

EVAF4All: Electronic Voting Analysis and Feedback



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:Overview:

The EVAF4All Project is creating a web-based system (EVAF) to provide staff and students across different institutions with analysis and visual feedback of data captured using 'clickers' in their lectures or other teaching episodes. For an individual student, this allows them to view questions or groups of questions with their own responses (and the responses of the class as a whole) well after a given lecture has taken place on a course, for feedback and revision purposes. For staff, the tool provides anonymised aggregate statistics and feedback as to the effectiveness of the clicker questions used on their courses, aiding reflection and subsequent development of course materials.

:Background:

The use of Electronic Voting Systems (EVS) has spread rapidly through many disciplines in Higher and Further Education in recent years. Particular instructional strategies for use in conjunction with these devices, such as Peer Instruction, have been shown to have a significant effect in improving student understanding of topics. Much less attention has, however, been given to the use and deployment of data collected at times after the point of capture, yet this offers the potential for detailed feedback to students and staff alike. Increasing use of long-term 'loaner' schemes for the devices offers an opportunity to overcome existing hurdles and offer personalised feedback to those taking part.

Features

- EVAF works with common EVS vendor software - allowing import from InterwritePRS v4.x/5.x and TurningPoint 2008
- EVAF supports the most common question types (e.g simple MCQ, MRQ) and confidences
- EVAF infers as much as possible from imported data, minimising the need to re-enter question data (where possible – depending on EVS vendor system)
- EVAF allows staff and students to leave comments about particular questions - perhaps re-iterating common misconceptions
- EVAF allows lecturing teams to collaborate and view each other's question/response data. Additionally, other staff can be introduced as 'auditors', with permission to view and comment on data and perhaps instruct on best practice.
- EVAF provides data 'all in one place' for students and staff - where they can view data for all participating courses – possibly over a period of years.
- EVAF automatically communicates (via well-defined interfaces) with the institution's 'loaner' system and VLE to maintain up-to-date lists of student 'clicker' loans and course students
- EVAF provides standard filters to allow students and staff alike to focus on questions that are particularly troublesome (or easy!)

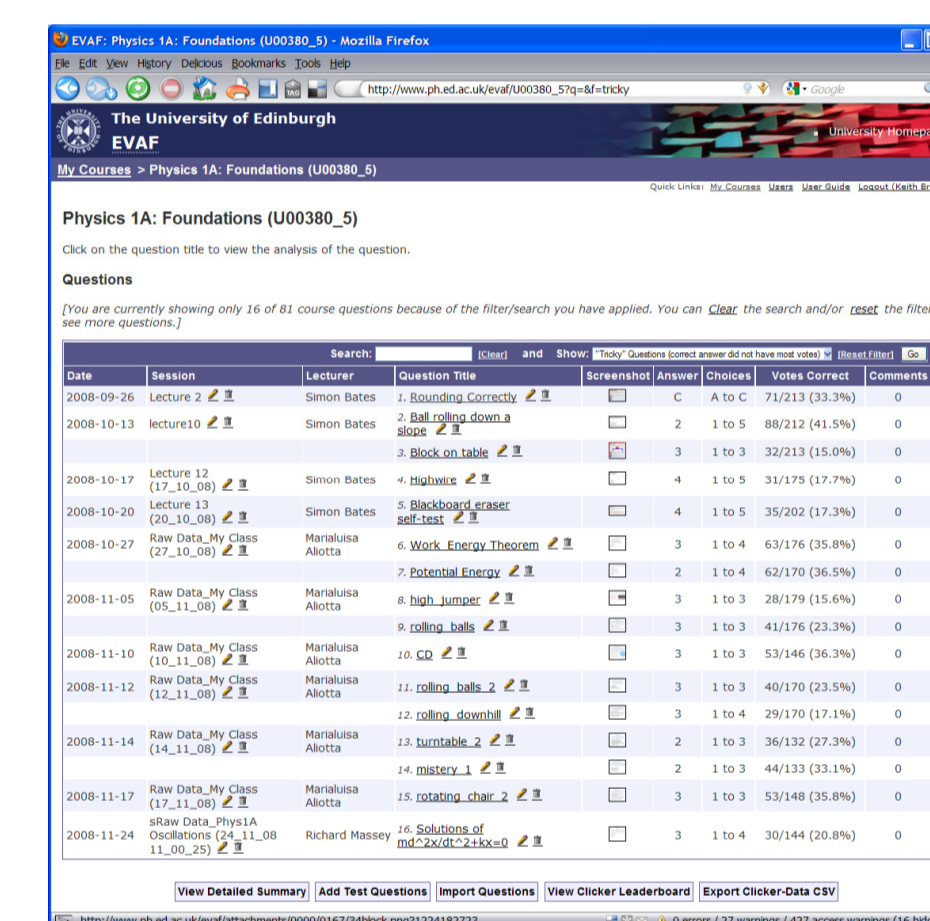
Scope

- EVAF is EVS-vendor neutral (works with the two common EVS vendors in UK HE - InterwritePRS and TurningPoint), 'loaner'-scheme neutral and VLE neutral.
- EVAF is accessible from any OS and web browser.
- EVAF is secure and maintains the anonymity of student data - providing students with their own data (and class aggregate data) while preventing staff from identifying any individual.
- EVAF can integrate with a number of authentication mechanisms to encourage seamless integration at each institution - e.g. LDAP, Single-Sign-On systems such as Cosign. Also has its own login mechanism if required.

