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## Commentary: The challenges of systematic reviews of educational research

Jill Morrison

Littlewood et al present the results of a systematic review of the evidence in the medical education literature about how early experience contributes to the basic education of health professionals.<sup>1</sup> Increasingly, emphasis is being given to basing decisions about teaching practice on evidence because the alternative is the PHOG approach: prejudices, hunches, opinions and guesses.<sup>2</sup> The review was carried out under the auspices of the Best Evidence Medical Education (BEME, [www.bemecollaboration.org](http://www.bemecollaboration.org)) collaboration, which aims to promote best evidence medical education through dissemination of information, producing systematic reviews and the creation of an evidence based culture. It attempts to synthesise the available evidence in a format that can be used by curriculum planners and others involved in medical education to enable them to make decisions about how to provide the best learning opportunities for students.

What are the readers of the *BMJ* to make of this review? Its readers are accustomed to a rather different kind of systematic review that predominantly evaluates the results of a number of randomised controlled trials. As Littlewood et al say that early experience is part of a complex curriculum intervention.<sup>1</sup> It, therefore, does not lend itself to evaluation using simple experimental designs such as randomised controlled trials. BEME recognises that systematic reviews should not be restricted to randomised controlled trials, which may have high validity from the perspective of research methods but are expensive to undertake and may not be the most appropriate type of study to answer the questions raised.<sup>3</sup>

Norman and Schmidt go further and say that educational trials are ill founded, ill advised, and a waste of time and resources.<sup>4</sup> They argue that there is no such

thing as a blinded intervention or a pure outcome or a uniform intervention in educational trials.

What is needed is for "multiple lenses to look at data from different perspectives,"<sup>3</sup> but Harden and Lilley have described the challenge of identifying and evaluating the evidence as formidable.<sup>2</sup> The evidence may not be available; the research method, the outcomes investigated, or the replication of the evidence may not be optimal; and the applicability of the conclusions to the individual teacher in their particular setting may not be appropriate. Of course, this is true of much clinical evidence. We don't know the answers to many clinical questions because the evidence is not available or not convincing and often research carried out on a population of highly selected patients cannot be generalised to an individual patient.

The BEME collaboration endorses the principle that medical educators should implement the practice of methods and approaches to education based on the best available evidence. Littlewood et al have identified and evaluated the evidence about early experience for us. They freely discuss the limitations of the review but point to the rigour of its methods. The evidence in this review is as good as it gets for medical educators but, as Harden points out, it is still up to the individual teacher to evaluate the evidence and to arrive at the best approximation of the truth for his or her teaching practice.<sup>2</sup>

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## What the educators are saying

### How can I know what I don't know?

Although the ability to assess your own deficiencies is considered essential for lifelong learners, most people are not very good at it. Students at McMaster University, Canada, were asked to judge themselves relative to their peers in 10 medical subject areas in rote factual knowledge and higher order conceptual information. Their self assessments were compared with the results on the personal progress inventory (PPI), a recurrent longitudinal multiple choice examination containing both factual recall and higher order conceptual items. Overall, no significant correlation was found between the self assessment and the actual performance on the test. Even when students were asked to assess their performance after they sat the test, their assessment was at best moderately correlated with their actual scores.

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### Course teaches how to request organs for donation

Requesting organ donation is a complex challenge for doctors, consisting of breaking bad news, dealing with family emotions, and asking relatives for permission to donate organs. A new training programme may help doctors gain the knowledge and communication skills to deal with such an intricate situation more effectively—and might also help with current donor organ shortages. Participants in the European donor hospital education programme (EDHEP) in both the United Kingdom and the Netherlands scored higher on self efficacy (judgment of their ability to reach a goal) after taking part in the programme, and the improvement remained at six months' follow-up. The participants also found it easier to make requests for organ donation after completing the course.

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### Judging portfolios in a specialist training programme

Assessment using portfolios seems ideal for specialist training programmes. Portfolios allow material collected from various sources (patient care, scientific results, self reflection, etc) to be used as a basis for appraisal, evaluation, or

### Medical school admission interviews are too unreliable



*Selection procedures for medical schools often include interviews. At the University of Iowa, researchers collected data from interviews for admission to medical school. For a total of 550 applicants, 92 of whom were reapplying, two independent interviewers obtained data from a standardised interview for each candidate. The inter-rater reliability was moderate to low and below the level needed for making decisions with important consequences. The authors conclude that a selection process in which only interviews are used or in which the results of the interview are weighted heavily is not advisable as it will lead to unfair decisions about applicants.*

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assessment, but this variety of input may make portfolio judgment seem subjective and unreliable. In a study of the reliability of portfolio judgments for registrars in psychiatry in the United States, trained raters scored five examples of registrars' best work, reflecting necessary psychiatric skills, such as crisis management, legal issues, and neuropsychiatry. Two raters and five entries were found to be sufficient for relative decisions (determining which candidate is better than the other) and three raters and six decisions for absolute decisions (grading, for example).

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### Do modern medical students know enough anatomy?

Students following modern medical school curriculums often assume that they don't know enough anatomy, but they needn't be so worried. One way of determining the standard for a test is a so called Angoff procedure. In this procedure a panel of experts are asked to review all items of a test and to estimate the chance that a borderline student would answer the item correctly. Four such panels (fourth year medical students, anatomists, clinicians, and recent graduates) were used to determine pass-fail scores for an anatomy test that was given to medical students in the fourth year of a six year programme. The medical students were the most stringent judges; using their standard, 64% of their peers would have failed the test. Clinicians were second, leading to a failure rate of 58%, followed by anatomists (42%), and recent graduates (26%). It seems that medical students overestimate the level of anatomy knowledge they need.

*Medical Education* 2005;39:326-32

### Why is studying medicine so stressful?

A study of 342 medical students at the Karolinska Institute Medical University, Sweden shows that students experience high levels of stress during their studies. Workload and lack of positive feedback by teachers were identified as particular problems, together with worries about finances. In addition, a higher percentage of the medical students fulfilled the criteria for self rated depression on the major depression inventory than did the general population. And female students scored significantly higher not only than male students but also than females in the general population. Slightly fewer than 30% of the medical students had had suicidal thoughts. The findings of this study are not unique; similar studies in various countries have come to similar conclusions.

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