

As classroom teachers—who are the ultimate, or at least the most likely, consumers of educational research—it is essential to have a basic understanding of several key terms and essential concepts related to the notion of research. Research is simply one of many means by which human beings seek answers to questions. Questions arise constantly throughout a day, whether they be personal or professional in nature. As an example of a personal question in need of an answer, imagine a coworker who asks if you would like to go to lunch this afternoon. You will need to give that person a yes or no answer, but you must factor in some information first—for example, do you already have plans for lunch? Can you afford to give up the time to go to lunch today? Do you have enough money for lunch?

Answers to questions of a professional nature often require much more information; however, human nature prompts us to try to find answers to those questions as quickly as possible. Consider the following scenario: You have a student, Arthur, whom you informally classify as an “unmotivated reader.” You approach a colleague and ask about ideas for intervention strategies for motivating Arthur. She provides several strategies that she says have worked for other students, but you are not sure if they will work for Arthur. In addition, you know that there are undoubtedly many more strategies out there, but you need an answer now—the school year is off and running, and you do not want to lose any more valuable time by not encouraging Arthur to read more. But where do you go to find the answers you are looking for?

Mertler and Charles (2011) suggest that we usually consult sources for answers that are most convenient to us and with which we are most comfortable; however, these sources have the potential to be fraught with problems. These sources of information include tradition, authority, and common sense. **Tradition** refers to ways in which we have behaved in the past. Interventions that have worked in the past may in fact still work today, but there is no guarantee. In addition, there may now be newer interventions that will work better than our old standby. **Authority** refers to the use of the opinions of experts, whom we assume will know what will work best. However, simply finding someone who has a strong opinion about a given intervention or instructional strategy does not necessarily support the use of that strategy. In fact, it is typically safe to assume that as soon as you find an expert who supports any given technique, you will quickly find another who is willing to denounce it as being inferior. Finally, **common sense** refers to the use of human reasoning as a basis for answering questions. While human reasoning has gotten our global culture far throughout history, it is most reliant on dependable information. If information that we collect in order to help us make common-sense decisions is of substandard quality or accuracy, our common-sense decisions will reflect those various deficiencies.

The main problem with these familiar sources of information is that they have a tendency to provide unreliable information. This is largely due to the fact that answers based on tradition, authority, and common sense use information that is biased to some degree. This bias occurs primarily because the information was collected in an unsystematic and subjective manner. In order for the answers we seek to be accurate and of high quality, we must obtain information that is both valid and reliable. This is best accomplished by using the scientific method. The **scientific method** is a specific strategy used to answer questions and resolve problems. You may recall the scientific method from a junior or senior high school science course when you may have been required to complete some sort of science fair project. What makes the scientific method such a useful strategy is that it is a very systematic, step-by-step set of procedures. In 1938, American philosopher John Dewey described the scientific method as a procedure for thinking more objectively (Mertler & Charles, 2011). He presented the procedure as a series of the following steps:

1. Clarify the main question inherent in the problem.
2. State a hypothesis (a possible answer to the question).
3. Collect, analyze, and interpret information related to the question, such that it will permit you to answer the question.
4. Form conclusions derived from your analyses.
5. Use the conclusions to verify or reject the hypothesis.