Chapter 1

Introduction to the Study of Learning

Russ Nyland teaches an education course for graduate students on cognitive instruction and learning. It is toward the end of the semester, and, as class finishes one day, three students approach him: Jeri Kendall, Matt Bowers, and Trisha Pascella.

Russ: What's up? Wasn't I clear today?

Jeri: Dr. Nyland, can we talk with you? We've been talking, and it's late in the course and we're still confused.

Russ: About what?

Jeri: Well, we've been studying all these theorists. It seems like they're saying different things, but maybe not. Bandura, Bruner, Anderson, Vygotsky, and the others. They make different points, but then some of what they say seems to overlap what others say.

Matt: Yeah, I'm so confused. I read these theorists and think like, yeah, I agree with that. But then it seems like I agree with everything. I thought you were supposed to have one theory, to believe one way and not others. But it seems like there's a lot of overlap between theories.

Russ: You're right Matt, there is. Most of what we've studied in this course are cognitive theories, and they are alike because they say that learning involves changes in cognitions—knowledge, skills, beliefs. Most theorists also say that learners construct their knowledge and beliefs; they don't automatically adopt what somebody tells them. So yes, there is much overlap.

Trisha: So then what are we to do? Am I supposed to be something like an information processing theorist, a social cognitive theorist, a constructivist? That's what I'm confused about.

Russ: No, you don't have to be one or the other. There may be one theory that you like better than the others, but maybe that theory doesn't address everything you want it to. So then you can borrow from other theories. For example, when I was in grad school I worked with a professor whose specialty was cognitive learning. There was another professor who did

developmental research. I really liked her research, probably because I had been a teacher and was interested in development, especially the changes in kids from elementary to middle school. So I was a learning theorist who borrowed from the developmental literature and still do. It's ok to do that!

Jeri: Well that makes me feel better. But it's late in the course, and I guess I want to know what I should be doing next.

Russ: Tell you what—next class I'll spend some time on this. A good place to start is not to decide which type of theorist you are, but rather determine what you believe about learning and what types of learning you're interested in. Then you can see which theory matches up well to your beliefs and assumptions and maybe do as I did—borrow from others.

Matt: Isn't that what you call being eclectic?

Russ: Perhaps, but you may still have one preferred theory that you then adapt as needed. That's okay to do. In fact, that's how theories are improved—by incorporating ideas that weren't in them originally.

Trisha: Thanks Dr. Nyland. This is really helpful.

Learning involves acquiring and modifying knowledge, skills, strategies, beliefs, attitudes, and behaviors. People learn cognitive, linguistic, motor, and social skills, and these can take many forms. At a simple level, children learn to solve 2 + 2 = ?, to recognize *y* in the word *daddy*, to tie their shoes, and to play with other children. At a more complex level, students learn to solve long-division problems, write term papers, ride a bicycle, and work cooperatively on a group project.

This book is about how human learning occurs, which factors influence it, and how learning principles apply in various educational contexts. Animal learning is de-emphasized, which is not intended to downgrade its importance because we have gained much knowledge about learning from animal research. But human learning is fundamentally different from animal learning because human learning is more complex, elaborate, rapid, and typically involves language.

This chapter provides an overview of the study of learning. Initially, learning is defined and examined in settings where it occurs. An overview is given of some important philosophical and psychological precursors of contemporary theories that helped to establish the groundwork for the application of learning theories to education. The roles of learning theory and research are discussed, and methods commonly used to assess learning are described. The links between learning theories and instruction are explained, after which critical issues in the study of learning are presented.

At the end of this chapter are three scenarios that involve learning with elementary, secondary, and college students. Background information is given about the learners, teachers, instruction, content, setting, and other features. In subsequent chapters, these scenarios will be used to exemplify the operation of learning principles. Readers will benefit from seeing how different learning principles are applied in an integrated fashion in the same settings.

The opening scenario describes a situation that happens to many students when they take a course in learning, instruction, or motivation and are exposed to different theories. Students

often think that they are supposed to believe in one theory and adopt the views of those theorists. They often are confused by the perceived overlap between theories.