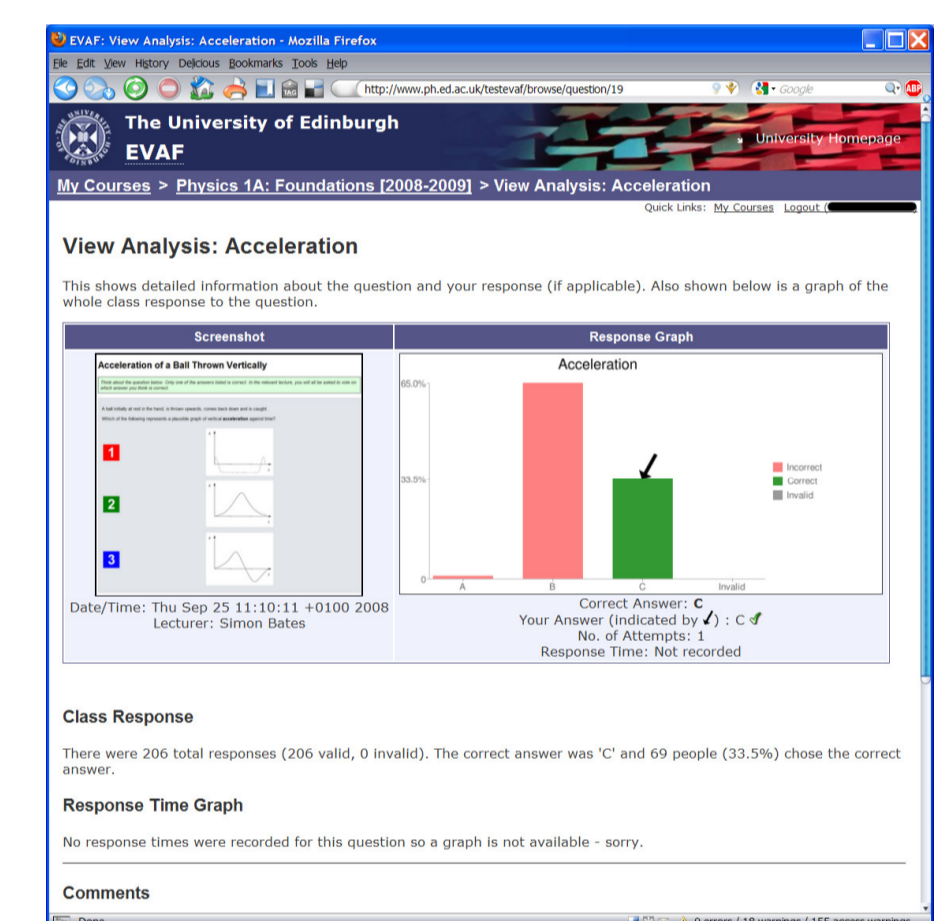
:Project Status:

EVAF has been successfully deployed at the University of Edinburgh. Phase 2 of development will soon be piloted and tested with partner institutions. A first public release to UK HE institutions is due in Q4 2009.

Students voting during a lecture in a Physics 1A lecture at Edinburgh University. They can later view their responses (and the class responses) online with EVAF.



Screenshot listing questions on a course, here filtered to only show 'tricky' questions – where the no. of votes for the 'correct' answer is less than one of the wrong answers.



Screenshot (Student View) showing a question answered in a lecture and the class response graph. The student's vote at the time is highlighted above one of the bars – in this case, the correct answer.

Why Feedback?

Students: Student satisfaction surveys (e.g. the NSS) suggests that students are ever keen for feedback on course activities. Providing vote feedback via EVAF offers another avenue of revision for students that is otherwise not present. Filters provided by the system can help an individual student focus in on particular questions they found difficult and built-in comments left by staff and students in EVAF may also help in this matter.

Staff: Most EVS software offers an individual staff member the ability to analyse their own EVS data and produce reports but in many institutions it is difficult to share across teams of lecturers on a course. EVAF can have multiple lecturers uploading their data to the same course and so may allow a greater degree of collaboration.

Identifying Students & Student Anonymity

The increasing use of 'loaner' schemes has finally lifted a barrier to the goal of 'completing the circle' of feedback to students using EVS technology. The previous per-lecture hand-out of clickers to students provided no easy way of linking the clicker's id to a student's identity. 'Loaner' schemes typically provide that mapping - and with EVAF communicating behind the scenes with the 'loaner' system, EVAF can present a student with their data (and only their data) while maintaining student anonymity: a student's individual votes are never exposed to staff.

The importance of anonymity should not be underestimated - some studies have shown that students are motivated to take part in EVS sessions because the stakes are low and the process is effectively anonymous at the point of delivery - and with EVAF, the point of review. Additionally, staff are not, in general, interested in individual responses when assessing the effectiveness of their questions and overall performance of the class.

Technical Overview

EVAF is being developed in Ruby-on-Rails and uses SQL, XML, SOAP, JavaScript and other technologies. Where possible, freely available tools are being used in the development - for example, Google Chart API is being used for the graphical display of voting data. EVAF does not in general integrate directly with an institution's systems (such as the 'loaner' scheme), but instead an institution provides configurable 'feeds' (for example via a well-defined CSV sftp download or external database connection) that are regularly interrogated by EVAF to provide it with up-to-date information

EVAF4All is part funded by JISC from Jan '09 to Jan'10. EVAF is being developed at Edinburgh, and the project has recruited the support of other HE institutions in the UK to aid development, testing and piloting.



Contact Us

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For more information online, visit <http://www.ph.ed.ac.uk/elearning/projects/evaf>

