Extract from Functional Context Education: Workshop Resource Notebook, 1987, pages

STRAND II: READING TO LEARN

In contrast to the individualized, self-paced program of Strand I, Strand IIwas a teacher-oriented program designed to improve comprehension and learning skills using job reading materials.To read for learning, people must be prepared in at least twoways: they must have the knowledge base tocomprehend the material to be learned, and they must possess knowledge of skills for studying materials andrelating what they read to what tiny already know.

To promote the acquisition of a relevant knowledge base that would help literacy students learn better from their job training materials, Strand II curriculum included specially developed materials that were written at a lower difficulty level than those encountered in job training and that incorporated the basic concepts and topics within a given job. The basic concepts for the six job fields in the functional literacy program were identified through study of job skills training program curriculum guides and consultation with job training instructors. In each job reading program, 12 major concepts were identified, and specific knowledge objectives were developed for each concept area.

For each of the 12 job concept areas, a 300-400 word passage was written that included the knowledge objectives for the concept. These passages were written at the seventh to ninth grade level, as determined bythe FORCAST readability index. The concept passages were written without the redundancy and elaboration usually needed to explicate concepts in written materials, because in the Strand 11 activities each student performed repeated readings of the materials and constructed various representations of messages in the passages. For instance, in some cases students read the concept passages and then drew pictures of what they had read. In other cases, students read the concept passages and produced classification tables or flowcharts representing the major concepts presented in the passages. Having transformed concept passages into pictures, classification matrixes, or flowcharts, students then discussed their newly developed representations, thus producing another representation transformation. These analytical techniques helped to clarify what the written passage was all about.

Figure 3.3

Comprehension indicated by use of different ways of representing concepts.
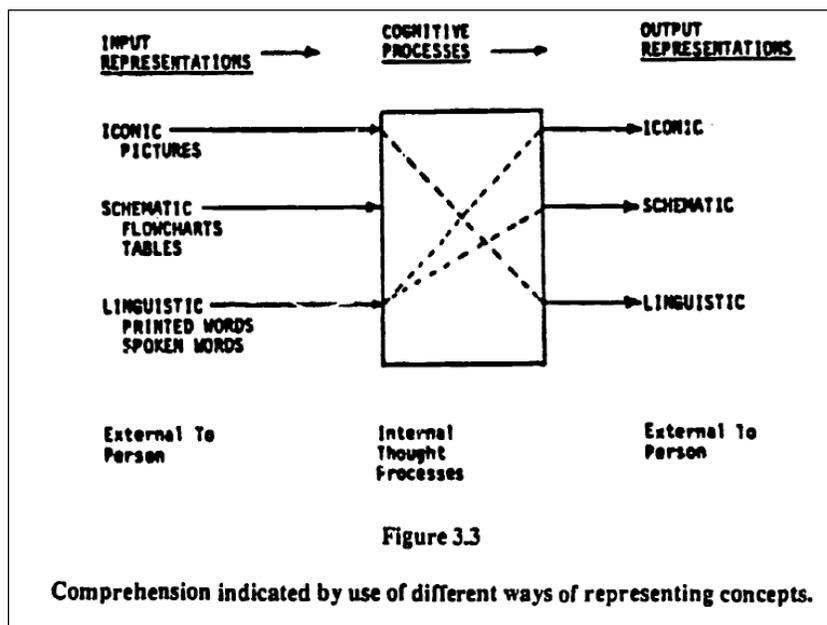
Earlier, the simple model of the development of literacy skills was described briefly. There it was pointed out that both speaking and writing are processes for representing thoughts in external displays, which people learn to decode to form internal representations through the processes of auding and reading, respectively. Now it should be noted that there are other methods of representing thoughts externally than the linguistic modes. People can draw pictures, for instance, or produce gestures or bodily postures. Or, we can externally represent thoughts through a combination of linguistic and non-linguistic representations: figures, graphs, tables; we can record our speech and gestures on video-cassettes, and so forth.

To bring some order into all of these modes of representation of thoughts, they have been divided into three main categories: iconic, schematic, and linguistic modes of representation. Now it is assumed that by means of mental "programs" we have stored in our memories, we are able to externalize certain of our concepts by drawing pictures; this type of representation is referred to as iconic representation. Linguistic representation of thoughts is produced by speech or writing, and schematic representations are an admixture of iconic and linguistic representations for example, flow charts, tables, graphs, etc. that contain both visual structural features and (generally) linguistic signs in the forms of labels or short phrases.

