

Delivering innovative personalised feedback for large multi-station practical assessments

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Key Points

- Expanded and improved on the delivery of feedback in Objective Structured Clinical Examinations (OSCEs)
- Delivered over five thousand individual examiner commentaries to 750 students over three years
- Summary of strengths and weaknesses with short commentary replaced by item-level feedback at request of students
- Trialled and implemented a method of delivering detailed item-level feedback to students
- Monitored satisfaction and educational impact over three years
- Item-level feedback was used for feedforward before OSCE: an unplanned bonus
- Won an AMEE Teaching Innovation Award (2014)
- Further developed the system to deliver personalised, recordable feedback on clinical attachments across the clinical year of the MBChB
- Currently expanding the delivery mechanism to multi-station assessment in other years

Project overview

This project intended to deliver UK-leading feedback on a critical multi-station practical assessment in the form of the year 3 MBChB OSCE. All objectives were met. In this summary we describe three aspects: the delivery, the monitoring of impact, and future plans.

Delivery

The research team was committed to low-cost options in order to focus resources on the educational aspect of the design. The OSCE feedback cost less than £500 per year, and these were mostly optional costs designed to improve delivery, and paper for examiners.

We opted for a paper-based model rather than an electronic one (e.g. iPads) because this allowed us to scale the intervention and focus on revising the guidance to staff and students. Had we opted for a technological solution, the upfront costs would have been high and we would have been 'locked in' to the final product. We continue to modify and adapt our tools.

The OSCE itself comprised eight clinical stations covering topics like the ability to communicate, undertake manual handling, and perform physical examinations. Each station was single marked by an expert using OCR mark sheets, and some stations had a simulated patient present as well.

Historically students received virtually no feedback – both at Edinburgh and in the rest of the UK. With only an overall mark – or more recently, station marks – students struggled to identify strengths and weaknesses and reported feeling distressed ahead of OSCEs due to the challenges of preparing for a relatively unknown phenomena.

In the first project year we modified the procedure to increase the gap between each stations. During this gap examiners now had some time to complete a short template indicating a student’s relative strengths and weaknesses and write free text comments regarding the student performance and particular areas for improvement. These sheets had barcodes which, with software, could be scanned and automatically emailed to students.

In the second year we significantly improved upon this by redrafting training and delivery materials, and focusing further on how the candidate ought to improve through detailed performance data and a focus on ‘how to’ in the free-text comments from examiners. .

We significantly improved the process again by using our OCR software to extract individual marks on the examiner mark sheets, and provide a full breakdown to students of every mark in the entire examination. OSCE station designers subsequently committed to posting the previous year’s mark sheets on the student VLE to show how OSCEs worked in detail, with new scenarios drafted to ensure a sufficiently large bank of possible stations. We switched from emailing students to uploading their results to their feedback gallery (currently in PebblePad) to provide a permanent, easily accessible record of feedback.

We have produced guidance documents on how to reproduce this system in other contexts. We can provide these documents and training support on request.

Monitoring of Impact

Due to the timing of the delivery and the lengthy gap between receiving the feedback and returning to study, face-to-face focus groups did not receive sufficient attendees to be useful. Instead we pursued two parallel methods: a thematic analysis of a large quantity of survey data on the OSCE feedback and a series of face-to-face class-wide discussions.

The thematic analysis was based on a series of questions concerning the efficacy of the feedback, what students liked and disliked about it, and what could be done to improve it. In summary, the response to the OSCE feedback was overwhelmingly positive – in the most recent survey 85% of students strongly agreed or agreed that the feedback was useful. Students frequently used the surveys to request an expansion of the OSCE feedback system to other assessments.

Importantly, we involved a student researcher in this project who had sat the OSCE during this project. As part of their Student Selected Component 4a (SSC4a) module, they undertook the thematic analysis and submitted the results for course credit. They will be credited in any subsequent publications derived from this work. In summary, a number of themes were identified. For brevity, we report here only the three major themes.

The feedback was considered to be of significant practical value (*“there was one station where it never occurred to me to do something, but it seems to have been expected of me, so good to know for the future”*). Students highlighted the benefit of knowing their specific areas for improvement.

