

Problem-solving, Problem-Based, Problem-Centred and all that....

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These terms tend to appear in the literature fairly indiscriminately and not infrequently cause unintentional confusion; some readers may even come to regard them as synonymous. It seems in the nature of the history of new ideas that the central concept is so exciting that it comes to be applied and written about without due attention to precise definition. Perhaps the time has come when a definition would be useful, if only to concentrate our minds and encourage debate. Let me then put my head in the stocks and offer my thoughts on these three terms.

Problem solving, to me, is an intellectual approach to making decisions in the face of a situation in which the nature and interplay of its components are not immediately obvious or fully identified. A review of the growing literature makes it clear that there is no single, proved mental process which is adopted in such situations. A great deal of further research is needed, before realistic strategies can be identified in sufficient detail to enable us to help students to acquire the component competencies.

In the meantime, we can only speculate and adopt or adapt one or more of the extant theories. Whether we accept a combination of pattern recognition, hypothesis refining, probability ordering and information processing, or a different mixture of other components, we will all recognize that the intellectual process without subject content is of little use. We would not expect to be able to solve problems of children merely because we had learned to solve problems of pregnancy and parturition. Can we thus agree that the acquisition of the skills of problem-solving are, at least in part, dependent on learning how to apply clinical experience, as well as understanding and knowledge of structure and function, at the molecular, whole person and community levels? Perhaps the process will eventually be seen as logical access to short term and long term memory?

Problem-based learning is a process of acquiring understanding, knowledge, skills and attitudes in the context of an unfamiliar situation, and applying such learning to that situation. The process is designed to provide relevance and thus stimulus for learning. It should offer opportunities for application of what has been learned and, therefore, rapid feedback to the learner about the success or otherwise of his studies. Over and above all this, problem-based learning should provide continuous practice in logical analytical thinking and practice in structuring one's own learning.

The subjunctive in the preceding sentences is quite deliberate; so frequently theory is not backed up by implementation. Thus, for example, posing a problem for students to solve after they have studied a subject for its own sake, in vacuo and without an opportunity to appreciate the relevance or applicability of what they were asked to learn, is not problem-based learning. Whether in a lecture theatre, a small group tutorial, on a ward round or as an individual with, say a Howard Barrows P4 set of cards, problem-based learning should give students the opportunity to identify what they do not know or do not understand -- but need to understand or know in order to deal with the unfamiliar situation: in order to problem-solve.

This recognition should then be expressed in the form of a question or questions. Such questions will normally be too global to be readily answered without division into subsidiary questions. This analysis should result in a logical sequence of progressively more detailed questions. The analysis, in turn, should lead to study commencing with the more specific questions. A progressive synthesis of the answers should enable the student to apply the composite answer to the original situation.

Problem-centred would be redundant if it were used to mean "problem-based". This term might, therefore, be reserved to signify a course or a curriculum which offered consistent opportunities for the practice of problem-solving and problem-based learning.

Not so much a conclusion but a challenge, let those who can help to clarify the issues take up the cudgel.

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