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BENEFITS AND OBSTACLES: FACTORS AFFECTING THE UPTAKE OF CAA IN UNDERGRADUATE COURSES

John Dermo

Benefits and Obstacles: Factors Affecting the Uptake of CAA in Undergraduate Courses

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Abstract

This short paper introduces and outlines a piece of research investigating the use of Computer Assisted Assessment (CAA) with undergraduate students, in order to identify the benefits of CAA as well the perceived obstacles to its adoption. It is hoped that ultimately this research will be able to inform the future use of CAA at undergraduate level, especially in blended learning environments. This research is currently in progress at the University of Bradford as part of the author's PhD and feeding into the university's Pathfinder project into e-assessment. The author hopes to be able to take advantage of the 11th International CAA conference to raise various issues related to this research project with his professional colleagues in order to receive feedback; this should enable decisions to be made on progress to date and inform how the research project may be developed in future.

Background and introduction

The University of Bradford is striving to establish itself as a pioneer in CAA in the Higher Education Sector: the university has developed an exciting and forward-looking e-strategy and, as a Pathfinder Phase 1 institution, the University of Bradford will receive HEFCE funding under the HEA/JISC Pathfinder programme to develop e-learning for its maximum educational benefit, with a specific focus on embedding support processes for e-assessment with undergraduate students.

The National Student Survey has identified assessment methods and assessment feedback as important issues across the HE sector: at the University of Bradford these issues are now part of a debate which will lead to more comprehensive policy development regarding assessment. Based on a series of pilots, we believe that innovative e-assessment in general and computer-assisted assessment in particular can make an important contribution.

Developments in CAA at the University of Bradford so far include:

- Deciding on Questionmark Perception as our supported enterprise level software for online summative assessment

- Encouraging and supporting its use in formative assessment and feedback
- Centralising the administrative support for all summative assessments in our Examinations Office
- Implementing Questionmark Perception version 4.3 with a server configuration to ensure security and reliability

The investment in e-strategy will provide the support to expand physical facilities in this area; the focus in the Pathfinder project is developing the administrative and support systems. Building on small-scale pilots undertaken so far, the institution will develop the necessary systems to ensure reliable and secure large-scale implementation of CAA with first year undergraduate students so that we can subsequently roll this out to all students.

Whilst the University is encouraging staff to use its virtual learning environment (Blackboard) and Questionmark Perception to carry out formative as well as summative assessment, developments to date have been largely on an ad hoc basis, and with pioneering early adopters. It is recognised that a full-scale adoption of such e-assessment will require a combined commitment from the institution as a whole. This research should help to gather vital information from the key stakeholder groups to enable the institution to move forward in this area. It is also hoped that this research will be a useful contribution to the scholarship of e-Assessment uptake in Higher Education.

The focus of the research is primarily on high-stakes, summative assessment. Whilst much has been written in the literature about the use of CAA for formative purposes, relatively little research into summative e-assessment exists. The author feels that this is a challenging, interesting and important area, and is convinced that there will be considerable interest in the outcomes of this research in many HEIs across the UK.

The research does not restrict itself to objective forms of assessment, but also includes more open-ended subjective assessment and assignments delivered online. It hopes to cover innovative methods such as collaborative assessment, e-portfolios and even peer and self assessment, although it will be interesting to discover how these are perceived within the framework of summative assessment.

Methodology, design and methods

This research project is descriptive and evaluative in nature, but hopes to inform subsequent more conclusive work. Of course, descriptive research is not simply the collection and presentation of facts and opinions, but it is the interpretation of the meaning or significance of what is described that is of primary importance. This approach is often criticised on the basis of the interpretation being affected by the researcher's own subjective opinion; it is therefore very important to have a carefully structured research design, with

clearly defined research questions as well as reporting results in clear and precise terms.

It is the firmly held conviction of the researcher that too much descriptive research is unsuccessful in its aims because researchers hurry into the data collection phase before they are sure that the research tools (e.g. questionnaires, interview questions) are ready for use. For this reason, the researcher is keen to spend extra time at the preparation phase to ensure that the data collected is valid, useful and reliable. It is hoped that this presentation at the CAA conference will be able to feed into this process.

The author is using primarily a qualitative approach to research. Educational research is not merely concerned with hard scientific facts and objective experimental hypothesis testing: the human factor in education can not be ignored, and attitudes and beliefs are of the utmost significance. Moreover, it is widely accepted that face validity is of fundamental importance in assessment, and e-assessment is certainly no different. The uptake of e-assessment will be greatly affected by the way in which students and instructors (as well as other key stakeholders) perceive the use of online assessment.

