

Innovation poses new challenges for education policy

Innovation is a driver of growth and well-being. New technologies, products, services and organisations create jobs and rejuvenate industries – while making others obsolete. To reap the gains of innovation, policy makers need to understand how the way we innovate is changing and what this implies for education and training policies.

Harnessing the benefits of innovation within the education sector itself is a key challenge. To do so, effective and evidence-based governance mechanisms are needed to encourage, facilitate and help measure innovation in education systems. OECD countries face the need to share knowledge and experiences on the design of policies and governance mechanisms that help drive educational innovation.

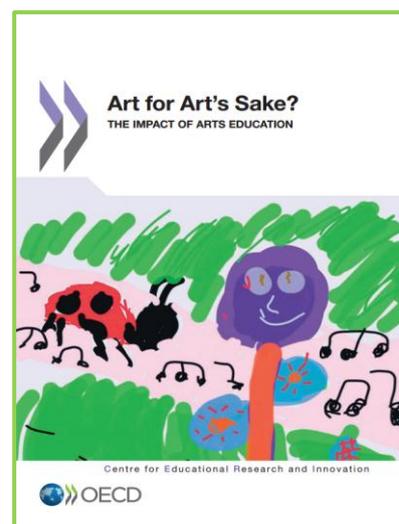
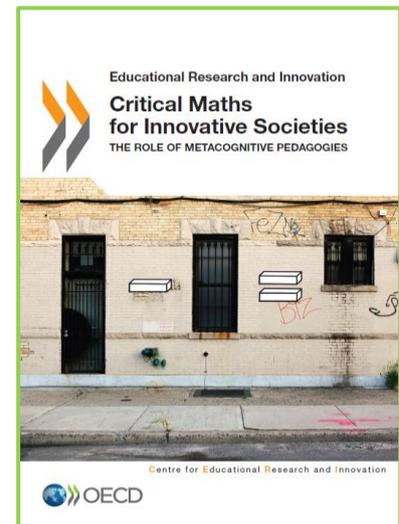
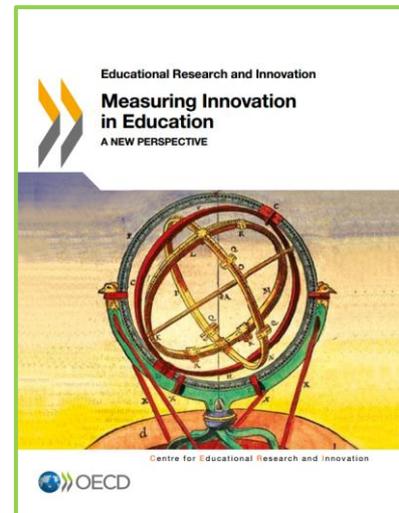
Innovation also implies that societies, education and training systems must empower people to innovate and quickly respond to new skills needs generated by innovations.

Work of the Innovation Strategy for Education and Training

The CERI Innovation Strategy for Education and Training explores new approaches to equip people with the skills required for innovation and to support radical innovation and continuous improvement in education systems. The project has focused on two principal strands:

1. **Innovation in Education.** How innovation and improvement can be fostered and measured in the education sector.
2. **Skills and Education for Innovation.** The kinds of skills and education that are needed in innovative societies.

The project has resulted in a number of reports, articles and conferences to inform policy makers on these topics. In addition, the project has contributed to the OECD Innovation Strategy, the OECD Skills Strategy and the OECD Development Strategy.



Strand 1: Innovation in education

Pillars of innovation in education

This strand of the project explores the role and interaction of multiple **levers of innovation policy** in the education sector and how they can be governed to become more effective. A range of innovation **policy instruments** are examined to identify how countries do or could foster educational ecosystems that facilitate self-sustained improvement and leave room for experimentation and radical innovation.

System organisation

Regulatory frameworks provide incentives and opportunities for innovation.

- Does the rate of innovation increase when educators are spurred on by competitive incentives? How much room for innovation leave central and school-based approaches to curriculum decision making?

Technology

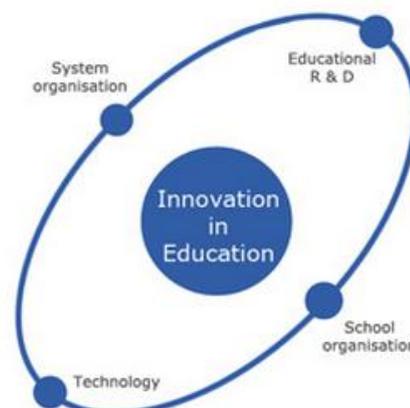
Policy makers and educators need to develop a systemic approach when adopting **technology-based innovations in education**.

- How to best integrate technology into classroom teaching?
- How could the development of longitudinal information systems lead to a more efficient use of the “big data” collected by education systems and how could they support innovation and improvement?

