

are discussed in a recent paper by a former Cambridge Assessment research officer (Malacova, 2007). Students attending schools and colleges in areas of higher deprivation were more likely to take fewer A-levels and more likely to take a higher number of LEP subjects. This will limit their opportunities to apply to courses at the University of Cambridge (a student will normally need to offer at least two non-LEP

subjects). However, the differences are relatively small and did not take into account their previous attainment at GCSE.

Reference

Malacova E. (2007). Effects of single-sex education on progress in GCSE. *Oxford Review of Education*, 32, 2, 223–259.

QUALITY AND STANDARDS

The OCR Operational Research Team

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To those within OCR (Oxford, Cambridge and RSA Examinations) the Operational Research Team (ORT) provides a constant source of advice, data and statistical support on all technical matters; to those outside OCR their work is largely unknown. This short sketch is an introduction to the main areas of interest of the team and its involvement in the life of OCR.

The outline will start, since at the time of writing the summer awarding series for general qualifications has just been completed, at the end, with the support provided to Awarding Committees and, crucially, Subject Officers and Chairs of Examiners. General assessments are becoming increasingly technical and the use of prior attainment measures to predict outcomes for both GCE and GCSE examinations requires technical manipulation of the highest order. Modelling aggregation (subject level) outcomes in unit based assessments is an essential part of awarding preparation and one which would cause problems were EPS (Examinations Processing System) to be used. In addition, where new subjects are awarded, additional data are provided to help with decision making. The awarding session also brings with it malpractice cases and the ORT supports the malpractice process and helps with the running of malpractice and appeals committees.

This work, though very intense, actually only represents a relatively small part of the ORT's programme. Vocational qualifications are awarded on a more continuous basis than general qualifications and again the ORT provides support for that process. This may, for some assessments, include producing question papers from a library of questions using complex statistical techniques to ensure standards are maintained.

New qualifications provide a source for much of the ORT's work and technical advice is sought regarding the assessment structures and marking regimes. When new specifications are proposed, for example the four unit A-levels, preparatory work is done to gauge the effect of the new assessment structure – in this example the effect of the decrease in the number of units on specification grade distributions. The outcomes from the work will again feed into awarding committees, and new developments, to aid the decision making process. When the issue is likely to affect all awarding bodies, for example the A* at GCE, then the research will be in collaboration with the Joint Council for Qualifications (JCQ). Indeed, many of the investigations undertaken by the ORT are at the behest of the Qualifications and Curriculum Authority (QCA) or the JCQ and contribute to a pool of knowledge shared by all awarding bodies.

QCA often want new qualifications to be trialled or piloted, as is the case for functional skills, and these trials/pilots have to be evaluated both

for our own requirement and also for QCA as part of the pilot contract. The ORT has a standing programme of such evaluations which focuses mainly on the innovatory aspects of the trial or pilot and equivalence with existing qualifications. It was on QCA's behalf that a 'Stretch and Challenge' trial was conducted recently on new A-level assessments. This initiative was led by the ORT who will also be analysing the data once the scripts have been marked. The results of the analysis of this trial will be shared with all awarding bodies and QCA at a seminar in November 2007.

National Curriculum testing is now declining, but OCR took over that responsibility from the Assessment Research and Development division (ARD) of Cambridge Assessment in September 2005. This has led to a build-up of expertise in item level analysis which will stand OCR in good stead in the new e-environment. Collaboration across business streams on electronic script management (ESM) research has also enhanced knowledge in that area which can now be put to practical use.

A new member of the team, recruited in March 2006, has allowed more investigation into Malpractice, Appeals and Result Enquiries to take place. By identifying those subjects which attract the greatest number of events and changes arising from those events, research into underlying root causes can feed into specification development and strategies for improving marking reliability.

The quality of marking is always of concern, so much so that an internal OCR committee has been set up to consider the issues and identify investigations to be carried out by the ORT. Led by an ORT member, this committee also has presentations given by ARD members when their research relates to marking issues when the practical application of the research findings is considered.

When time permits, some of the issues raised by straightforward technical investigations lead to more detailed research. For example, as part of the continuous statistical monitoring of awarding decisions, research into awarding judgements showed that awarders cannot easily differentiate scripts which are only 2 or 3 marks apart. This finding lends support to the current awarding process where a zone of marks is defined by judgement of scripts and statistical considerations help to identify the final boundary mark within that zone.

