

BRIEF COMMUNICATION

## **Problems Encountered with a Pilot Online Attendance Record and Feedback Scheme for Medical Students**

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### **Introduction**

Lectures were traditionally optional for students in higher education with no registers or records of attendance. This flexible approach was tolerated if performance in end of year or final examinations was satisfactory (Vinceneux *et al.*, 2000).

This approach may still be possible in some subjects but in medicine much has changed. Students are increasingly required to verify attendance and participation as validation, appraisal and competence-based assessment are introduced. Collecting and organizing written evidence is also becoming an important part of postgraduate medical life.

Resentment is caused by the “sign-up” system (Hrabak *et al.*, 2004) because students dislike being treated like school children when they are learning the attributes of a profession and some students can even resort to forgery (Beemsterboer *et al.*, 2000). Signature sheets are easily lost and are rarely inspected by faculty members while collecting signatures takes a disproportionate amount of time. The acquisition of a signature only establishes a student's attendance, not whether they have learned anything.

We perceive pressure from university authorities to account for students' attendance. Previously, students could choose to do something else if they

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thought a particular lecture or session was irrelevant, boring or there was a better learning opportunity elsewhere. Enforcing compulsory attendance may be counterproductive since there is a risk that students who would rather be elsewhere would contribute a negative attitude to teaching sessions at the expense of those who are interested. Also, students may become less motivated or less likely to pursue self-directed learning in favour of being “spoon-fed”.

## **Recognizing the Problem**

At our clinical school, students must pass the peri-operative medicine attachment to progress towards their final examinations. Students are assessed on the basis of attendance and performance in a short examination. Considering the limitations of sign-up sheets, we developed an online system to record attendance during the attachment so that students no longer needed to produce (or forge) signatures. Additionally, our students reported that they did not receive enough feedback and constructive criticism. We designed the system to provide the additional benefit of comprehensive feedback about each student's performance during the attachment.

## **Applied Research and Development**

The prototypic online attendance record utilized the “ERWeb”, a secure, web-based virtual learning and communication environment which delivers teaching resources, monitors student activity and provides summative and formative assessment for students at our university (Wheeler *et al.*, 2003). Each student's activity within the ERWeb environment is recorded after the student logs in and includes the time of access to a resource, the computer used and any data entered. Therefore, the system provides a unique opportunity to record attendance without the need for signatures.

Students logged in to their ERWeb account using the computer in each operating theatre or intensive care unit then entered information online with their teacher at the end of the session (Figure 1). The number of practical procedures such as airway management and intravenous cannulation undertaken were noted, along with the student's perceived confidence and competence. Their teacher could also enter constructive comments about the student's performance as a free text. Later, students could leave feedback about teachers and teaching sessions in confidence.

The system compiled an electronic register by recording the time of data entry and the computer's location derived from its Internet Protocol address. Data entry on computers outside the operating theatre complex or at unusual times was highlighted.

ERWeb - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Refresh Print Mail

Address [http://erweb.cbcu.cam.ac.uk/erweb/erweb\\_frame.asp?resource\\_ID=&score=&nocache=727115512](http://erweb.cbcu.cam.ac.uk/erweb/erweb_frame.asp?resource_ID=&score=&nocache=727115512) Go Links >>

ERWeb [ Home ] [ Specialties ] [ Contacts ] [ Log Out ]

**University of Cambridge School of Clinical Medicine**

**In theatre/ICU** submit answers

*To be filled in by anaesthetist:*

How many sessions is this student with you for?  
 1  2

Where is this session(s) based: Theatre

How many intravenous cannulations have been performed? 0

How many laryngeal mask airways have been inserted? 0

How many tracheal intubations have been performed? 0

Any other comments/feedback (e.g. strengths, weaknesses etc.)?

*To be filled in by student:*

Any comments/feedback?

*To be filled in by anaesthetist:*

Name

Addenbrooke's ID badge number

submit answers

Internet

**Figure 1.** The data input screen of the online attendance and feedback system.

## Diffusion and adoption

All potential users were introduced to the system before launch. Students received written instructions with their peri-operative medical attachment

documents and we made a presentation to all anaesthetic and senior nursing staff in the operating theatres.

## **Consequences**

The online system was abandoned within four weeks of the start of the academic year, and the paper-based system was reinstated. A small number of students had used the system as intended, and feedback from the students and doctors was sought to ascertain why the system had failed.

Many students felt uncomfortable using the computer in the operating theatre, reporting that nursing staff used it to record details about the patient and equipment used in operations. Coincidentally, at the end of the pilot period the hospital authorities introduced a policy forbidding access to the internet from theatre computers, which will cause complications if the system is to be reintroduced in the next academic year. Neither of these problems had been anticipated by the nursing or information technology managers consulted during development and are indicative of the difficulties of diffusing innovations within a large organization (Rogers, 1983). Finally, the majority of our teachers are National Health Service consultants, working alone in busy operating theatres under substantial pressure to increase patient output. Students felt embarrassed about asking the teachers to enter data with them and felt that they were encroaching upon their time.

Despite efforts to announce and explain the new system, the teachers were unenthusiastic and this possibly was because the benefits to them were less tangible. Some perceived online data entry to be time consuming or found it distracting while others were uneasy about the students' opportunity to give direct feedback about them and their session.

## **Discussion**

We appreciated that the students might perceive an electronic register as an authoritarian "stick" and we tried to mitigate this with the "carrot" idea of substantially improved feedback. We were surprised that the system was so poorly received as it directly addressed the inadequacies of "sign-up", so perhaps the "carrot" idea was not as appealing as we had anticipated. Data entry appears to be time consuming and must be streamlined if the system is to succeed.

Although our hospital has computers in every operating theatre, they are often situated away from the anaesthetic workstation, are perceived as the nurses' territory and eventually will be unable to connect to the Internet. An expensive solution would be to issue a wireless network personal digital

assistant to all students. This would allow data to be entered without leaving the patient or interfering with the nurses' activities.

Rather than seeking a technological solution, we now believe that we may have completely missed the point and should address some more fundamental questions. Some examples are as follows: Does it matter if students do not attend certain parts of the course? Do budding psychiatrists need to be able to intubate the trachea? Is the acquisition of hundreds of signatures as proof of attendance or competence demoralizing for students? If so, might it be for doctors too? Those choosing a career in medicine must be able to identify and fulfil their own learning needs, for which students need flexibility rather than a rigid "tick-box" regime. It seems self-evident that attendance at teaching correlates positively with academic performance (Sade & Stroud, 1982; Glanz & Fiel, 1984), but many excellent doctors were distracted from their studies at medical school by sport or other interests (Kuzman *et al.*, 2004). Indeed, the best predictor of a successful medical career seems to be a student's results at the end of secondary education rather than performance at medical school (James & Chilvers, 2001; McManus *et al.*, 2003). Should we restore the freedom enjoyed by previous generations, dispense with attendance records altogether, and shift the emphasis to regular and challenging tests of knowledge and competence? This might sound ideal, but would have enormous manpower and funding implications (Morgan & Cleave-Hogg, 2001), and the issue of improved feedback for students would need to be addressed differently.

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