

1-1-1983

Reasoning Guides for Critical Comprehension

Thomas W. Bean
California State University, Fullerton

Vicki Soderberg
Capistrano USD, Mission Viejo, California

Follow this and additional works at: https://scholarworks.wmich.edu/reading_horizons



Part of the [Education Commons](#)

Recommended Citation

Bean, T. W., & Soderberg, V. (1983). Reasoning Guides for Critical Comprehension. *Reading Horizons*, 23 (2). Retrieved from https://scholarworks.wmich.edu/reading_horizons/vol23/iss2/6

This Article is brought to you for free and open access by the Special Education and Literacy Studies at ScholarWorks at WMU. It has been accepted for inclusion in Reading Horizons by an authorized editor of ScholarWorks at WMU. For more information, please contact maira.bundza@wmich.edu.



REASONING GUIDES FOR CRITICAL COMPREHENSION

Thomas W. Bean

CALIFORNIA STATE UNIVERSITY, FULLERTON, CALIFORNIA

Vicki Soderberg

CAPISTRANO USD, MISSION VIEJO, CALIFORNIA

Imagine for a moment that you are a student in a sixth grade classroom studying a Science unit on ecosystems. The teacher announces, "Today we are going to see a filmstrip called 'How Does Man Change Ecosystems?' I want you to pay close attention so we can discuss ideas about man's influence on ecosystems later in class." (Educational Coordinates, 1970)

The lights dim and your eyes focus on the screen at the front of the room. It's a familiarly soothing experience, much like watching television at home. You sit back and relax, letting your mind wander in and out of the filmstrip images and narrator's presentation, perhaps even dozing. Sound familiar?

This passive learning approach to media is in marked contrast to the more interactive style we expect students to adopt when they read textbooks in Science and other content areas (Herber, 1978; Readence, Bean, and Baldwin, 1981). In text assignments, students are asked to answer post-questions, interpret and evaluate concepts, and carry out experiments that extend understanding. Why is it that we treat audio-visual materials in less interactive fashion than texts? Perhaps a kind of cultural inertia surrounds our use of media in classrooms. Indeed, Toffler (1980) suggests that we are just beginning to grasp how to employ "third wave" media effectively in the learning process. If in the 1980's we are as Toffler implies becoming a more aural and visual culture, less bound by the conventions of print, then our classrooms ought to foster literacy in "new wave" forms. We will describe here a process for using classroom media as powerful interactive sources of information that enhance students' critical comprehension.

Three Level Reasoning Guides

An approach that we have found to be effective with filmstrips involves the development of Reasoning Guides designed to move students toward higher levels of understanding (Herber, 1978). Reasoning Guides consist of teacher-devised statements that students either agree with or dispute. Guides can be arranged so that students initially identify literal information in a filmstrip and subsequently interpret and apply this information to what they already know about a topic in Science. Thus Level I. guide statements focus on literal information mentioned in the filmstrip; Level II. statements entail interpreting information that was "hinted-at", and Level III. statements require consideration of

real world problems related to the filmstrip.

In order to fulfill one of the requirements of a graduate course in Reading, the second author developed and field-tested a Reasoning Guide for the thirteen minute filmstrip "How Does Man Change Ecosystems?" The following steps show its development:

1. The filmstrip was viewed several times in order to identify key concepts for the guide statements
2. Twelve literal statements were created for the Level I. guide by paraphrasing what the narrator said in sequential order

This process resulted in the following Level I. guide for the literal information presented in the filmstrip:

Check the statements which tell what the narrator said in the filmstrip.

1. Life exists only under very special conditions.
2. Too much or too little of anything causes death.
3. If one life form completely takes over an ecosystem, the ecosystem becomes imbalanced.
4. Man changes his environment to suit himself.
5. Man uses what he wants and throws the rest away.
6. Men are beginning to throw the earth's ecosystems off balance.
7. All machinery that burns fuel to get energy causes smog.
8. Sometimes raw sewage is dumped into rivers and lakes.
9. Detergents don't break down, and because they don't they kill aquatic life.
10. Tin cans and glass containers break down but plastic does not.
11. DDT is an insecticide that does not break down.
12. Fertilizers have been running off into rivers and lakes; this causes excess algae to grow.

In addition to the Level I. guide, higher level statements were composed, encompassing interpretive and applied information. Six interpretive statements that would be supported or, in some cases, challenged by the content of the filmstrip were composed based on the information in the Level I. guide. This process produced the following guide for interpretive comprehension:

Level II

Check the statements which you think tell what the meaning was of the filmstrip.

1. Algae is harmless to any ecosystem.
2. The quality of our environment depends upon each individual.
3. Aluminum cans are only recycled because they bring in money.
4. Detergents are polluting our environment.
5. Animals and humans can be harmed by DDT.
6. The invention of plastics has not harmed our environment.

Finally, three applied statements were devised that encompass real-world problems related to the filmstrip.

Level III.

Check those statements you agree with based on your knowledge from the filmstrips and your own experiences.

- _____ 1. It is too late to change the damage humans have done to their ecosystems.
- _____ 2. It is right for humans to change their environment so they can live comfortably.
- _____ 3. Oil wells off the Santa Barbara Channel in the Pacific Ocean are necessary to provide energy for Americans even if they do change the ecosystem there.

Using and Evaluating the Filmstrip Reasoning Guide

On the day students were to view the filmstrip, copies of the three level guide were distributed. Students were instructed to read only the Level I. statements before viewing the filmstrip. They were directed to watch for and check those statements containing concepts mentioned by the narrator. After viewing the filmstrip, Level II. and Level III. guide statements were read and checked individually. Then a class discussion was undertaken on all three levels of understanding.

