This book addresses the problem of how to cope with the information explosion and the subsequent information-based complexity that characterizes our era. The human pattern of adaptation to information appears to consist of looking for discrepancies, ignore what is constant and quickly respond to sudden shifts. However, today the amount of change is huge, and we are constantly bombarded with information, no longer stumble upon change in the environment. Therefore we must learn how to cope with the information explosion and subsequent information-based complexity. Today it is important to develop the skill of learning, and to understand that to “learn how to learn” is more important that mere knowledge gathering.

The post-industrial era is characterized by a socio-technological situation in which people are overburden with choice, novelty, and information. The rate of change has drastically increased. Today, children deal with a radical rupture with previous generations, and perceive a very different future. Processing has also increased through computers and telecommunications. Knowledge in today’s society has become a central focus, although it is not a discrete unit or quantifiable resource. One’s place in society is based on education and skills, which leads to the problem of information anxiety. High levels of boredom that characterize today’s society are also caused by the overabundance of information that leads to a loss of focus on what is meaningful to the individual.
To tackle the problem, the author provides definitions for data, information and knowledge, and explores their use across disciplines. *Information* is the process of informing and/or the object of the informing being communicated. It is unstructured, transient, and may or may not be true or useful. It requires a human source and has the potential of becoming knowledge. *Knowledge*, on the other hand, is an organized structure or pattern of information that tends to be long-lasing, gathered over time, meaningful to an individual and it is produced both by introspection and experience. Knowledge results from the structuring of information by humans into permanent organized patterns. *Data* is the electronically designated version of information; it consists of simple facts that are meaningless, may or may not be true, and has the potential to produce meaning in the human mind. Information complexity as experienced by people may be described by the relative ratios between order and disorder, confirmation and novelty, predictability and unpredictability, redundancy and variety, constraint and change, symmetry and symmetry breaking. The smaller the ratio, the greater the complexity.

One way to deal with information complexity and the structuring of information is through learning and problem solving. There have been several approaches to learning. One model is the *Empiricist* learning model, which emphasizes three core steps of the learning process. The first step is that of *acquisition* of a new behavior (the association of a stimulus with a response), that is affected by the level of reinforcement received for the behavior. The second step is *retention*, the generalization of a response to similar stimuli. The third step is *retrieval*, the repeated exhibition of a
behavior when needed. *Associationism* is a model that theorizes associative connections that are produced or enhanced by contiguity, vividness, frequency, duration, and recency of an experience. Reinforcement establishes the strength of the connections of a stimulus-response association. *Cognitive Psychology* holds that the perceived whole is understood through the analysis of organization and interaction of the parts. Perceptual organization is determined by internal representations. Representational transformation provides insight and discovery that aid problem solving. It involves knowledge acquisition, knowledge representation and knowledge retrieval.

The author discusses several tools for the organization of information. *Critical Thinking* recognizes that most problems are multi-dimensional, interdependent and interdisciplinary. It requires the re-organization and re-evaluation of data, and relies on self-questioning, self-reflection and the ability to consider multiple viewpoints. *Heuristics* improve the search of a problem space by focusing the search with problem-specific rules of thumb. *Metaphor* is a form of thought that understands and experiences one thing in terms of another. An example is to think of the stages of life as the seasons (spring, summer, fall and winter). It is the understanding through parallel properties. It organizes new chunks of facts and filters the relevant from the irrelevant by relation with another experience. *Analogy* is a simpler form of metaphor that figuratively makes comparisons to reveal meaning. It is based on partial similarity between like features of two things on which the comparison is based. In an attempt to make sense of the current situation, to think by analogy is to retrieve the most similar instance stored in memory and guide understanding through comparison. With *dialectical thinking*, all concepts, assumptions and methods are provisional, and open to change.
Every event takes on meaning only in the context of a larger interrelated whole. The order of the universe is not fixed, but rather an evolving process to which one must adapt. Finally, *system thinking* keeps the “big picture” in mind, eliminating fragmented analysis. Patterns that lie behind events are analyzed instead. It identifies those circular connections between objects and events, and views these relationships as dynamic. System thinking organizes dynamic complexity into a cognitively cohesive whole. It emphasizes the emergence of simplicity in the overall system out of the complexity of the details.