These various representations are displays of information that can be examined by others; i.e., we can consider that there are three categories of input display: iconic, schematic, and linguistic that people can attend to. Furthermore, the information in a given type of display, say a linguistic display, may, at times, be representable in some other type of representation, say an iconic representation. For example, information presented in written form might be used as source materials from which a picture might be drawn that could represent essentially the same meaning as in the written message. Thus, for instance, one may write. "The cave man threw a rock into the water." This might alternatively be represented as Figure 3.4.
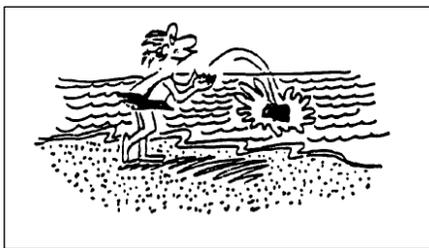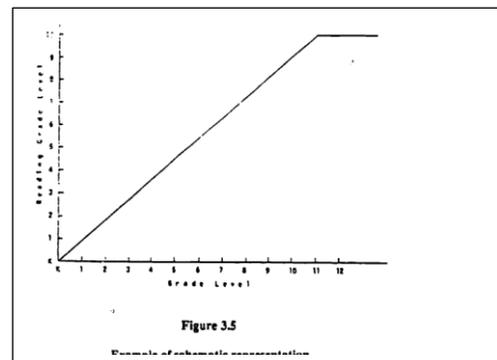

Figure 3.4

Figure 3.5

Example of schematic representation

As another example. one might say "In our research project we found that as the number of years of education increased, the reading skill level increased up to about the tenth grade, and remained the same there after." Alternatively, one might draw Figure 3.5 and say that, "Figure 3.5 shows the results of our study." Clearly, reading skill is a function of years of education, at least for up to 10 years of education.

As an final example, one might wish to explain to someone that: You are eligible to apply for an old age pension if you are 65 years old and have contributed to the fund for at least five years. However, if the five years of your contribution were prior to 1970, then you are not entitled to the full pension, but rather to 1/2 pension if you are 65, and 3/4 if you are starting at age 67.

Alternatively, one might produce a flow chart as in Figure 3.6:

Figure 3.6

Example of schematic representation
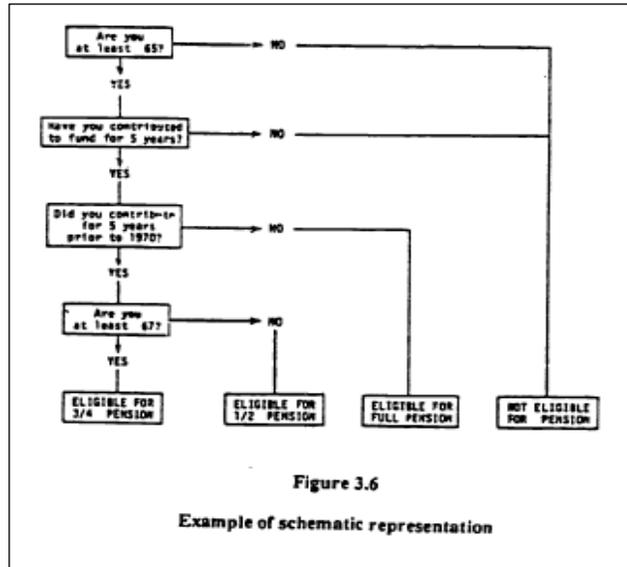
Mortar and artillery squads and platoons control indirect fire through Mortar Gunnery Teams and Field Artillery Gunnery Teams. Each team has three parts: (1) an observer, (2) the fire direction center (FDC), and (3) the weapon crews or firing battery. The observer finds enemy targets and reports their position to the FDC. The FDC figures out the firing data, which includes the direction and range from the weapons to the target. The FDC sends a fire command to the weapon crews. The crews lay and fire the weapons. The observer can see where the rounds fall. If they do not hit the target, he can adjust the fire. He does this by sending back corrections to the FDC. He tells if the rounds went over the target or fell short of it, or whether they fell to the left or right of the target. The FDC changes these corrections into a new fire command to the weapon crews. The crews lay the weapons again and fire. In this way, mortars and artillery can hit targets that the weapon crews cannot see.

A: Linguistic Representation

B: Iconic and Linguistic Representation

(this is a free-hand copy of a drawing made by an adult literacy student with reading skills less than the fifth grade level.)

Figure 3.7

A representation transformation task in which the linguistic representation of Part A is transformed into the iconic representation of Part B.

As indicated, then, it is possible to express very nearly the same ideas in alternate modes: iconic, schematic, and linguistic. Of course, there are thoughts that can only be represented in one or the other modes. And, there are cases when representation in one mode is better for some purpose than an alternative mode.