Chapter II

Learning:
Individual Differences

Introduction

The previous chapter sketched some of the basic intellectual processes entailed in learning that are common to us all. However, different individuals may use these same basic processes in very different ways and may bring to them very different types and levels of prior knowledge. Certain stylistic differences in the way people go about learning are relatively value free. That is, adopting one style rather than another is not necessarily better or worse, although qualitatively different types of knowledge may result from relatively strong biases (see, for example, the *global* and *analytic* information processing styles described later on).

However, certain other differences in the way information is processed are more value laden in that they are associated with different types and levels of resultant knowledge. Such types and levels of knowledge may be considered, from certain perspectives, to be of higher or lower quality (see, for example, the *deep* and *surface* approaches to studying described later on).

The outcomes of learning may be affected not only by the learning processes that the individual applies in a learning situation, but also by what he or she brings to the learning situation, in terms of existing types and levels of knowledge. Such differences are also explored in this chapter. This may apply at all levels of learning—from basic concept formation to critical thinking and creativity.

Understanding of a given body of knowledge may be acquired via different routes and with differing emphases. Learning *strategies* are defined here as differences in the way the same information is processed to generate knowledge. Learning *styles* are tendencies and/or preferences consistently used as the same type of strategy across different tasks. Learning styles constitute a subset of a more general class of construct representing characteristic ways of processing information—cognitive styles. Learning styles may be thought of as cognitive styles as they apply and are observed specifically in relation to learning. Many such stylistic differences have been identified (for example, Brumby, 1982; Entwistle, 1981; Honey & Mumford, 1986; Jonassen & Grabowski, 1993; Kolb, 1984; Miller, 1987; Riding & Cheema, 1991; Schmeck, 1988).

The following sections briefly outline some key individual differences that have been the focus of considerable research attention over recent years. Cognitive and learning styles are a subset of human *individual differences*, which have formed the focus of much work in education over the years and which, as we will see in Chapter VII, is informing a number of developments in the emerging field of educational informatics.

Perhaps the most obvious—and influential—individual difference relates to the level of knowledge each person brings to bear on the learning of new material. An obvious if somewhat gross difference is that between *novice* and *expert*—a difference that has formed the focus of many studies. However, much teaching is directed towards classes of students whose level of knowledge is known, or assumed to be relatively homogeneous. For example, knowing that all learners in a class have successfully passed a level 1 course to a recognised standard in a recognised curriculum of, say, mathematics, enables a teacher to design level 2 learning materials and approaches which are appropriate to those learners' existing knowledge level.

However, such standardised descriptions and assumptions of homogeneity relating to what a person knows in a particular subject area can only take us so far. At more intimately detailed levels—and more so in *softer* subjects than the example of mathematics where there may not be such a precise and objective specification of exactly what is and is not known—each person's knowledge structure is much more individual, idiosyncratic, and ultimately, unique.

For effective learning to take place, new information must be *enmeshed* with each person's individually different level of knowledge via the integrating themes introduced in the previous chapter—generated, tested, and refined through the lenses of

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