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## Problem-based learning: the confusion continues

Barbara Mifflin

The comments in this brief review were inspired by Gilkison's<sup>1</sup> report on her search for greater clarity in regard to the appropriate qualifications of problem-based learning (PBL) tutors in undergraduate medical curricula. The study Gilkison conducted was well considered and well reported. Despite the best intentions of the researcher, however, the study's results serve to add to rather than diminish the confusion about PBL and the tutor's role. As I have argued before in this forum,<sup>2</sup> further research in PBL curricula will be fruitless until the confusion in thinking about PBL itself is addressed.

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Gilkison cites Barrows' view that the ideal PBL tutor is a group facilitator rather than a subject matter expert. However, what she overlooks in Barrows' recommendations is that

he was talking about the different qualities in tutors *who are doctors*. Barrows promulgated the concept of PBL in the context of medical education as it was traditionally organised in the USA and Canada, Barrows' home environment. Traditionally in this environment, medical schools provided a clinical phase of learning after students had completed a premedical, science-based course, often in a different institution. Doctors taught medical students in graduate medical schools. Barrows intended that this phase of medical education would adopt PBL for the first 2 of 4 years, primarily to ensure that students were given time and the help of a PBL tutor to understand the relevance to making competent clinical decisions of the science they had already learnt in isolation.

*The concept of 'expertise' for Barrows related to expertise in medical disciplines*

I can understand how Barrows' intention may have been missed or misconstrued. In my extensive critique of Barrows' teachings on PBL,<sup>3</sup> I did not once find any overt reference to PBL tutors having to be medically qualified. Critical interpretation of his ideas, however, in the context in which they

were formed (as described above), leads inevitably to this conclusion. I suspect that Barrows did not spell it out because he assumed that it would be taken for granted.

In the context that Barrows intended, the concept of 'expertise' was of expertise in medical disciplines. Barrows meant that a doctor who is a good facilitator, is, regardless of his or her medical discipline ('non-expert'), a better PBL tutor in, for example, a renal 'problem', than a doctor who is a renal physician ('expert') but a poor facilitator. In contrast, Gilkison compares a doctor and a tutor with a humanities qualification as PBL tutors. If my argument is accepted, the comparison is fundamentally flawed, and thus, the results are unhelpful. It may also explain why the author seemed to be in 2 minds about which was superior after observing the advantages to student learning under the guidance of both types of teachers. From the perspective of Barrows' original idea, the 2 should be combined. He envisaged that the PBL-trained clinician would combine medical know-how with good facilitation skills. The result would be an active teaching role with tutor intervention being used optimally to develop students' abilities to synthesise and apply knowledge to clinical problems. By the end of what he called 'the

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preclinical curriculum<sup>4</sup> students would be able to understand and solve patient problems (where 'solve' means diagnose, treat and manage) in preparation for taking full advantage of their clinical terms.

*While it is legitimate for a good educational idea such as PBL to be adopted and changed to suit particular circumstances, it is not legitimate to judge the results of the idea in practice against the original criteria when these have not been maintained in the change*

While it is legitimate for a good educational idea such as PBL to be adopted and changed by others to suit their circumstances, it is not legitimate to judge the results of the idea in practice against the original criteria when these have not been maintained in the change. In Gilkison's case, one can detect the effects of the 'conceptual fog'<sup>5</sup> surrounding PBL that has resulted from the rapid adoption and adaptation of PBL in medical and other curricula organised and conceived along different lines from the original context for which it was proposed.

*We do not take enough time to understand the model, and are prone to accept the way in which others have interpreted it*

In my personal experience, when traditional medical schools in Australia and New Zealand adopt PBL, existing structures in medical education influence the nature of the PBL curriculum that develops, and the associated recruitment of teaching staff, including PBL tutors. For example, basic science departments take responsibility for the teaching of the first 3 years of traditionally

organised medical education. When schools with this type of structure move to a PBL model, scientists are under-employed unless they are re-employed as PBL tutors. In some schools, science departments continue to control teaching funds for a sizeable proportion of the medical course. A further complication is that clinicians are not as readily available for PBL tutoring because it inevitably takes them away from the clinic for more time than traditional clinical teaching does. In combination, these factors mean that schools appoint PBL tutors with a variety of backgrounds. Not surprisingly, the original intention – that doctors help students to apply science to clinical problems in order to learn the art of making competent decisions in medicine – has been lost. From almost the dawn of the PBL era in medical education and during its spread to other areas of higher education, research has not questioned this departure from the original idea. This is evident in the early work cited by Gilkison, of De Volder<sup>6</sup> at Maastricht and of Wilkerson *et al.*<sup>7</sup> at McMaster.