Given that we are interested in attitudes, opinions and beliefs, this is not an area that can be easily quantified. Also, the researcher favours a subjectivist, anti-positivist approach which suggests that educational issues cannot simply be described in objective, quantitative terms. This is reflected in the qualitative methodology favoured in this research. Of course, one of the challenges the researcher must face is how to reconcile a qualitative methodology with the need for generalisable results that are able to inform real word decision-making.

As for research design, this is a cross-sectional survey intended to capture an accurate description of stakeholder attitudes at a given point. It targets various groups of interested stakeholders in CAA: respondents are drawn from students and academic staff representing the full range of academic disciplines, administrators, invigilators, technical and learning support staff as well as management and financial and personnel departments and less obvious stakeholders, such as students' parents. In addition, the research is informed by external factors such as government policy, trends in HE and funding issues. This is a time when the institution is investing considerable resources in rolling out computer-assisted assessment as a fully supported service, so it is hoped that data gathered from this research will inform decision-making in the institution.

The initial phase of the research consists of focus groups and short interviews identifying key areas of interest. In conjunction with desktop research, this will form the basis of survey questions administered to all respondent groups. There will then be follow-up interviews in order to investigate key areas more thoroughly. The research does not set out to test a particular hypothesis, but is more descriptive in nature, intending to gather data to inform the decision-making process. The purpose of the initial focus groups and desktop

research is not to construct an a priori hypothesis, but rather to provide a focus for the research, to limit the scope of the data collection in a sound and reasoned manner. In this way, the descriptive survey can remain focused, and not simply gather data indiscriminately.

Another major design challenge the researcher must confront is how to gather stakeholder attitudes on issues which may be new to them: in other words, how do you find out what people think about computer-assisted assessment if they have never experienced such an assessment? It is anticipated that it will be necessary to include examples of computer-assisted assessment in action, so that the research subjects may be more informed in their responses.

Initial findings and looking ahead

At present, the research is at the initial phase. The key areas of interest are being put to a full range of subjects so as to be able to inform the main survey questions to come, and at the same time the author is reviewing the literature. It is hoped that feedback from conference delegates will be able to feed into this process.

Research to date has identified the following as key issues to be explored further. The main drivers to have emerged so far include: savings in human and financial resources; improved reliability in marking; ease of production of results and item analysis data; ease of creation of different versions and randomised assessments; recycling assessments; positive backwash effect on teaching and learning; appeal to “digital native” students; possible benefits for recruitment and retention; potential of portfolio assessment; accessibility issues; encouraging good assessment practise concerning item banking and item analysis.

The obstacles emerging to date include: limited suitable task types; inability to assess higher level skills in a valid way; high risk of technical failure; initial outlay of time; steep learning curve for instructors; high cost of software licenses and support plans; difficulty in convincing examination boards and QAA concerning issues of quality; anonymous submission of assignments; security issues – e.g. passwords / collaboration / collusion / cheating / impersonation; item banking requiring more effort and time; technical expertise required of instructors; lack of immediate technical support; difficulties for administrators; difficulties for invigilators; training implications; accessibility issues; health and safety issues; difficulty of instructors in moving away from traditional task types; issues of task design; threat that CAA will be used to justify increased class sizes or staff reductions; lack of an agreed and enforced institutional policy; discrimination against “non-digital native” students; limited availability of Internet-connected computers at home, in halls of residences, on campus; availability of large computer rooms for examinations; lack of clear roles for technical services, administration, support services and departments.

It is immediately apparent that in these simple lists the number of obstacles is greater than the list of drivers, and many of these are already well described in the CAA literature. However, a key question to answer is whether the cumulative effect of the barriers outweighs that of the drivers. A key challenge facing this research is how to interpret the data in a meaningful way that can ascertain the degree to which e-assessment can add value to the learning experience. The research also needs to take into consideration the fact that some factors may work as drivers under some circumstances but as obstacles in others.

It seems that, whilst there is a lot of interest in CAA for formative assessment, many staff are still to be convinced of its value for summative assessment, and there is a great deal of concern about some of the perceived obstacles. However, it is to be noted that these are raw findings based on initial consultation with key stakeholders on the staff side. It should be very interesting to compare these findings with student data.

It is important to re-iterate at this stage that this research is based on an anti-positivist theory, and does not set out to test an objective hypothesis, but rather collect subjective data and set to make recommendations based on this. This will by necessity involve a certain amount of a posteriori theory construction: this will be one of the greatest challenges the researcher will have to face.

The researcher is keen to involve the input of other experienced practitioners and researchers in the field of Computer Assisted Assessment by means of this conference, and hopes to work this short paper up to a full paper submission for the next event in 2008.