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ABSTRACT

Initial development of the list of skills and related behavioral objectives in the study skills area of The Wisconsin Design for Reading Skill Development began with an extensive search. As an organizational framework, the area was divided into three subareas: maps, graphs and tables, and reference skills. The professional literature, instructional materials, textbooks, and standardized tests relating to each of these subareas were surveyed and briefly summarized. The present approach has been to identify a few basic skills that are introduced early in the sequence and occur with more sophisticated variations at each successive level of development. Three basic skills have been identified in the subarea of maps: representation, location, and measurement. Six basic skills were identified for the subarea of graphs and tables: picture graphs, bar graphs, circle graphs, line graphs, and single and multicolumn tables and schedules. Seven basic skills were identified for reference skills: location, book skills, library use, reference materials, reading rate and purpose, organizing and evaluating materials, and work habits. (Author/AW)

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The Study Skills Component  
of the Design\*

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ABSTRACT

Initial development of the list of skills and related behavioral objectives in the Study Skills area began with an extensive search. As an organizational framework, the area was divided into three sub-areas: maps, graphs and tables, and reference skills. The professional literature, instructional materials, textbooks, and standardized tests relating to each of these subareas were surveyed and briefly summarized.

\*This is the third paper in a symposium - A Skill Centered Approach to Reading Instruction: The Wisconsin Design for Reading Skill Development - at the 1971 annual meeting of the National Reading Conference, Tampa, Florida.

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Historically, there has been a tendency in each of the subareas to identify a vast number of unrelated skills. Our approach has been to identify a few basic skills. They are introduced early in the sequence and occur with more sophisticated variations at each successive level of development. Three basic skills have been identified in the subarea of maps: representation, location, and measurement. Six basic skills were identified for the subarea of graphs and tables: picture graphs, bar graphs, circle graphs, line graphs, and single and multicolumn tables and schedules. Seven basic skills were identified for reference skills: location, book skills, library use, reference materials, reading rate and purpose, organizing and evaluating materials and work habits.

The Study Skills Component  
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The focus of this paper is on the skills and objectives in the Study Skills area of the Wisconsin Design for Reading Skill Development. The intent is to describe the nature of these skills and the procedure used to identify them.

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Our outline of skills and objectives is the result of an extensive search. The search included a survey of the professional literature, instructional materials--e.g., textbooks, kits, workbooks--and standardized tests. The information gained from this survey, together with the information gained from consultants and from consultation with school personnel is the basis for the list. As an organizational framework the study skills were divided into three subareas: maps, graphs and tables, and reference skills. The findings related to each of these subareas can be briefly summarized. A more detailed summary is contained elsewhere (Otto, Kamm, and Weible, in press).

#### MAPS

Though there has been an increased emphasis on map skills for the past 25 years, little attention has been paid to creating an organizational or developmental framework for the skills. Most of the skill outlines that have been devised suggest that there is a vast number of unrelated map skills, rather than that there are only a few fundamental skills, each with a number of related subskills. In addition to overlooking such a developmental framework, existing instructional materials tend to ignore completely important background concepts that a learner must understand before undertaking to learn a particular skill. Standardized tests seem to parallel the instructional materials in that they treat the skills as an array of unrelated tools the learner should acquire. The skills appear to be selected randomly for assessment. In general, our survey showed that up to the present time, little thought has been given to either the interrelationship existing among the map skills or to the related concepts. Teaching of the skills has been incidental rather than systematic.

Our position is that a limited number of fundamental skills run through the subarea of maps at increasing levels of sophistication. In our outline these basic skills are introduced at the primary level and serve as building blocks on which more sophisticated variations of the same skills are added. We have made an attempt to deal not only with skills at increasingly more sophisticated levels, but also with the background concepts related to each skill (Askov, Kamm, Buschek, & Gustafson, 1971).

Three strands were identified in the subarea of maps: representation, location and measurement. A brief discussion of each strand and its divisions follows. A more detailed description is contained in the Teacher's Planning Guide - Study Skills (Askov, Otto, 1971).

Within the first strand, representation, two continua exist. The symbols themselves range along a continuum from concrete (e.g., pictures) to abstract (e.g., lines and dots). Likewise, the reality in the environment that is being represented ranges from concrete objects (e.g., a house) to area characteristics (e.g., an urban area). The developmental sequence, i.e., from concrete to abstract, is obvious in this strand.

Location comprises two divisions of skills, grid and direction. The progression in grid is from using a simple picture grid to using latitude and longitude to locate points. The skills in direction range from the use of general terms (e.g., up, over, beside) in the environment and in two-dimensional representations, to the use of

cardinal and intermediate directions as applied to the globe, environment and maps.

Measurement also comprises two divisions, "the scale" and "to scale". Skills pertaining to "the scale" range from the use of crude approximation (e.g., long way) to precise computations. Skills pertaining to "to scale" involve the learner's understanding of the need for reduction in maps.