Secondly, students noted that it offered a significant opportunity for self-assessment (*“... it allows you to confirm whether your own assessment of your abilities and performance were accurate”*). Students frequently said that in most assessments, when they thought they did well but got a poor mark (or vice-versa) they could not identify why. This type of feedback tool allowed them to think about their own self-evaluation skills.

Finally, students talked often about the emotional challenges of studying and how feedback can help (*“some were very motivating and helped boost your confidence, others helped highlight where to improve. A more human approach to feedback instead of just hard and fast mark.”*). Feedback can produce a more positive pastoral environment, besides any direct academic benefit.

A review of feedback sheets by two postgraduate researchers suggested the narrative feedback tended to be in keeping with the marksheet data, and constructive. Most examiners gave effective feedback, but some struggled to suggest how to improve for good (but not excellent) candidates. We have provided detailed examples in our training materials on how to do this and continue to explore options for ‘crib sheets’ for examiners to help quickly put common suggestions into words.

The project, then, was extremely well-received by students, accepted by staff after some initial concerns around question leakage and test-focused learning, and achieved with a minimal expenditure of resources. We additionally undertook to monitor any potential performance change as a result of this exercise. Conclusions from this monitoring must be treated cautiously as there is no control-group – only a pre- and post- intervention measure of how well each cohort did. The average mark improved slightly year-on-year, but more significantly there was a large drop in the number of candidates receiving a poor (D) grade average mark in year 4. While this should not be over-interpreted, this is a promising sign that weak students who marginally passed the OSCE were then able to focus on how to improve for the future.

Planning for the Future

We have met the key goal of our initial proposal: to make delivery of OSCE feedback routine without ongoing external funds. We now run the improved feedback scheme for the year 3 examination each year and continue to make improvements to it.

We intend to expand the scheme into other OSCE-type exams (especially year 4 OSCEs and year 5 finals) and discussions with stakeholders about how to do this are ongoing. We hope this will provide a model for personalised feedback.

We continue to improve the return of the feedback. We are streamlining the process by which the feedback is uploaded to PebblePad. With this system, students can access a fully formatted gallery which can be viewed even after graduation. Furthermore, we are trialling a system whereby failing candidate mark sheets and free text sheets are pulled out of the system and compiled in a station-specific document. This contains all of the feedback for all candidates who failed that particular station. It can then be returned to teaching leads to improve teaching and identify common weaknesses to be addressed in future years.

Following the success of OSCE feedback we have expanded the technical delivery to a “Feedback Postcard” system in years 3-5. Using the same basic model – uniquely identified cards that can be scanned and automatically returned to students – feedback sought in clinical attachments is saved in a permanently accessible format. We are now returning thousands of individualised documents to students on an annual basis, with guidance derived from the results of the OSCE feedback project. This is a recent addition and is undergoing significant revisions to meet staff and student needs, but we hope it will become a permanent fixture of the Edinburgh Medical School experience.

Quotes

All quotes are from anonymous student surveys on the OSCE feedback system.

“It made a huge difference, and was an example of Edinburgh really leading in terms of feedback compared to my peers at other medical schools.”

“A great confidence boost.”

“Excellent to see specific areas where I had gone wrong and also those where I did well. A useful tool and would be great if we sat it in other areas of the curriculum.”

“They give you more to reflect on than just an individual mark and highlight your strengths and weaknesses from another person’s perspective. Very useful for reflection on future practice.”

Outcomes summary

- A small investment of university funds can aid the implementation of long-term feedback projects
- Paper-based solutions allow for frequent modification, without the significant up-front costs of computer-based solutions
- Personalised feedback is achievable, and useful to students for academic, pastoral, and professional reasons
- Such innovations can be expanded through the curriculum by careful planning and application of limited resources
- More widely, there is substantial interest in this topic in academia and the profile of such work can be high

Staff Development

We would highlight the following points in particular:

- It is essential to have technically minded staff and good administrative support before implementing new feedback tools
- Careful consideration of costs can allow pilots to occur with limited funding, which can then be monitored for popularity and utility before a full rollout
- It can take multiple years for the project to become fully functional

Publications in Progress

Title	Detail	Date
A low cost/open source system for delivering feedback in OSCEs and clinical attachments	Conference Presentation. AMEE Teaching Innovation Award winner at the Association for Medical Education in Europe (AMEE) conference, Milan.	September 2014

Publications based on this presentation and other parts of the project are ongoing.