Chapter IX

Empirical Validation of a Multimedia Construct for Learning

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Abstract

A multimedia construct for learning based on the Theory of Transactional Distance has been developed consisting of four stages of decreasing transactional distance. This model has been applied in various teaching and learning contexts, on- and off-line, and its validation was investigated. Results confirmed in practice the four distinct sequential stages. Difficulties were discovered in navigating through the collaborative second and third stages, consistent with findings from related studies on acquiring critical thinking skills. Specific areas for attention were identified to promote learning using multimedia.

Introduction

Previous Models of Learning

Two significant models have been proposed to identify the essential steps of learning critical-thinking skills: one by Dewey (1933) and another by Brookfield (1987). Dewey proposed five phases of reflective or critical thinking:

1. Suggestions, in which the mind leaps forward to a possible solution

2. An intellectualization of the difficulty or perplexity that has been felt (directly experienced) into a problem to be solved, a question for which the answer must be sought

3. The use of one suggestion after another as a leading idea, or hypothesis, to initiate and guide observation and other operations in collection of factual material

4. The mental elaboration of the idea or supposition (reasoning, in the sense in which reasoning is a part, not the whole, of inference)

5. Testing the hypothesis by overt or imaginative action

Brookfield also proposed five phases to develop critical thinking:

1. A triggering event

2. An appraisal of the situation

3. An exploration to explain anomalies or discrepancies

4. Developing alternative perspectives

5. Integration of alternatives in ways of thinking or living

However, the steps given in the above models do not correlate with each other. The steps are not clearly distinguishable, and the actual process need not be sequenced linearly. So these models are not sufficiently clear to constitute the basis of a syllabus. A new clear and practical model is proposed based on the distinct ways of learning. And this new model will constitute the basis for an intelligent syllabus for acquiring critical-thinking skills using multimedia.

The Distinct Ways of Learning

There are four distinct ways of learning (Kawachi, 2003a): learning alone independently, alone individually, in a group cooperatively, and in a group

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