Chapter I

Learning:
Basic Processes

Introduction

Learning is the process of acquiring knowledge, which is an active process and operates at both individual and social levels. This book explores both, but this first chapter focuses on the individual in terms of the basic mental processes entailed in transforming information into knowledge—in other words, learning. In doing so, it introduces a number of themes which will recur throughout the book.

These key themes include the notion of *tentative theories* used to generate *themes* by which integrate otherwise fragmented entities become integrated. This process underlies the construction of meaning at all levels—from basic comprehension through critical thinking to creativity. Complex meaning construction can be seen as the generation, testing, and refinement of such tentative theories, *education* being concerned with providing optimal support to learners in engaging in these activities.

A further theme is that of *conversations*. The generation, testing, and refinement of tentative theories may be thought of as essentially a dialogue, or conversation in which ideas are tested out—confirmed, refuted, partially confirmed, or partially refuted in relation to different points of view, or *conceptual systems*. These conversations may take place between a learner and other people (teachers, advisors, friends, or colleagues)—or indeed can take place as an *inner dialogue* within the same person. The notion of conversations introduces another pervasive theme in the book, namely, *conversation theory* devised by the cybernetician Gordon Pask. Pask and his associates worked for over 30 years to develop this theory. It is supported with extensive empirical investigations into learning across a wide range of complex academic subject matter, and it has had wide influence in higher as well as other levels of education.

Educational informatics represents the convergence of education, computing, and library/information science. Traditional, studies of *learning* and *information seeking* have been largely separate enterprises, with relatively little overlap or interaction. Related concepts such as *learning needs* and *information needs* have been considered in very different terms, by researchers populating largely different worlds, even though library/information science and education have long been partners in the enterprise of education.

This chapter first defines the terms *knowledge*, *information*, and *learning*, before going on to explore at the most basic level the biological processes involved in constructing meaning.

Basic Information Processes

A common concern of education and library/information science is with the processing of information to generate knowledge. Within the context of this book, *knowledge* is defined as a conceptual system that enables its possessor (whether human or machine) to act in the world (e.g., in the form of autonomous activity or response to stimuli). *Information* is defined here as potential knowledge, and *learning* as the process of transforming information into knowledge.

Knowledge may be thought of as existing both within and between individuals. As we will see later in this book, social constructivist views of learning emphasise the notion of knowledge as consisting of interactions between individuals (cooperating processing units) within communities—as opposed to merely the sum of the knowledge states of each individual. Social mores and cultural memes, for example, may be thought of as types of knowledge that transcend the individual.

While acknowledging the role of social processes and interactions in learning and the generation of communal knowledge, we start our exploration at the level of the

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