Pioneering computer-based assessment platform for educational testing gets top marks for cost, flexibility and sophistication

EARTO member CRP Henri Tudor has pioneered a powerful new kind of computer-based assessment (CBA) software which will enable e-Testing to enter the mainstream education market. The generic, open-source TAO platform puts into the hands of users for the first time a free, versatile and highly-extensible framework for creating, managing and delivering online tests customised to their exact needs. TAO’s unparalleled flexibility and openness mean that it can be adapted to virtually every evaluation purpose for thousands of test takers by educational, professional and governmental organisations.

The transition from paper and pencil tests to CBA has just begun, opening the door to all kinds of new assessment modalities, widening the range of skills that can be assessed, providing educators with immediate feedback and offering greater cost-efficiency. It’s estimated that there are at least 600,000 potential global customers for CBA tools, from governments wanting to measure the impact of education reforms to schools and universities wanting to introduce innovative test questions and better prepare students for the 21st century. Progress is being hindered, however, by today’s proprietary products, which lock customers in with expensive and inflexible solutions.

Pioneering combination

Convinced that e-Testing could only realise its potential if this entrenched market was challenged by an open architecture system which would reduce acquisition and operating costs and enable collaborative distributed test development and delivery, CRP Henri Tudor and the University of Luxembourg, in cooperation with DIPF, the German Institute for International Educational Research, set out to develop a platform to meet these needs. Among the critical innovations behind TAO is the pioneering integration of two disciplines: advanced knowledge technologies and psychometrics, combined with sophisticated tools to measure knowledge, ability and personality.

Customised assessment

Built on a semantic web foundation and made up of a series of interconnected modules, TAO allows individual users to define their own data models so they can design assessments of all kinds according to both their unique needs and the latest advances in testing theory. It is suited to a wide range of assessment needs, from simple multiple-choice tests to advanced interactive simulations and collaborative tests as well as the testing of non-cognitive competencies such as social skills. By exporting TAO’s results into dedicated statistical analysis tools, correlations can be made between individual test scores and behaviours to give valuable insights into the strategies used by test-takers to solve problems.

International impact

Freely available to download from the web at www.tao.lu, TAO has already been used to administer close to one million tests across more than 30 countries. In Luxembourg, it plays a key role in making the national evaluation of students moving from primary to secondary school faster and more efficient. In Sweden, medical and dentistry students take TAO-based exams. The platform has also been used successfully for the OECD’s large-scale PISA (Programme for International Student Assessment) and for the PIAAC study (Programme for the International Assessment of Adult Competencies) which runs in 25 countries in 38 languages. TAO’s universality makes it equally well suited to use as a tool for research in educational science, psychology, CBA-related disciplines in general, educational measurement, talent management and professional assessment, which has prompted plans for a commercial services spin-off company.

‘In Hungary every student at grades 4, 6, 8 and 10 is assessed every year in reading and mathematics. These paper-based tests are mostly used to enable schools to improve educational processes but they are not frequent enough, and the feedback is not fast enough, to support students’ everyday learning processes. A TAO-based online diagnostic system will provide students with frequent, detailed and contextualised feedback information.’ Beno Csapo, University of Szeged

CRP Henri Tudor is a Research and Technology Organisation in Luxembourg which provides an essential link between research and society, reinforcing the innovation capacity of businesses and public organisations and contributing to the development and transfer of knowledge and the international influence of Luxembourg’s scientific community. The organisation, which has 462 employees, focuses on five areas of technology: advanced materials, environmental, healthcare, ICT and business organisation and management. Its innovation programmes target markets of the greatest importance: industry, construction, ecotechnologies, mobility, transport and logistics, health, public services, finance and human capital.

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