerial on front fender is clearly visible.	The car has an aerial. Is this a statement of observation?	9
20.	Yes. It tells what you see. It is a statement of observation.	6
21. Car moving, no parked or standing cars visible. Aerial on front fender is clearly visible.	The car has a radio. Is this a statement of observation?	10
22.	No.	2
23. Car moving, no parked or standing cars visible. Aerial on front fender is clearly visible.	The car is not out of gas. Is this a statement of observation?	9
24.	No. A statement of observation tells what you see. You cannot see whether the car has gas or not. You can only guess it.	10

Pictorial Stimulus	Textual Stimulus	Seconds
25. Car moving, no parked or standing cars visible. Aerial on front fender is clearly visible.	The car is moving forward. Is this a statment of observation?	9
26.	Yes.	2
27. Girl seated, looking at book which she holds in her hands. She is laughing heartily. She turns a page.	Which is a statment of observation? The book is funny. The girl is laughing.	14
28.	The girl is laughing. A statement of observation always tells what you <u>see.</u>	11
29. Girl seated, looking at book which she holds in her hands. She is laughing heartily. She turns a page.	Which is a statement of observation? The girl is enjoying the book. The girl is turning a page of the book.	15
30.	The girl is turning a page of the book. You can't see whether she's enjoying the book. You can see her turn the page.	8
31. Girl seated, looking at book which she holds in her hands. She is laughing heartily. She turns a page.	The girl is happy. The book is in the girl's hands. Which is a statement of observation?	14
32.	The book is in the girl's hands.	4

End of Film #1

Film #2

Pictorial Stimulus	Textual Stimulus	Seconds
33. Thermometer showing 105°. Environment must show clearly that thermometer is outside.	The thermometer shows a temperature of 105°. Do you see this or do you guess it?	14
34.	You see that it is 105°. It is a statement of observation.	5
35. Thermometer showing 105°. Environment must show clearly that thermometer is outside.	It is summertime. Did you see this or guess it?	8
36.	You guess that it is summertime even though you cannot see what season it is in this picture.	6
37. Thermometer showing 105°. Environment must show clearly that thermometer is outside.	It is a hot day. Does the statement tell something that you guess, but cannot see?	12
38.	The statement tells something you guess but cannot see. The answer is yes.	5
39. Thermometer showing 105°. Environment must show clearly that thermometer is outside.	The thermometer shows a temperature between 100° and 110°. Does the statement tell something that you guess but cannot see?	20
40.	No. The statement tells something you see.	4
41. Smoke rising from box, fire not visible.	There is a fire in the box. Does the statement tell you something you guess but cannot see?	14
42.	Yes. It is a statement of inference. It tells something you guess but cannot see.	6
43. Smoke rising from box, fire not visible.	Something is burning. Does the statement tell something you guess but cannot see?	13

Pictorial Stimulus	Textual Stimulus	Seconds
44.	This is another statement of inference because it tells something you guess but cannot see. The answer is yes.	9
45. Smoke rising from box, fire not visible.	There is heat in the box. Is this a statement of inference?	9
46.	It's a statement that tells something you guess but cannot see so it is a statement of inference. The answer is yes.	11
47. Smoke rising from box, fire not visible.	Some smoke is higher than the box. Is this a statement of inference?	11
48.	The statement doesn't tell something you guess. It tells something you see so it is not a statement of inference. The answer is no.	11
49. Smoke rising from box, fire not visible.	There is some smoke in the box. Is this a statement of inference?	11
50.	Yes. A statement of inference tells something you guess but cannot see.	6
51. Smoke rising from box, fire not visible.	The smoke is rising. Is this a statement of inference?	9
52.	No. The statement tells what you see.	4
53. Man before class. He is writing on chalkboard. Pupils are clearly visible.	The man is writing. The man is a teacher. Which is a statement of inference?	14
54.	You see that the man is writing, but you guess that he is a teacher. "The man is a teacher" is the statement of inference.	11
55. Man before class. He is writing on chalkboard. Pupils are clearly visible.	The children are seated. The children can read. Which is the statement of inference?	14

Pictorial Stimulus	Textual Stimulus	Seconds
56.	The children can read.	3
57. Man before class. He is writing on chalk-board. Pupils are clearly visible.	The children are in school. The man writies with his right hand. Which is the statement of inference?	16
58.	The children are in school.	7

End of Film #2

Film #3

Pictorial Stimulus	Textual Stimulus	Seconds
59.	In the next scenes, tell whether each statement is a statement of observation or a statement of inference.	8
60. Man walking from grocery store, carrying bag with packages of breakfast cereal protruding from top.	The man is leaving the store. Observation? Inference?	10
61.	Observation. A statement of observation tells something you see.	6
62. Man walking from grocery store, carrying bag with packages of breakfast cereal protruding from top.	The man bought some groceries. Observation? Inference?	10
63.	Inference. A statement of inference tells something you guess, but can't see.	7
64. Man walking from grocery store, carrying bag with packages of breakfast cereal protruding from top.	The man is walking. Observation? Inference?	10
67.	Inference.	2
68. Man walking from grocery store, carrying bag with packages of breakfast cereal protruding from top.	The man is carrying the bag. Observation? Inference?	10
69.	Observation.	2
70. Man walking from grocery store, carrying bag with packages of breakfast cereal protruding from top.	The man has been shopping. Observation? Inference?	10
71.	Inference.	2

End of Film #3