Contents

Linking Thinking—
encouraging creativity in learning

This section discusses the significance of making connections in our thinking, gives the opportunity to explore one strategy, synectics, for encouraging creative production and gives examples of encouraging further metaphorical or 'linking thinking'.
Key points considered are analysis and synthesis, motivation and attitudes in learning, metaphor as a way of understanding and enjoyment in learning.

> There is something inherently pleasurable about finding a mesh between two superficially unrelated situations. Some basic human joy is triggered by the discovery of unexpected connections (Holyoak and Thagard, 1995:9)

Creative thinking, according to Treffinger (1994), is a matter of 'making and expressing meaningful connections'. Making connections, in particular through analogies, is the platform for this section and a theme that continues through this book, the main thrust of which is **challenge through creativity**. Researchers indicate that creative characteristics are evident from the earliest years *childhood* (Wright, 1989), for example,

> imagination, the power of forming mental images of what is not actually present to the senses or of creating new images by combining previously unrelated ideas (Cornelius & Casler, 1991:67-68).

Gardner notes (1993) that creative adults rely on significant childhood experiences, memories and impressions. They retain a childlike outlook together with mastery in their field. Kanevsky (1995) alerts us to 'perhaps the most frequently cited distinguishing characteristics of gifted students'—that is, those that relate to the pace and nature of their learning. If it is advanced learners who are most capable of making connections, of being creatively productive by way of transforming old to new, then what is it that is happening in classrooms and workplaces to encourage and provide the opportunities for this? They have the potential

joy

> to acquire more knowledge, more quickly, **just for the joy of it;** they are 'one-trial' learners; they make **intuitive leaps and rich connections** (Clark, 1992).

To those characteristics in all learners we must respond. There must always be the opportunity for 'intuitive leaps' and 'rich connections'.

In the 1950s characteristics of creativity began to broaden the concept of intellect from a consideration of IQ alone. According to Guilford's Structure of Intellect model, an intellectual ability consists of performing an *operation* on a specific type of content to produce a particular *product*. The five types of operations he recognised are cognition, memory, convergent and divergent thinking and evaluation. Guilford (1967:162) considered that most areas of creativity can be accounted for with reference to the divergent production (see also Runco, 1994; Baer, 1993) content areas. Writers, planners and scientists, for example, may find resources in the semantic area, inventors depend heavily on visual-figural content, mathematicians on symbolic content.

In this section, threads from these different areas are drawn together. On its own, of course, divergent production (Gardner, 1993) does not equate to creativity—it relies on context, on attitudes, on many catalysts which will be considered along the way in the discussion.

The Significance of Analogy

An important connective point, for the purposes of this section on 'Linking Thinking' is Holyoak and Thagard's statement that (1995:13):

> It has often been suggested that creativity is based on some mental mechanism for combining and recombining ideas in a novel way, where the recognition of viable new combinations depends in part on a kind of aesthetic judgement that the juxtaposed ideas fit well together.

(re)combining ideas

Vague though this 'mechanism' may be, the recognition, combination, the novelty and the aptness, are important in our understanding of **the place of analogy in creative thinking**. What is required is a

'mental leap' (Holyoak and Thagard, 1995)

like a spark that jumps across a gap, an idea from the source analogue is carried over to the target.

Seeing the connections and making sense of them is fundamental to learning and to creative production.