

## Language

One of humankind's greatest achievements is language. Not only does it allow us to communicate with one another but it also enables us to think more effectively. People can often think more clearly and efficiently about a topic when they can represent their thoughts in their heads with specific words and phrases.

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<sup>5</sup>When the word *arithmetic* is used as an adjective, as it is here, it is pronounced with emphasis on the third syllable ("ar-ith-MET-ic").

<sup>6</sup>If you have some background in human memory and cognition, you may realize that we are talking about the limited capacity of *working memory* here (e.g., see Cowan, 2010; G. A. Miller, 1956).

For example, imagine that you're driving along a country road. In a field to your left, you see an object with the following characteristics:

- Black and white in color, in a splotchy pattern
- Covered with a short, bristly substance
- Appended at one end by something similar in appearance to a paintbrush
- Appended at the other end by a lumpy thing with four smaller things coming out of its top (two soft and floppy; two hard, curved, and pointed)
- Held up from the ground by four spindly sticks, two at each end

Unless you have spent most of your life living under a rock, you would almost certainly identify this object as a *cow*.

Words—even those as simple as *cow*—and the concepts that the words represent enhance our thinking in several ways (J. E. Ormrod, 2012; also see Jaccard & Jacoby, 2010):

1. **Words reduce the world's complexity.** Classifying similar objects and events into categories and assigning specific words to those categories can make our experiences easier to make sense of. For instance, it's much easier to think to yourself, "I see a herd of cows," than to think, "There is a brown object, covered with bristly stuff, appended by a paintbrush and a lumpy thing, and held up by four sticks. Ah, yes, and I also see a black-and-white spotted object, covered with bristly stuff, appended by a paintbrush and a lumpy thing, and held up by four sticks. And over there is a brown-and-white object . . ."
2. **Words allow abstraction of the environment.** An object that has bristly stuff, a paintbrush at one end, a lumpy thing at the other, and four spindly sticks at the bottom is a concrete entity. The concept *cow*, however, is more abstract: It connotes such characteristics as *female*, *supplier of milk*, and, to the farmer or rancher, *economic asset*. Concepts and the labels associated with them allow us to think about our experiences without necessarily having to consider all of their discrete, concrete characteristics.
3. **Words enhance the power of thought.** When you are thinking about an object covered with bristly stuff, appended by a paintbrush and a lumpy thing, held up by four sticks, and so on, you can think of little else (as mentioned earlier, human beings can think about only a very limited amount of information at any one time). In contrast, when you simply think *cow*, you can easily think about other ideas at the same time and perhaps form connections and interrelationships among them in ways you hadn't previously considered.
4. **Words facilitate generalization and inference drawing in new situations.** When we learn a new concept, we associate certain characteristics with it. Then, when we encounter a new instance of the concept, we can draw on our knowledge of associated characteristics to make assumptions and inferences about the new instance. For instance, if you see a herd of cattle as you drive through the countryside, you can infer that you are passing through either dairy or beef country, depending on whether you see large udders hanging down between two of the spindly sticks.

Just as *cow* helps us categorize certain experiences into a single idea, so, too, does the terminology of your discipline help you interpret and understand your observations. The words *tempo*, *timbre*, and *perfect pitch* are useful to the musicologist. Such terms as *central business district*, *folded mountain*, and *distance to k* have special meaning for the geographer. The terms *lesson plan*, *portfolio*, and *charter school* communicate a great deal to the educator. Learning the specialized terminology of your field is indispensable to conducting a research study, grounding it in prior theories and research, and communicating your results to others.

Two outward manifestations of language usage are also helpful to the researcher: (a) knowing two or more languages and (b) writing one's thoughts either on paper or in electronic form.

