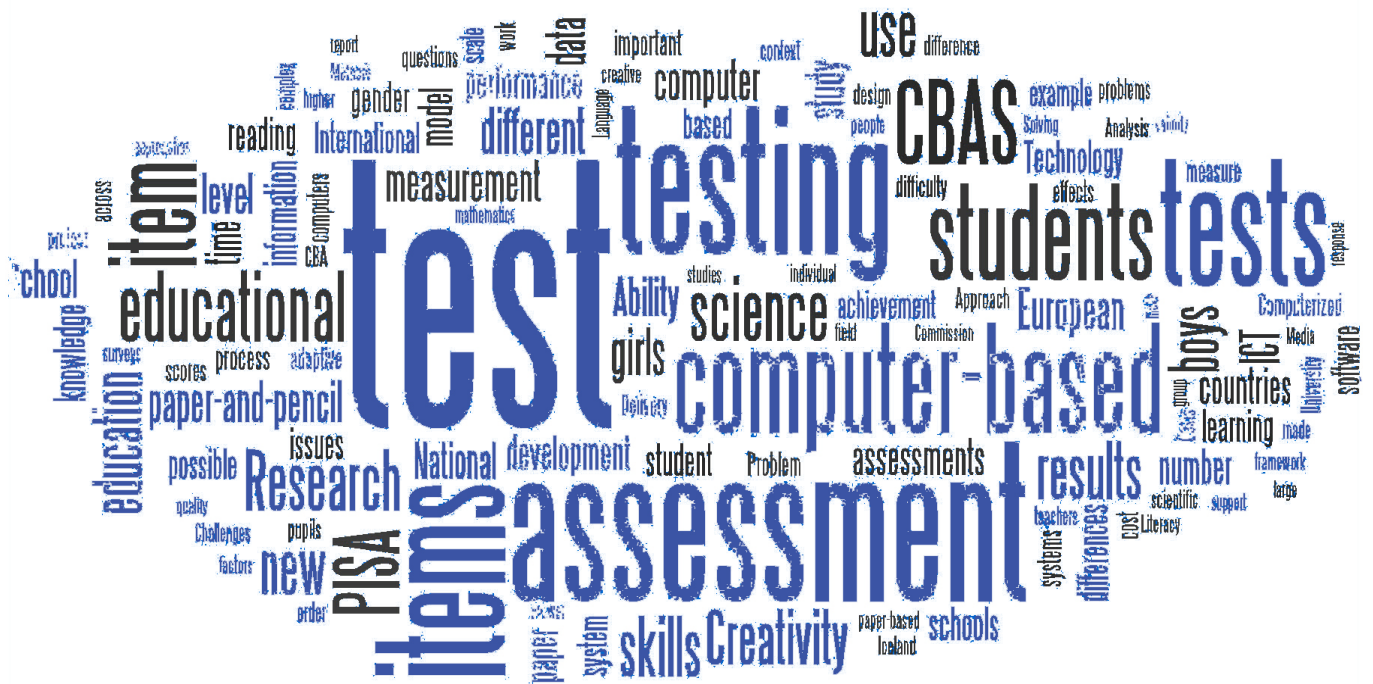# The Transition to Computer-Based Assessment

New Approaches to Skills Assessment and Implications for Large-scale Testing

Friedrich Scheuermann & Julius Björnsson (Eds.)

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Foreword

Within the *Lisbon strategy*, Member States agreed to monitor policy implementations with the help of indicators and benchmarks. Regular monitoring allows strengths and weaknesses to be indentified and serve as tools for evidence-based policymaking which is becoming a reality in most European countries. Hence, it is important that the evidence we base our policy on is the best and most accurate possible.

The availability and quality of indicators in the educational field is constantly improving, and more studies and surveys measuring skills have been implemented the last couple of years. International large scale assessments are being realised, not only in Europe but in the whole world. In the PISA survey there were 57 countries that participated in 2006, and 58 countries participated in TIMSS in 2007. In order to ensure good quality of European education we still need to know more about the skills of European citizens. In the future, we therefore expect an increase of surveys covering all age groups from young people to adults.

International surveys in education are expensive. Technology offers new opportunities for innovation in educational assessment, and computers play an important role in order to test efficiently and effectively.

The European Commission has initiated a large scale survey of the general level of competences in reading, listening and writing foreign languages of pupils in the Member States. The Commission wants to make sure that computer-based tests should be made available to all the participating countries and the highest quality of service and open source solutions should be ensured. The references from studies presented in the report will serve as guidelines when the Commission is developing large scale surveys.

Within this given context we welcome the research undertaken in the field of educational measurement focussing on the complex interactions of issues to take into account when making benefit of computer technology from design to the implementation of tests.

The articles of this report highlight the numerous advantages of introducing computers relative to paper-based tests for large-scale testing programs like paperless test distribution and data collection; standardised test administration; permitting more interactive question types and the possibility to create sophisticated tests which include adaptive elements. It has proven to be motivating for students who are given the opportunity to be tested in more realistic settings than paper and pencils can provide. The PISA 2006 cycle included an optional computer-based component assessing scientific competencies. The items developed for the computer-based assessment are based on the same framework as the paper-based assessment. The highly interesting results from participating countries are presented in depth in this report. PISA will seek to deepen the use of computer-based assessments, to allow for a wider range of dynamic and interactive tasks and to explore more efficient ways of carrying out the main tests of student knowledge and skills in reading, mathematics and science.

The work presented here gives examples of experiences with the transition from paper and pencil based tests into the new tools as well as examples of the comparisons of paper and pencil tests and the possible risks to be aware of in this transition. Articles cover the important issues of obstacles and future research needed in the field. Consequently, this report is important in order to reach and implement the new assessment tools.

Several countries are already implementing computer-based tests, and events such as the workshop held in Iceland are extremely important in order to share good practise and learn from each other in this field. The presentations from various countries in Europe and other regions worldwide show the different experiences at country level with the use of computer testing and assessments. These experiences illustrate that there are a lot of complex issues in the transference from paper and pencil tests to using computers. The high level of the contributions in this report is valuable for the activities of the European Commission and other international bodies when developing new surveys as well as for the participating countries who are implementing the surveys.

The report contributes to the increased knowledge base necessary to be developed in the field and emphasise the complexity of this issue and the way forward to develop more effective approaches to computer-based testing and assessments.

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