



Foreword

The capacity of countries – both the world’s most advanced economies as well those experiencing rapid development – to compete in the global knowledge economy increasingly depends on whether they can meet a fast-growing demand for high-level skills. This hinges on significant improvements in the quality of schooling outcomes and a more equitable distribution in learning opportunities.

The OECD’s Programme for International Student Assessment (PISA) makes it possible to regularly and directly compare the quality of educational outcomes across education systems. PISA assesses some of the key competencies contributing to the success of individuals and societies on a regular basis and within an international framework. The results provide a basis for policy dialogue and collaboration in defining and implementing educational goals in innovative ways that reflect judgements about the skills relevant to adult life. Across the globe – whether in Canada in North America, Finland in Europe or Japan and Korea in Asia – countries in PISA show that excellence in education is an attainable goal, and often at reasonable cost. They also show that the challenge of achieving a high and socially equitable distribution of learning outcomes can be successfully addressed and that excellence can be achieved consistently throughout the education systems, with very few students and schools left behind.

In the same way as the nature of the competencies that contribute to the success of individuals continues to change, the assessments such as PISA also need to adapt and advance. There are at least three major groups of challenges ahead for the development of future PISA assessment instruments, all of which relate to technology.

The first, and perhaps most important group of challenges, relates to embracing a wider range of competencies than are currently amenable to a large-scale assessment. State-of-the-art skills in fields like reading, mathematics and science that are currently assessed by PISA will always be important; as much as modern educators value “learning to learn” skills, people only learn by learning something. However, the more complex the world becomes, the more success will hinge on the capacity of people to collaborate and orchestrate complex processes. Innovation itself is rarely the product of individuals working in isolation. A challenge for future assessments will be not only to value individually demonstrated competencies but to also introduce interpersonal competencies. Likewise, the conventional approach to problems has been to break them down into manageable bits and pieces and then teach students the techniques to solve the pieces and assess the extent to which they have successfully mastered the techniques. Modern societies, however, increasingly create value by synthesising disparate fields of knowledge. This requires curiosity and the ability to make connections between ideas that previously seemed unrelated, which in turn requires being familiar with and receptive to knowledge in other fields than one’s own. Assessments that are limited to the reproduction of isolated subject-matter knowledge in multiple-choice format will not be able to reflect that. Furthermore, the more content people can search and access, the more important becomes the capacity to make sense out of this growing and unstructured body of knowledge, to understand how students question or seek to improve the accepted knowledge and to know how students spend their time. In the past, teachers could tell students to use an encyclopaedia when they needed some information, and students could rely on what they found there to be true. Today, literacy is about managing non-linear information structures, dealing with ambiguity and managing and resolving conflicting pieces of information found somewhere on the web. The challenge for future assessments will be to integrate this technology-rich notion of literacy. Last but not least, in the past some used to divide the world into specialists and generalists. Specialists generally have deep skills and a narrow scope, giving them expertise that is recognised by peers but not



valued outside their domain. On the other hand, generalists have a broad scope but their skills may lack in depth. Success today, however, requires one to be versatile, apply a depth of skills to a progressively widening scope of situations and experiences, gain new competencies, build relationships and assume new roles. It requires being capable not only of constantly adapting but also constantly learning and growing. The challenge for future assessments will therefore be to move from providing static tasks to ones that are dynamic and interact with students.

A second group of challenges relates to the delivery of assessments. Paper-and-pencil assessments are inadequate to deliver authentic tasks. Future assessments will need to be electronically delivered, interactive and dynamic. Computer-assisted scoring will also help to make the assessment process more efficient and narrow the time lag between collecting the data and making results available to feed into educational improvement.

A third group of challenges relates to the relevance of the assessment tasks. One-size-fits-all assessments that use a single set of instruments to assess all students inevitably lead to significant frustration for both high and low performing students, who are then confronted with large numbers of tasks that are too easy or too difficult. Computer-based assessments have the potential to interactively adapt to the skill potential of students and thus provide a much more effective and engaging assessment experience.

Addressing these challenges is a huge task, particularly in an international context. However, PISA has begun to make many important advances in this area. This report documents the first step into the direction of dynamic, interactive and adaptive electronically delivered PISA assessments that was pioneered by Denmark, Iceland and Korea. While the results from this first computer-based assessment of science highlight numerous challenges, not all of which are fully understood yet, they have encouraged countries to take the work further. In 2009, 17 countries took part in a much larger exercise to assess the reading of digital texts and for 2012, a computer-based assessment of dynamic problem-solving skills is planned. The OECD expresses its deep gratitude to the three countries who have pioneered this work and laid the foundation for further work in this area.

The report is the product of a collaborative effort between Denmark, Iceland and Korea, the experts and institutions working within the framework of the PISA Consortium, and the OECD.

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The development of the computer-based assessment of science competencies was steered by the PISA Governing Board, which is chaired by Lorna Bertrand (United Kingdom).

The report is published on the responsibility of the Secretary-General of the OECD.

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