

Centre for Excellence in Enquiry-Based Learning Resources

Title: Principles of Enquiry-Based Learning

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Date: December 2006

Logically enough, Enquiry-Based Learning is a term that describes any process of learning through enquiry. This may seem to be a statement of the obvious: how else does anyone learn? Does not the term possess some degree of tautology? However, much traditional teaching has in fact been predicated on an assumption that contradicts this apparently self-evident statement. The delivery of information that students are expected simply to accept and learn represents an essentially passive mode of learning. So Enquiry-Based Learning is about ensuring that, as far as is possible, students acquire their knowledge by means of a process of active learning. The learning is self-directed because it is driven by students' own decisions about appropriate ways in which an issue or scenario might be approached. They carry out research and investigations into areas that they decide are essential for a proper response to the issue. Thus they discover *how* to research by engaging in practical examples. They also have to make decisions, some of which may turn out to be wrong in the sense that they lead down avenues that are unproductive or fail to reach any outcome relevant to the issue. Such mistakes are themselves part of the learning process, and teach the message that there are often no straightforward, ready-made answers. It is therefore often the case that scenarios for Enquiry-Based Learning are created on the basis that they are sufficiently open-ended for there to be multiple and different responses, thus opening up the problem of judicious selection of approach. Perhaps most importantly of all, work on scenarios involves students in posing their own questions. The appropriate questions are either not given, so that students have to tease out what kinds of questions need investigation, or are questions that follow on from an initial given question.

A significant consequence of the open-endedness of issues is that Enquiry-Based Learning is ideally positioned to foster a deep level of engagement with problems that are multi-faceted and complex. The exploratory nature of enquiry allows students to grapple with different ways of looking at ideas and issues, and to think creatively about problems that do not possess simple (or perhaps even any) answers. The flexibility of the learning is suited for the flexibility of the problems. Similarly, Enquiry-Based Learning is highly appropriate for issues whose complexity is such that they straddle traditional academic disciplines. Interdisciplinary or cross-disciplinary topics inevitably oblige students to think imaginatively and to search for knowledge in unfamiliar areas. If such problems are considered by a group of students who themselves are formally studying different disciplines, then the pooling of different kinds of knowledge can be a powerful instigator of complex learning.

However, it is equally important to be clear that the flexibility of Enquiry-Based Learning allows it to be a means by which clearly-defined and finite pieces of knowledge are acquired. At an elementary level (say the first year of a university course), it may well be appropriate to restrict the learning to scenarios that focus on clear and assured elements of a subject, so that the necessary building-blocks of a discipline can be built up before the more conceptually uncertain aspects of the area are broached. Enquiry-Based Learning does not have to be relativist. It can be as absolute as you like. And it can be rigorously restricted to a single traditional discipline.

The elements of an Enquiry-Based Learning process are multiple, variable and open to selection. Different factors will be involved in different kinds of enquiries in different areas of knowledge and at different levels of student experience. They include:

- The selection of appropriate questions
- The formulation of appropriate questions
- The identification of key issues
- The search for valid and relevant evidence
- The interpretation, and assessment of evidence
- The application of evidence to identified issues
- The presentation of coherent conclusions, final or tentative
- The reflection on, and assessment of, the learning process

The level of student experience will determine the appropriateness, choice and extent of the elements in any process of enquiry.