Two qualitative procedures were used to evaluate the degree to which the Reasoning Guide contributed to students' critical comprehension of the filmstrip concepts. First, the teacher jotted down her impressions of the discussion. Second, a colleague observed the discussion and took verbatim field-notes. The field-notes were then coded to indicate the frequency with which students participated in the discussion and the level of comprehension expressed in their statements (Bean and Drew, Note 1).

A feature that emerged in the impression-record of the post-guide discussion was the students' reluctance to justify their answers to Level II. and III. statements by referring to the filmstrip. The teacher had to ask repeatedly "What in the filmstrip leads you to believe that this statement is true?" This is not surprising when we realize that students are unaccustomed to interacting with filmstrips.

Another striking and more positive feature in the anecdotal notes suggested that students were engaging in higher level discussion and integrating previous knowledge with new concepts. Indeed, this feature was confirmed in the fieldnote transcription and analysis. The following transcriptions from Level II. and III. discussions are representative. The teacher is coded as "T" throughout, students identified by initials of names.

Level II., Statement 3—Aluminum cans are only recycled because they bring in money.

Sh: I recycle aluminum cans. I do it not just for the money but because it's for a good cause. One time I took a whole bunch to a recycling center and only got a dollar.

T: Gee, that must have been disappointing.

Sh: Yeah, kind of. But I think that recycling cans is for a good cause. It saves energy. The more cans we recycle, the less energy we use.

- T: Good answer. What else in the filmstrip mentioned why we need to recycle aluminum cans? What do tin cans do? Think back. I should see you looking back to Level I. How are aluminum cans different from tin cans?
- K: They can't break down.
- T: Yes. What word do we use to mean 'break down'?
- S: Decompose?
- T: Yes. What happens when you can't throw cans away?
- S: You take them to the dump?
- M: I think that it's called a sanitary landfill.
- T: Good. You're remembering back to what we learned a while back. (T. goes into a brief explanation of sanitary landfills)
- S: Why it is called sanitary if it's so dirty?
- T: Because the waste that is dumped is specially treated to hurry the decomposing process. What else doesn't decompose?
- S: Plastics, DDT...
- T: Yes, those can't decompose, and, as the filmstrip mentioned, detergents.

As students become more proficient at viewing filmstrips in an interactive fashion, much of what Lindors (1980) calls teacher "fishing" for technical vocabulary (e.g., "decompose") should diminish. Moreover, having a colleague take verbatim field-notes once or twice a year helps a teacher monitor her approach.

Level III. statements and questions offer a chance for vibrant discussion with little risk of being wrong. Divergent solutions to real problems rarely center on any magic cure. In the discussion transcript that follows note how many different students participate and the level of their contributions in comparison to the previous transcript:

Level III. Statement 3. Oil wells off the Santa Barbara Channel in the Pacific Ocean are necessary to provide energy even if they do change the ecosystems there.

- T: (Gives some brief background information concerning rich shale, oil deposits; the argument - 'we must drill because we need it' and 'we shouldn't drill because it will change the ecosystem') How many think it is necessary to pump this oil even if it does change the ecosystem? What happens if an oil rig breaks?
- S: There would be an oil spill.
- T: Yes, and what happens then?
- C: The fish die.
- S: Whales can't breathe.
- T: That's true. How many agree that we should pump this oil?
- A: I do. We need it.

I: I don't think we need it, we just want it.

T: All right. Let's wait to hear from those who disagree a little later. Someone else who agrees?

K: I agree. Foreign countries are charging more for oil and we better start now getting our own oil.

The discussion continued, inevitably reaching a point where students wanted a "decision" from the teacher. An informal comparison of Level II. and III. discussion reveals increasing critical thought by Level III. Of the 23 teacher and student interchanges, seven were questions and only five of these were teacher originated. More importantly, the majority of students' questions represented higher order thinking beyond the literal level.

There were 16 statements in the Level III discussion, 10 contributed by students. Eight of these were literal level items and the remaining eight included higher level concerns. In this first exposure to filmstrip Reasoning Guides, the pattern of interaction went from teacher to student, then back to teacher. With repeated exposure to guide material and the introduction of small groups for discussion, the pattern might become interactive with students conversing among themselves.

In summary, using a Reasoning Guide with films and filmstrips in any content area will transform a passive learning situation to a highly interactive one. When students know in advance what issues are involved, watching becomes as active as reading. The added ingredient is the student knowledge that there will be opportunities to face the issues and exchange views on what was presented.

REFERENCES

- Bean, T.W. & R. Drew. Using a Discussion Map to Evaluate the Teaching of Critical Reading. Unpublished manuscript, 1981.
- Environment of Man: Introduction to Ecology. "How Does Man Change Ecosystems?" Palo Alto: Educ. Coordinates, Graphicom, 1970.
- Herber, Harold. Teaching Reading in Content Areas. Englewood Cliffs, New Jersey: Prentice-Hall, 1978.
- Lindfors, Judith W. Children's Language and Learning. Englewood Cliffs, New Jersey: Prentice-Hall, 1980.
- Readence, J.E., Bean, T.W., & Baldwin, R.S. Content Area Reading: An Integrated Approach. Dubuque, IA: Kendall/Hunt, 1981.
- Toffler, Alvin. The Third Wave. New York: Wm Morrow & Co., 1980.