Duell, 1986). **Metacognition** refers to *one's awareness of thinking and the self-regulatory behavior* (also known as conditional knowledge [cf. Prawatt, 1989]) *that accompanies this awareness.*

> In the course of learning and problem solving, representative kinds of regulatory performance include: knowing when or what one knows or does not know; predicting the correctness or outcome of one's performance; planning ahead and efficiently apportioning the outcomes of one's cognitive resources and one's time; and checking and monitoring the outcomes of one's solution or attempt to learn. (Gagné & Glaser, 1987, p. 75)

What is currently known about metacognitive skills and their acquisition goes well beyond the scope of this chapter, and the interested reader is referred to Derry and Murphy (1986) and Duell (1986) for their excellent reviews on the topic. Research results generally indicate, however, that metacognitive ability depends on person variables, task variables, strategy variables, and the interaction among all three (Duell, 1986).

With respect to person variables, older learners seem to have a better understanding of their memory abilities and limitations than do younger learners. Although students of all ages appear capable of learning various memory strategies, older learners are more planful and purposeful in their use of these strategies. Additionally, there is evidence that learning-disabled children are less efficient and less planful than normal children (Torgeson, 1977). This suggests that instructors should frequently remind younger and less planful learners when and how to use memory strategies.

Task variables refer to differences in instructional content that influence use of metacognitive strategies. For example, information that is new to learners will be approached with quite general learning strategies. As learners become more proficient in a subject or if the material they are to learn relates to a subject they know quite well already, they employ more domain-specific strategies (Gagné & Driscoll, 1988). For instructors to use or suggest the use of particular strategies, then, they should have some idea as to how much their students already know about the material to be learned.

Finally, strategy variables have to do with the metacognitive strategies themselves, the various ways in which learners may go about encoding, storing, and retrieving information. Some strategies are so simple that learners can acquire them easily by being told what to do. Breaking a complex or long learning task into manageable segments is one example. Other strategies, however, require extensive practice before they can be used easily and effectively. Taking notes or self-questioning with inferential questions may be examples of this type.

Educators generally agree on the importance of self-regulatory skills in learning, as will be especially evident in Chapter 9. Successful learners seem to acquire and refine these skills throughout their school and learning history. But what about the less successful and less proficient learners? Teaching