

nate relationship to one another. Thus, learning about one can provide a general background of information, which may be useful in learning the others. Ausubel and Fitzgerald (1961) found, for example, that knowing a lot about Christianity aided learners in acquiring new knowledge about Buddhism. Like the types of government in the previous example, these types of religion bear a coordinate relationship to each other, appropriate to combinatorial learning. According to Ausubel et al. (1978), "Most of the *new* generalizations that students learn in science, mathematics, social studies, and the humanities are examples of combinatorial learnings, for example, relationships between mass and energy, heat and volume, genic structure and variability, demand and price" (p. 59).

Assimilation Theory. By 1978, Ausubel had adopted the label assimilation theory to describe the meaningful learning processes of subsumption, superordinate learning, and combinatorial learning. In earlier versions of the theory (Ausubel, 1963a, 1968), assimilation referred primarily to the process of retention, whereby new information tends to be reduced to (or assimilated by) the meaning of the stable, more established anchoring idea. Although Ausubel's notions of what happens in retention changed little, which will be discussed in the next section, he came to use the concept of assimilation more broadly. Taking together learning and retention, "The result of the interaction that takes place between the new material to be learned and the existing cognitive structure is an *assimilation* of old and new meanings to form a more highly differentiated cognitive structure" (Ausubel et al., 1978, pp. 67-68).

Retention of Meaningful Learning

As indicated earlier, retention involves maintaining the availability of acquired information so that it may be accessed for use at a later time. Immediately following initial meaningful learning, new information is easily accessible, its stability enhanced by virtue of its anchorage to relevant concepts in the cognitive structure (Ausubel, 1963b). Over time, because it is more economical to remember a single inclusive concept than a large number of specific details, subsumed ideas become less and less distinguishable, or dissociable, from the inclusive anchor. When they can no longer be retrieved as entities separate and distinct from the anchoring idea, they are said to be forgotten.

Ausubel believed the consequences of forgetting are far more serious for correlative, superordinate, and combinatorial learning than for derivative learning (Ausubel et al., 1978). It is probably immaterial, for instance, if a particular example of dog or rice-growing place learned through derivative subsumption cannot be remembered. But suppose not enough about standard deviation is recalled to enable the learner to reconstruct the formula for its