The more OCR knows and understands about its processes the fewer errors are likely to be made and although it is the ORT's role to anticipate assessment issues and provide information to mitigate them, there is no doubt that trouble shooting is also required. In order to reduce this, the ORT is heavily involved in training Subject Officers and Chairs in all

technical aspects of the assessments which OCR offers and in the understanding of the statistical data which are and can be provided for all stages of the assessment process.

The ORT in its current form has been in existence since 2004 (there has been a small in-house research facility since the creation of OCR). The team is seven strong, six of whom are based in Cambridge, and is headed by an Assistant Director. Four of the team served their

apprenticeship in the Research and Evaluation division (the fore-runner of the Research Division) and can be fairly described as having over a quarter of a century of research experience between them. The somewhat narrower focus of their work is essential given the immediacy of the applicability of any results whether in the development, question setting and marking or awarding and post-awarding stages of the assessment process.

OTHER NEWS

Research News

Conferences and seminars

International Association for Educational Assessment

The 33rd annual conference of the International Association for Educational Assessment (IAEA) took place in Baku, Azerbaijan in September. The main purpose of the IAEA is to assist educational agencies in the development and appropriate application of educational assessment techniques to improve the quality of education. This year's conference was hosted by The State Students Admission Commission of the Republic of Azerbaijan and was attended by 343 delegates from 43 countries. The conference theme was: *The interdependence of national assessment systems and education standards*. The Assessment Research and Development (ARD) Division presented six papers – including a paper on *Promoting educational quality through national assessment systems* by ARD Group Director, Tim Oates and Research Division Director, Sylvia Green.

British Educational Research Association

In September, 10 colleagues from the Research Division attended the British Educational Research Association (BERA) annual conference at the Institute of Education, University of London. A total of 11 papers were presented, reporting on a wide range of issues from vocational grading to how question features relate to marking accuracy.

Royal Statistical Society

Carmen Vidal Rodeiro attended the Royal Statistical Society conference in York in July. The theme for 2007 was *Statistics and public policy making*. Around 200 presentations were given and specific themes included crime, education, trust in statistics, statistical legislation, and the way statistics contribute to policy.

European Conference on Educational Research

Jackie Greatorex presented a paper – *Exploring how the cognitive strategies used to mark examination questions relate to the efficacy of examiner training* – at the European Conference on Educational Research (ECER) in September at the University of Ghent. ECER is the annual meeting of the European Educational Research Association (EERA) which constitutes the British Educational Research Association (BERA) and similar organisations of the other European nations. Over 1000 delegates attended, mainly from Europe but some from farther afield e.g. University

of Zimbabwe, University of Japan and University of New York. About 880 papers were presented, and 30 symposia and 10 workshops took place.

Journal of Vocational Education and Training conference

Martin Johnson attended the Journal of Vocational Education and Training 7th International Conference, University of Oxford, in July and presented a paper entitled: *Grading, motivation and vocational assessment*. He also presented a paper by Nadežda Novaković on *The influence of statistical data on panellists' decisions at Angoff awarding meetings*.

Association for Educational Assessment – Europe

In November three colleagues from the Assessment Research and Development Division attended the annual conference of AEA-Europe in Stockholm and presented papers. The theme of the conference was *Assessment for educational quality*.

Cambridge Assessment Conference

The 3rd Cambridge Assessment Conference took place at Robinson College, University of Cambridge, in October. The conference theme was *e-Assessment and its impact on education* and took a broad view of the potential of new technologies to improve assessment, with the purpose of identifying and promoting those innovations that will create valid assessments as well as educational benefits. The main speakers were Professor Andrew Pollard from the ESRC Teaching and Learning Research Programme, Institute of Education, University of London and Professor Richard Kimbell, Goldsmiths, University of London. Twelve discussion seminars enabled delegates to debate issues on a range of subjects within the main conference theme.

Research Division seminar

In October a research seminar was held at Cambridge Assessment entitled: *How can qualitative research methods inform our view of assessment?* Professor Harry Torrance and Dr Helen Colley of the Education and Social Research Institute, Manchester Metropolitan University, and Martin Johnson of the Research Division gave presentations exploring the potential of qualitative research methods for understanding aspects of assessment that are difficult to capture through quantitative surveys and measurement. The presentations drew on projects funded by the ESRC and the LSDA to illustrate how a qualitative approach can inform our view of assessment.