*A new orthodoxy has arisen around PBL that rivals the old orthodoxy in its resistance to criticism*

Gilkison is thus heir to an unexplored assumption about PBL. Has she also accepted assumptions about the concepts of 'student-directed learning' and 'self-directed learning' associated with PBL, to further confuse the issue?<sup>8</sup> The heartening aspect of the report on her study is its honesty. She admits to several limitations, and, I suspect, thinks that these have led to the inconclusiveness of her findings. Others<sup>9,10</sup> have blamed inconclusiveness on different models of PBL. I again suggest to readers that inconclusiveness occurs fundamentally because we

do not take enough time to understand the model, and are prone to accept the way in which others have interpreted it. I suggest to Gilkison that it is not her methodology that is inadequate, but the conception of PBL that inspired it and is the basis of her interpretation of the results. She might accept the findings as a challenge to dig more deeply into the origins of PBL.

Unfortunately, as is the way of the world, a new orthodoxy has arisen around PBL that rivals the old orthodoxy in its resistance to criticism. It too needs to be challenged so that the true potential of this excellent but sorely misunderstood approach to medical education may one day be realised.

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## Problem-based learning tutor expertise: the need for different questions

Andrea Gilkison

I am pleased to have the opportunity to respond to Dr Miflin's commentary on my paper<sup>1</sup> reporting the findings of a study conducted at the University of Liverpool's medical school. My study explored the techniques that tutors from different backgrounds (medical and humanities) used in the facilitation of learning in problem-based learning (PBL) tutorials.

Dr Miflin raised some valid issues, of which the confusion about PBL, the concept of tutor expertise and the definition of self-directed learning are particularly worthy of further deliberation.

*Faculty staff need to adapt the PBL process to fit with their own circumstances*

Over the last 40 years PBL has been adopted with variations into many disciplines in a large number of countries. Each faculty has had to adapt the process to fit in with the circumstances of its own institution and students, resulting in PBL being practised in diverse ways.<sup>2</sup> Barrows and Tamblyn's<sup>3</sup> original

ideas have been interpreted and refined since their inception at McMaster University in the 1960s. The structure of courses, case design and information given to tutors and students varies between learning environments and faculty staff now have varied expectations of the role of the tutor in a PBL tutorial. These variations, I believe, represent the healthy development of an educational innovation.

*Quantitative methods have been unable to reach meaningful conclusions on PBL tutor characteristics*

When Barrows and Tamblyn<sup>3</sup> implemented the original PBL curriculum it was likely they assumed that PBL tutors would be medically qualified. However, it was anticipated that the ideal PBL tutor would function as a group facilitator rather than a subject-matter expert and that his or her role would be to facilitate student learning rather than to convey knowledge.<sup>4</sup> This concept of subject-matter expertise has been interpreted in many different ways in medical curricula based on PBL, and has constituted one of the major topics of research around the role of the PBL tutor.<sup>5</sup>

Whether to use an expert or non-expert tutor has become a key question for those instituting

medical curricula based on PBL. It has been difficult to draw conclusions from studies due to the different structures and contexts of PBL environments, differing definitions of expertise and differing expectations of the role of the tutor. The majority of studies have tried to quantify the effect of tutor characteristics on the PBL tutorial, while giving little attention to other aspects of group functioning. This is an example of education's 'messy environment', which is so 'variable-rich' that traditional quantitative research methodologies have been unable to reach meaningful conclusions.<sup>2</sup> In my opinion, this has created a literature which is confusing to faculty about which sort of tutor to employ, and has been detrimental to the process of creating a practical guide for PBL tutors as to how best to facilitate student learning.

*Institutions need to consider their own conceptions of PBL and the role of the PBL tutor*

In reforming curricula, decisions such as who to use as PBL tutors are often made in a pragmatic way (e.g. by using basic science teachers as PBL tutors); however, the decision to use non-expert faculty has not, in my experience, been taken without much forethought and consideration.

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