Introduction

Overview

Dimensions of Learning is an extension of the comprehensive research-based framework on cognition and learning described in *Dimensions of Thinking: A Framework for Curriculum and Instruction* (Marzano et al., 1988), published by the Association for Supervision and Curriculum Development (ASCD). Dimensions of Learning translates the research and theory explained in *Dimensions of Thinking* into a practical framework that K-12 teachers can use to improve the quality of teaching and learning in any content area. The Dimensions of Learning Research and Development Consortium, which worked on the model for two years, was made up of more than ninety educators, including the author team from the first edition of this manual. Under the leadership of Dr. Robert Marzano of the Mid-continent Regional Educational Laboratory (McREL), these educators helped to shape the basic program into a valuable tool for reorganizing curriculum, instruction, and assessment.

Implicit in the Dimensions of Learning model, or framework, are five basic assumptions:

1. Instruction must reflect the best of what we know about how learning occurs.

2. Learning involves a complex system of interactive processes that includes five types of thinking—represented by the five dimensions of learning.

3. The K-12 curriculum should include the explicit teaching of attitudes, perceptions, and mental habits that facilitate learning.

4. A comprehensive approach to instruction includes at least two distinct types of instruction: one that is more teacher directed, and another that is more student directed.

5. Assessment should focus on students' *use* of knowledge and complex reasoning processes rather than on their recall of information.

The Relationship Among the Dimensions of Learning

It is important to realize that the five dimensions of learning do not operate in isolation but work together in the manner depicted in Figure A.1.

FIGURE A.1

HOW THE DIMENSIONS OF LEARNING INTERACT
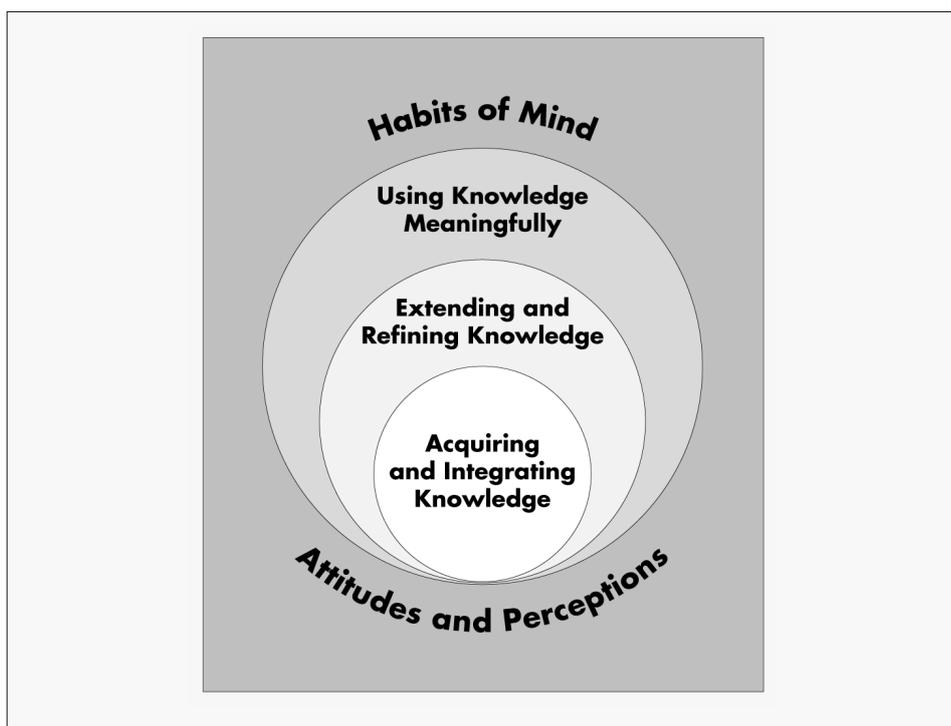
Briefly, as the graphic in Figure A.1 illustrates, all learning takes place against the backdrop of learners' attitudes and perceptions (Dimension 1) and their use (or lack of use) of productive habits of mind (Dimension 5). If students have negative attitudes and perceptions about learning, then they will likely learn little. If they have positive attitudes and perceptions, they will learn more and learning will be easier. Similarly, when students use productive habits of mind these habits facilitate their learning. Dimensions 1 and 5, then, are always factors in the learning process. This is why they are part of the background of the graphic shown in Figure A.1.

When positive attitudes and perceptions are in place and productive habits of mind are being used, learners can more effectively do the thinking required in the other three dimensions, that is, acquiring and integrating knowledge (Dimension 2), extending and refining knowledge (Dimension 3), and using knowledge meaningfully (Dimension 4). Notice the relative positions of the three circles of Dimensions 2, 3, and 4. (See Figure A.1.)

Helping Students Develop Positive Attitudes and Perceptions About Classroom Tasks

The second area of attitudes and perceptions is related to the tasks that learners are asked to perform. First, learners must perceive that tasks are valuable or interesting or they will not put much effort into them. Second, students must believe they have the ability and resources to complete tasks or they will not attempt the tasks because the risk is too great. Third, students must clearly understand what they are being asked to do; if students do not understand a task but try it anyway, their efforts probably will be unfocused and ineffective. The following strategies are a few of the many ways in which a teacher can help students develop and maintain positive attitudes and perceptions about tasks.

