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Toward a Framework for Task Analysis

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Many models for the design of instruction include task analysis as one step in the model (Banathy, 1968; Briggs, 1970; Gropper, 1971). As a result of this emphasis on task analysis, considerable confusion seems to have arisen concerning specific techniques for conducting a task analysis. This article seeks to present a scheme that will provide a common framework for viewing task analysis.

The failure to find a commonly accepted methodology for conducting a task analysis stems from the desire of persons to establish one procedure for conducting the analysis of all types of learning tasks. It would seem that the appropriate starting point in the analysis of a learning task is to identify to which domain of learning the specific task belongs. Gagne (1971) has identified five separate domains (intellectual skills, motor skills. attitudes, verbal information and cognitive strategies) that are particularly relevant to the topic of task analysis. As Gagne suggested, it seems quite inappropriate to generalize research findings from one domain to the other. The position taken in this article is that while it is appropriate to apply one task analysis procedure to all tasks in a given domain, it is inappropriate to try to generalize a procedure for conducting task analysis from one domain to another.

The task analysis procedure recommended by Gagne (1968, 1970) for hierarchically arranging a final task and the subordinate tasks is based on the hypothesis that certain kinds of learning are necessary prerequisites, i.e., transfer positively, to other kinds of learning.

Intellectual Skills

It should be noted that the above use of the task analysis to establish learning hierarchies pertains to those tasks that could be classified in the domain of intellectual skills and not to tasks in other domains. The learning hierarchy that results from the task analysis of an intellectual skill identifies the subordinate or prerequisite skills that must be learned before the final skill can be learned. The implied sequence is a learning sequence and does not identify the sequence in which the tasks may routinely be

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performed by a person who has already mastered all the skills in the hierarchy.

Motor Skills

In contrast to this, the task analysis procedure for analyzing motor skills does not identify which set of skills must be mastered before one begins to learn a final task. Rather, the task analysis of motor skills seeks to identify the performance sequence for that set of skills. This is similar to the concept of chaining, in which the output from one task becomes the input for the next. The performance hierarchy that results from the task analysis of motor skills identifies the sequence in which the tasks must be performed. As Gilbert (1962) suggested, it may be desirable to teach from the final task backward, using the technique of retrogressive chaining. The implied sequence represents a performance sequence rather than a learning hierarchy, although the tasks are frequently learned in this sequence.

Attitudes

A different procedure is necessary for the analysis of tasks in the domain of attitudes. The purpose of this type of task analysis is not to establish a learning or performance hierarchy but rather to identify indicator behavior. This analysis may more correctly be termed goal analysis. For tasks or goals in the domain of attitudes, the desire is to examine goal statements that are generally more vague and less specific than the task statements found in intellectual skills and motor skills. The result of this goal analysis is the identification of specific overt behaviors that would indicate that the goal or task had been accomplished. The procedure suggested by Mager (1972) for goal analysis represents a clear, concise manner in which the task analysis of attitudes can be done. In contrast to task analysis in the domains of intellectual skills and motor skills, the task analysis of attitudes does not imply any sequencing of tasks.

Verbal Information

In the domain of verbal information, a different task analysis procedure is recommended. The purpose of task analysis in this domain is two-fold: to specifically identify the information to be learned and to determine the larger context to which this specific information is meaningfully related. The procedures for task analysis of verbal information are similar to those for the analysis of attitudes in that it is necessary in both to specifically identify the information that must be learned. However, the task analysis of information requires that we also analyze the context to which the information is related. This is recommended, since information seems to be learned better if it is organized in a meaningful way and related to the learner's existing knowledge (Ausubel, 1968).

Cognitive Strategies

The domain of cognitive strategies differs from the other four domains in that it represents the learner's over-all approach to managing the processes of attending, learning, remembering, and thinking. Thus, the cognitive strategy domain represents a higher order domain, and is involved in the learning of tasks in the four other domains.

Conclusion

It is hoped that much of the apparent confusion over the various techniques for conducting task analyses will be alleviated if one first identifies the domain of the learning task and then applies the appropriate task analysis procedure. While it is appropriate to generalize within a domain and apply the same task analysis procedure to other tasks in that domain, generalization to other domains is not recommended. As additional procedures for conducting task analyses are developed, it will become necessary to examine their application to the tasks in the various domains of learning. □

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Letters to the Editor

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