#### GRAPHS AND TABLES

The critical question in teaching graphic materials is, "What is the optimal sequence for teaching different kinds of graphs?" Several viewpoints regarding the relative difficulty of picture, bar, circle and line graphs are presented in the literature. Perhaps the focal point, however, is not the sequencing of the graphs, themselves, but rather the sequencing of the skills involved in interpreting a particular graph. A natural and logical progression of skills begins with a simple, pictorially represented, one-to-one correspondence and moves to include a many-to-one correspondence as well as different ways to represent graphically the various correspondences. An example of one to one correspondence would be a graph which contains the same number of symbols as objects being represented. A many to one correspondence would show each symbol standing for more than one object.

These graph skills are closely tied with arithmetic skills, and in deciding upon a viable progression for an instructional group, care should be taken to see that there is a parallel between the mathematical background of the learners and the graph skills being introduced. For example, a circle

graph, though generally thought to be quite sophisticated, could be introduced at the kindergarten level to show simple proportion i.e., a circle colored 25% green and 75% red, shows "many more red than green."

The content presented also plays a major role in deciding when a graph is appropriate for a given learner. The teacher, in addition to considering the skills necessary for interpretation, should also be sure the learner clearly understands the need for using the graph Weintraub (1967, p. 349), feels that, "Even though the research evidence may suggest one particular form as being simpler to interpret than another, the subject matter to be presented in graphic form must often dictate the most suitable graph for ease of interpretation."

In summary, our survey points out that the developmental progression in graphs and tables should be dictated not by the type of graph or table, but rather by the particular skills necessary to the interpretation. Content seems to determine the appropriateness of the type of graph or table selected.

Our list of graph and table skills follows a developmental progression which begins with a simple, pictorially represented, one-to-one correspondence and includes a number of many-to-one correspondences. The four types of graphs--picture, bar, circle and line--and the single and multicolumn tables and schedules are introduced at various levels primarily to provide the child with practice on a variety of graphs and tables. The assumption is that appropriate context will be used for teaching each type of graph and table and the related skills.



## REFERENCE

In 1963 the National Council for the Social Studies published a revised and exhaustive document on study skills in its thirty-third year book, Skill Development in Social Studies. The book contains a well organized list of 180 study skills and points out the complexity of the study skills as a whole and provides an overview of the field. Because this great number of skills can be distinguished and because most of these skills cross subject areas, the search in reference skills included many state curriculum guides and well-developed lists of objectives for particular school systems--such as Oak Park, Illinois--as well as textbooks and instructional materials.

There are many differences between the skills as they are presented by various authors. Grade level placement, terminology (terms such as "introduce," "main emphasis," and "planned readiness" are unacceptable in terms of meaningful behavioral objectives), assigning responsibility for both teaching and evaluating mastery of reference skills, and the spiral pattern of teaching every skill each year with no guides as to what can be mastered at various levels of the spiral are four examples of these differences.

Thus, in the area of reference skills, it is easy to find literature which describes the importance of the study skills, but it is more difficult to find sources which define the skills adequately and it was nearly impossible to arrive at a consensus as to skill placement. Our approach, then, was first to identify essential skills and then to trace the spiral of development in order to find various check points along the skill develop-

ment sequence. These check points eventually became either the teacher observations or the paper and pencil tests constructed for the Design. "Correctness" of placement has been checked with some textbooks, but there is no uniform agreement as to grade placement in textbook series, conferences with teachers, and the eventual process of pupil try-out itself. From the array of skills listed and described in the various sources, we selected those that were either mentioned more frequently or those that fell within certain frequently mentioned organizational patterns. Our next step was to create an organizational structure around each skill we considered to be essential. This was done by following through the steps of searching for information, considering whether the information met the need, and, finally, using that information.

The reference subarea is divided into seven strands. Each strand has a variety of skills within it, and each follows a spiral pattern of using more sophisticated skills with increasing independence at each higher level. "Location" involves alphabetizing skills and their application in the library. "Book skills" range from holding a book properly to knowing the idiosyncratic organization of a variety of references. In "Library use" the learner progresses from learning to checking out books to using the Dewey Decimal System. "Reference materials" includes skills ranging from a picture dictionary to reference indexes. The assumption in "Reading rate and purpose" is that once decoding words has ceased to be a major focus of the reading task, it is appropriate to begin to develop rate flexibility. "Organizing and evaluating materials" include basic sequencing skills and drawing

conclusions and checking accuracy and relevancy of materials. "Work Habits" range from following simple directions to engaging in independent research.

There are two assumptions which underlie our fundamental skills and subskills framework in the three subareas: a) that learning can best be achieved through the study of interrelated skills rather than isolated skills, and b) having the skills presented in a developmental sequence facilitates their being taught in context, e.g., map skills are an integral part of the social studies program. Creating the need to learn a skill is essential if learning and understanding is to be complete.

The list of skills and objectives for the study skills area of the Wisconsin Design for Reading Skill Development can be found in the Teacher's Planning Guide - Study Skills. Other components of the Design for the Study Skills area include 1) the Teacher's Resource Files - Study Skills, 2) criterion-referenced machine scorable tests, 3) the Pupil Profile Cards. The purpose of these components can be inferred from the previous discussion of Word Attack.

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