As Russ says, that is normal. Although theories differ in many ways, including their general assumptions and guiding principles, many rest on a common foundation. This text focuses on cognitive views of learning, which contend that learning involves changes in learners' cognitions—their thoughts, beliefs, skills, and the like. These theories differ in how they predict that learning occurs—in the processes of learning—and in what aspects of learning they stress. Thus, some theories are oriented more toward basic learning and others toward applied learning (and, within that, in different content areas); some stress the role of development, others are strongly linked with instruction; and some emphasize motivation.

Russ advises his students to examine their beliefs and assumptions about learning rather than decide which type of theorist they are. This is good advice. Once it is clear in our minds where we stand on learning in general, then the theoretical perspective or perspectives that are most relevant will emerge. As you study this text, it will help if you reflect on your beliefs and assumptions about learning and decide how these align with the theories.

This chapter should help to prepare you for an in-depth study of learning by providing a framework for understanding learning and some background material against which to view contemporary theories. When you finish studying this chapter, you should be able to do the following:

- Define learning and identify instances of learned and unlearned phenomena.
- Distinguish between rationalism and empiricism and explain the major tenets of each.
- Discuss how the work of Wundt, Ebbinghaus, the Structuralists, and the Functionalists helped to establish psychology as a science.
- Describe the major features of different research paradigms.
- Discuss the central features of different methods of assessing learning.
- State some instructional principles common to many learning theories.
- Explicate the ways that learning theory and educational practice complement and refine one another.
- Explain differences between behavioral and cognitive theories with respect to various issues in the study of learning.

LEARNING DEFINED

People agree that learning is important, but they hold different views on the causes, processes, and consequences of learning. There is no one definition of learning that is universally accepted by theorists, researchers, and practitioners (Shuell, 1986). Although people disagree about the precise nature of learning, the following is a general definition of learning that is consistent with this book's cognitive focus and that captures the criteria most educational professionals consider central to learning.

> *Learning is an enduring change in behavior, or in the capacity to behave in a given fashion, which results from practice or other forms of experience.*

Table 1.1
Criteria of learning.

- Learning involves change
- Learning endures over time
- Learning occurs through experience

Let us examine this definition in depth to identify three criteria for learning (Table 1.1).

One criterion is that *learning involves change*—in behavior or in the capacity for behavior. People learn when they become capable of doing something differently. At the same time, we must remember that learning is inferential. We do not observe learning directly but rather its products or outcomes. Learning is assessed based on what people say, write, and do. But we also add that learning involves a changed capacity to behave in a given fashion because it is not uncommon for people to learn skills, knowledge, beliefs, or behaviors without demonstrating them at the time learning occurs (Chapter 4).

A second criterion is that *learning endures over time*. This excludes temporary behavioral changes (e.g., slurred speech) brought about by such factors as drugs, alcohol, and fatigue. Such changes are temporary because when the cause is removed, the behavior returns to its original state. But learning may not last forever because forgetting occurs. It is debatable how long changes must last to be classified as learned, but most people agree that changes of brief duration (e.g., a few seconds) do not qualify as learning.

A third criterion is that *learning occurs through experience* (e.g., practice, observation of others). This criterion excludes behavioral changes that are primarily determined by heredity, such as maturational changes in children (e.g., crawling, standing). Nonetheless, the distinction between maturation and learning often is not clear-cut. People may be genetically predisposed to act in given ways, but the actual development of the particular behaviors depends on the environment. Language offers a good example. As the human vocal apparatus matures, it becomes able to produce language; but the actual words produced are learned from interactions with others. Although genetics are critical for children's language acquisition, teaching and social interactions with parents, teachers, and peers exert a strong influence on children's language achievements (Mashburn, Justice, Downer, & Pianta, 2009). In similar fashion, with normal development children crawl and stand, but the environment must be responsive and allow these behaviors to occur. Children whose movements are forcibly restrained do not develop normally.

PRECURSORS OF MODERN LEARNING THEORIES

The roots of contemporary theories of learning extend far into the past. Many of the issues addressed and questions asked by modern researchers are not new but rather reflect a desire for people to understand themselves, others, and the world about them.

This section traces the origins of contemporary learning theories, beginning with a discussion of philosophical positions on the origin of knowledge and its relation to the environment and concluding with some early psychological views on learning. This review is selective and includes historical material relevant to learning in educational settings. Readers interested in a comprehensive discussion should consult other sources (Bower & Hilgard, 1981; Heidbreder, 1933; Hunt, 1993).