

A Study of Lexical Organization and Reading Comprehension

This research addresses three questions. One question concerns the utility of the microcomputer task RESCUE as a vocabulary building program. The task embodies the "rich" and "quick" features of the successful pre-reading program developed by the Pittsburgh researchers. An important difference in the present study is that five times as many words are taught in a single instructional cycle compared to the Pittsburgh study. In this way, 180 words are taught in three to four weeks compared to the nine month period used in the Pittsburgh study to teach 147 words.

The second question is that of the necessity of learning under speeded conditions for pre-reading instruction. While Mandler does not focus directly on the issue of fluency in lexical access and its relation to speed of presentation, it can be deduced from his discussion of integrative dimension processing that repetition or number of instructional exposures is the key factor in the development of fluent retrieval. He indirectly makes this claim by stating that a high degree of integration can lead to automatic retrieval of relations that hold for a particular item. These relations are considered automatically "activated" by the mere presentation of the stimulus in the environment. For example, if a subject learned to pair the word animal with mongocse until the association was well learned, merely presenting one or the other word would bring to mind the other. Conscious control over retrieval is similar to the fluency of retrieval issue. Quick access to

word knowledge is necessary to aid reading comprehension and to the extent that retrieval is automatic or unconsciously controlled, all the better.

Beck et al. (1980, 1982) employed speeded exercises to promote quick retrieval. Although quick and automatic retrieval are slightly different, it is not certain whether or not they come about in similar ways. One could argue that quick retrieval is very closely related to automatic processing and that if repetition is the organizing factor for the latter then it could be a considered factor for the former. As mentioned above, the problem with Beck's results is that number of trials and speeded practice were confounded in her investigation.

A third question addressed in the present study relates to the instructional benefits of presenting lists of different semantic structure. Beck and colleagues assumed that presenting their instructional items in semantic categories developed a "rich" semantic organization that facilitated lexical access in reading comprehension. Their corpus of words were organized into "loosely" connected or "ill-defined" categories (Beck, Perfetti & McKeown, 1982). Perfetti (1983) points out that the presentation of more coherent semantic domains might enhance the success of their instructional program. As shown in the review of the earlier work by Vaughn (1982), different list structures differentially affect organization and memory. Therefore, coherency in semantic content may not be appropriate in all cases of category use in vocabulary instruction. Taxonomic relations, thematic relations and a mix of the two were selected for presentation in the present study to investigate the relation between coherency of list structure and

semantic list type. Table 1 shows this aspect of the research design.

Table 1

One prediction was that there would be an overall effect of the instruction on vocabulary knowledge, replicating the results of the Pittsburgh study. Experimental groups should perform better on the vocabulary knowledge and reading comprehension tasks than would the control group. Treatment groups should show effects of the training on tests of word level knowledge that focus on aspects of each instructional word as a unit (e.g., spelling and definition) and its use in context (e.g., its use in a sentence). That is, subjects in the instructional treatment should be able to define, spell, and use the instructional words in context better than the control group.

It was thought possible that the thematic structure of lists would aid learning more than taxonomic structure, as shown in past research. Alternatively, it could be that the presentation of the items in each type of structure randomly would lead to an outcome similar to Rabinowitz and Mandler's study in which the loose thematic list did not differentially affect learning more than the taxonomic. The random presentation of the thematic lists might interfere with subjects discovering the event features in each list. A mix of taxonomic and thematic organization might also lead to a richer organization, in much the same way that Bousfield et al. (1978) and Bower et al. (1969) found when they formed intricate relations among lists of words. The potential multiple retrieval paths may lead to learning effects similar to thematic organization of events and stories. These lists are blocked for presentation in the present study to focus on their within category grouping.

Another set of predictions relates to the speed at which the instruction is presented. From the Beck point of view, we would predict that presenting the classification task under speeded conditions would lead to the development of automatic semantic retrieval in reading comprehension. Alternatively, it is possible that Semantic List Type practice trials is the overriding factor in lexical retrieval, as specified in G. Mandler's theory of lexical organization. That is, automatic processing is a function of number of instructional trials.

Table 1

		Taxnomic	Mixed	Thematic
Instruction	Speeded			
	NonSpeeded			
	Control			

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The resulting 25 students were divided into three groups (speeded, non-speeded, control) having 8, 9, and 8 subjects, respectively. The groups had been planned to be equal in size, but differential subject loss due to factors beyond the experimenter's control left the groups unbalanced. Ten subjects were from one classroom and 15 were from the other. The average level of reading achievement for the treatment groups was first semester, third grade and the control group's average was slightly higher at second semester, third grade.

Apparatus and Materials

A microcomputer lexical decision task was designed by the author as a device for teaching vocabulary lists. A detailed description of the task, called "Rescue", is provided in the Appendix. Subjects were told that protecting a space station was their goal which required deciding whether or not approaching space ships were enemies or friends. The instructional aspect of the task required subjects to make decisions