1. Help students understand that learning is influenced by attitudes and perceptions related to classroom tasks.

It is important for students to understand that their attitudes and perceptions about classroom tasks significantly influence what they learn from those tasks. It is also important for them to understand that maintaining positive attitudes and perceptions toward tasks is a shared responsibility between teachers and students. If students develop these understandings, they are more likely to appreciate the efforts teachers make to keep students' attitudes and perceptions as positive as possible. They also are more likely to develop and use their own strategies for maintaining positive attitudes and perceptions as they work on assigned tasks.

Learning is influenced by the degree to which students perceive tasks as valuable and interesting, believe that they have the ability and resources to complete tasks, and understand and are clear about tasks. There are many ways to help students understand these influential attitudes and perceptions:

- Share with students how your own learning (from kindergarten to where you are today) has been influenced by your attitudes and perceptions related to tasks you have been assigned. Share strategies you use, or have used, to maintain positive attitudes and perceptions and thus to improve your learning. Then ask students to share their experiences and the strategies that have worked to enhance their learning.

One principal uses Back to School Night as an opportunity to present the Dimensions of Learning model. He highlights the faculty's role in helping students to acquire, integrate, extend, and use knowledge and elicits parents' help in enhancing students' attitudes toward learning. Throughout the year, the school newsletter includes suggestions for parents to enhance students' attitudes.

Dimension 2

Acquire & Integrate
Knowledge

Helping Students Acquire
and Integrate Declarative
Knowledge
✔ *Classroom Examples*

DIMENSION 2

Classroom Examples

The following classroom examples are offered to stimulate reflection on how to apply the ideas covered in this section of Dimension 2 in your classroom.

In previous years, a favorite unit in the first grade was the unit on birds. Students read about birds, listened to stories about birds, studied parts of birds and their behavior, went bird watching, created a class "Bird Book," and wrote individual reports about different types of birds. Although the teachers liked the unit, they realized that they had done a better job of identifying activities than they had of identifying the declarative knowledge students would be learning. Therefore, they began to list the information about birds that they hoped students would learn. Next, they began to organize this list of declarative knowledge using the common organizational patterns (i.e., facts, generalizations, concepts, and so on). As a result of planning in this way, they decided they had too many facts and that the unit would be stronger if they organized the information under a key concept and a generalization, as follows:

At the end of the unit, students will

- *understand the characteristics of living things (key concept) and*

- *understand that animals have characteristics that help them live in different environments (generalization).*

Using these organizational patterns, the teachers restructured the bird unit. They kept many of the activities that the students loved but made sure that each activity increased students' understanding of the identified declarative knowledge.

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One goal of Mrs. Garron's fifth-grade unit on Mayans and Aztecs was to help students understand why and how civilizations throughout history have experienced a rise and then a fall. She decided to use the mental imagery strategy to help students develop this understanding. From the text and supplementary materials in her file, she pulled out details that would help students create images of the Mayan and Aztec civilizations. She then guided students through the process of creating detailed mental pictures of the thriving cities. Finally, she provided details that helped students change their images by creating mental pictures of the demise of these cultures. Students created pictures of the people fighting among themselves over gold, of military attacks on the cities, and of barren fields that had been farmed too heavily. As students created these images, Mrs. Garron noticed that they were highly engaged and interested in the task. They also asked questions that indicated they were beginning to understand the information.

Dimension 2

**Acquire & Integrate
Knowledge**

*Helping Students Acquire
and Integrate Procedural
Knowledge*

✔ *Unit Planning*

DIMENSION 2

Step 1

> What procedural knowledge will students be in the process of ***acquiring and integrating***? As a result of this unit, students will be able to. . . .

Answering this first key question in the planning process requires additional steps. These steps will vary as a function of the requirements and philosophy of your school or district. You may have a great deal of autonomy in identifying the knowledge students are to acquire, or you may need to closely follow standards and benchmarks from your state, district, or school. Suggestions and examples are provided for both situations: when you are planning with standards and benchmarks and when you are planning without them.

As you identify the skills or processes that students will be learning, you might record them on the procedural knowledge planning worksheet, then organize them graphically. There are two versions of the worksheet, along with their corresponding graphics, simply to show how the planning process looks different when you are guided by standards and benchmarks and when you are not. Each process requires the following steps:

Without standards and benchmarks (see Sample Worksheet and Unit Planning Graphic: Colorado Unit, page 109):

- Identify the important procedural knowledge (skills and processes).
- When necessary, identify specific skills that support more general processes.

With standards and benchmarks (see Sample Worksheet and Unit Planning Graphic: Colorado Unit, page 110):

Identify the procedural knowledge benchmarks that will be the focus of this unit, then do the following:

- For each benchmark, identify the important procedural knowledge (skills and processes).
- When necessary, identify specific skills that support more general processes.

The goal during planning for either of these situations is to identify exactly what students will be learning to do. It is important to remember, especially when you are guided by benchmarks that identify very general processes, to be fairly specific when identifying the skills and processes students will learn. If the identified procedural knowledge is too general, such as "students will know how to engage in the research process," it will be difficult to generate a single model, or set of steps. Most general processes contain many supporting, specific skills and processes, each with its own set of steps. Therefore, if you start with a very general process, make sure that