

# Centre for Excellence in Enquiry-Based Learning

## Project Case Study

Medical Assessment for Enquiry-Based Learning (MAEBL)

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### **Abstract**

#### **Aims:**

1. To support students on the Manchester Bachelor of Medicine and Bachelor of Surgery (MBChB) programme in writing self-assessment material based upon the outcome of their Enquiry-Based Learning.
2. To make formative assessment material available online to all undergraduate medical students through MedLea Virtual Learning Environment.
3. To enhance student preparedness for future assessments.

#### **Outcomes:**

1. 15 students trained and supported in writing and quality assuring Universities Medical Assessment Partnership (UMAP) style Multiple Choice Questions (MCQs).
2. 40 MCQs written by students in relation to Enquiry-Based Learning activities. Resource recommendations collated and logged. All materials appraised by subject experts and will be made available to all students via the MedLea system ahead of the next assessment.
3. Examination results analysed revealing that taking part in MAEBL may have provided an advantage amounting to 3.9 percentage points for year one students and 8.9 percentage points for year two students.

#### **Future:**

Extension of the project to all year groups in 2006/07 approved by the School of Medicine Curriculum Committee.

## Background

Previous to 2005/06 a single progress test assessment was sat simultaneously by years three, four and five of the Manchester Medical course. The progress test is a formative examination linked to the Problem-Based Learning (PBL) curriculum, which prior to 2006/06 concentrated on clinical content from year three onwards. In 2005/06 early clinical experience was brought in for years one and two students, and so the progress test was extended to incorporate these two further year groups. Students in years one and two had substantial concerns about their likely performance on the test given their relative lack of knowledge and clinical experience as compared to other years. The MAEBL project was conceived as a way of enhancing the links between the modular PBL curriculum and the progress test assessment, whilst also enhancing student preparedness for the test. It was decided to invite students from years one and two to take part in the first instance, as these groups potentially had the most to gain at this time.

## Rationale

A series of workshop dates were planned; the first taking place the day after the January 2005 progress test. 15 students from years one and two attended and learned about the question format used in the progress test. As the items are developed and quality assured by UMAP, a project based in Manchester, the resources to run this and other sessions were already present.

Students were asked to meet up in small groups after every other PBL case until the next workshop session, half-way between the two progress tests. In preparation for these meetings, students each wrote one MCQ. At the meetings they discussed the MCQs and amended them in line with best practice question writing techniques.

Students were also asked to keep a note of useful resources they had come across whilst engaged in PBL activities.

At the meeting held half-way between the two progress tests, students attended for a brief refresher of the question writing techniques taught at the first meeting. Students also used the meeting as an opportunity to meet and

discuss their questions. At the end of this meeting, students handed in questions written and discussed to date, and any resource recommendations they had collated.

The final meeting took place two weeks prior to the second progress test, and students were encouraged to ask any further questions about the test and the question format. They also handed in their final questions and any further resource recommendations. At this meeting students were asked to complete a form giving consent for their exam results to be analysed to determine if any differences between the pilot group and the rest of the cohort could be found. Students also completed a short survey informing the project team of the impact that taking part in the project had had on their preparedness for the next test.

## Impact on Assessment

One of the members of the project team, Andrea Owen, is also the Project Manager for UMAP. Andrea found the interaction with the students extremely rewarding, and student reactions to presentations given about techniques of test construction have been very positive. The project has compounded staff thinking on the utility of sharing information about how tests are written and conducted. As such, the project will continue into next year and a booklet is planned to be distributed to all medical students explaining some of the techniques employed in test item writing and quality assurance.

## Evaluation

The project was extremely successful in this pilot stage; some of the outcomes are described below:

- The group of students felt more confident coming up to the May progress test as a result of taking part in the project. In response to the question 'How much more confident are you about your next progress test as a result of taking part in the project?' (where 0 = not much more confident at all and 5 = an awful lot more confident) Year One students' average response was 2.8, Year Two was 2.4.
- It is also important to note that 100% of students felt that the project should continue into 06/07.
- Students gained insight from taking part. One student wrote in the evaluation:

It is good that students understand how the questions are written, it improves exam technique. Hope the project has proved successful and wish you all well for the future. Thank you for the opportunity for allowing me to take part in the project.

- 40 items were written and discussed by the students working in small teams. These have been checked by clinicians and are awaiting upload to MedLea. This is a sustainable and scalable resource, which will be expanded as MAEBL continues.
- 10 new resource ideas were collated from the students and are awaiting semester leads' approval before being placed on MedLea. This is, again, an easy to sustain resource which will be expanded as the project continues.
- Taking part in the project did have some effects on scores, though the group size was too small to confer statistical significance.

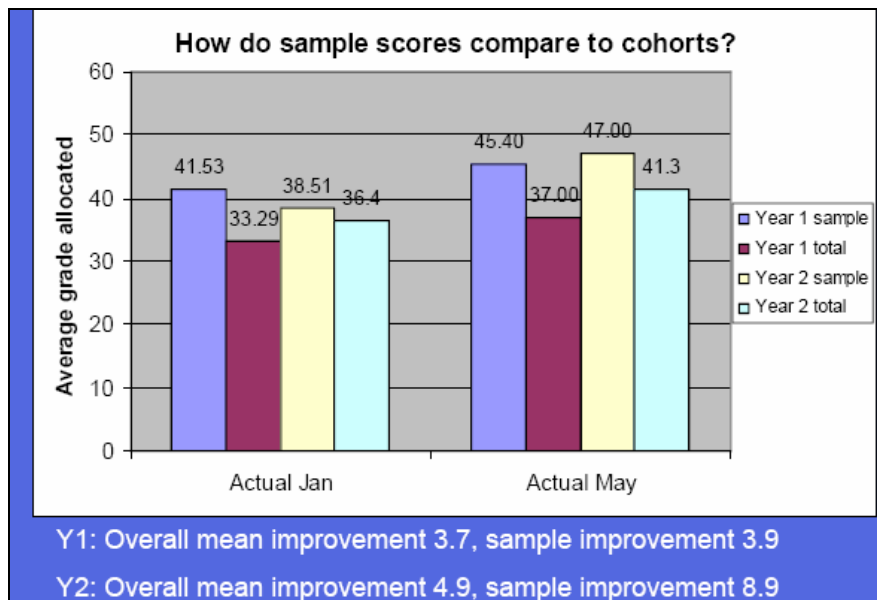


Figure 1 Comparison of scores.

As can be seen here, the improvement in percentage point terms from the January progress test to the May progress test was larger for the sample groups than for the cohorts overall. It is hoped that with a larger sample size in 06/07 figures will be large enough to assign statistical significance.

## Further Development

The Curriculum Committee, which meets to discuss and plan developments within the PBL curriculum, has given its approval to a large scale implementation of the MAEBL project for 2006/07.

Specific activities for 2006/07:

- To issue an open invitation to all students via MedLea and the undergraduate medicine website to take part in MAEBL for the 06/07 academic year. Students will be given direction at an initial workshop on how the test items are written, just as Consultants and Academics are taught at UMAP workshops. Working independently, they will each write one MCQ after every other PBL case, centring on topics raised in relation to the PBL case. Students will meet in small groups to look at each others' questions and follow basic, UMAP-derived, question quality assurance principles.
- To print a guide which will be made available to all students about UMAP style MCQs as used in the progress test.

- To collate data to determine if taking part in MAEBL has any significant impact on exam scores, as was suggested in the pilot 05/06.

The MAEBL team have recently been informed that for 06/07 the project will be supported by a researcher, who is due to start in September 2006.