School organisation

Forms of **work organisation in schools** can spur organisational learning and educational outcomes.

- How do interaction within organisations – as well as individual and organisational learning and training – effectively promote innovation?



Educational R&D

Public and private investment are required to promote R&D on existing and new **educational products and services**.

- Can the education industry developing innovative tools grow to match the rate of innovation seen in other sectors?
- How is educational R&D structured and supported within countries?

Measuring innovation in education

The ability to **measure innovation** is essential to an improvement strategy in education. Knowing **whether and how much practices are changing** within classrooms and educational organisations, and to what extent change is linked to improvements, strengthens the **education knowledge base** which informs policy making.

- New comparative information about innovation in education compared to other sectors.
- Over 200 measures of innovation in education using international data.

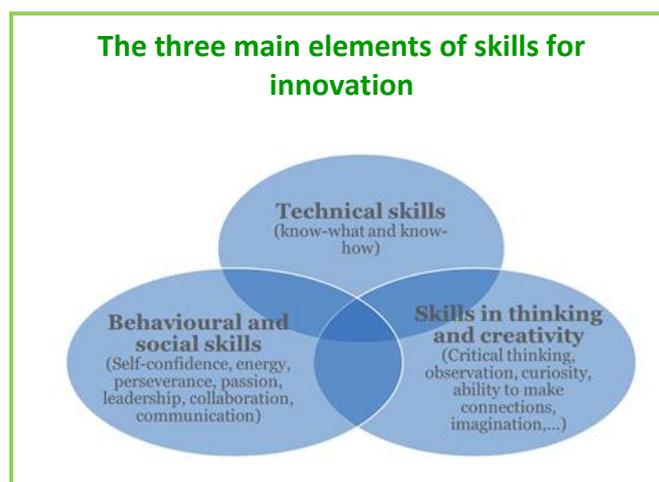
Recent publications on innovation in education

- OECD (2014), *Measuring Innovation in Education: A New Perspective*, OECD Publishing.
- OECD (2013), *Sparkling Innovation in STEM Education with Technology and Collaboration*, OECD Publishing.
- OECD (2013), *Review of the Italian Strategy for Digital Schools*, OECD Publishing.
- Hennessy, S. and L. London (2013), “*Learning from International Experiences with Interactive Whiteboards: The Role of Professional Development in Integrating the Technology*”, OECD Education Working Papers, No. 89, OECD Publishing.
- Foray, D. and J. Raffo (2012), “*Business-Driven Innovation: Is it Making a Difference in Education?: An Analysis of Educational Patents*”, OECD Education Working Papers, No. 84, OECD Publishing.
- OECD (2010), *Innovative Workplaces: Making Better Use of Skills within Organisations*, OECD Publishing.

Strand 2: Skills and education for innovation

Developing skills for innovation

This strand of the Innovation Strategy for Education and Training explores the role of the education and training system in fostering **the dispositions and skills that are conducive to innovation**. In innovation-driven societies, education and training systems must empower people to innovate and to quickly respond to new skills needs generated by technological and organisational change. This strand of work examines what skills are required for innovative societies, how different teaching methods may help foster these skills, and what policies OECD countries can undertake to address the challenges posed by innovation.



The skills needed for innovation go beyond knowledge and mastery of one's domain. Innovators need to **think critically**, to **apply their knowledge to unfamiliar problems**, and to be able to **come up with new ideas** and make connections. Innovation is also aided by behavioural and social skills that help people pursue their critical thinking and creative skills and put their ideas into action.

The Innovation Strategy for Education and Training has explored and sought to answer a number of policy issues, including:

- How education and training systems must **adjust to the evolving skill needs** of highly innovative societies.
- How different school and university subjects – **science, mathematics, arts, entrepreneurship** – help develop skills for innovation.
- The **pedagogies and teaching models**, such as problem-based learning or metacognitive strategies, that may help to develop skills for innovation.
- The **modes of workplace organisation** that are most effective in encouraging and further developing skills for innovation.

This work will culminate in a policy handbook synthesising the main findings of the project.

Recent publications on skills for education and innovation

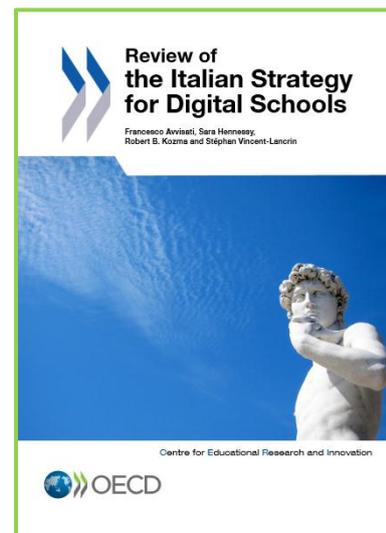
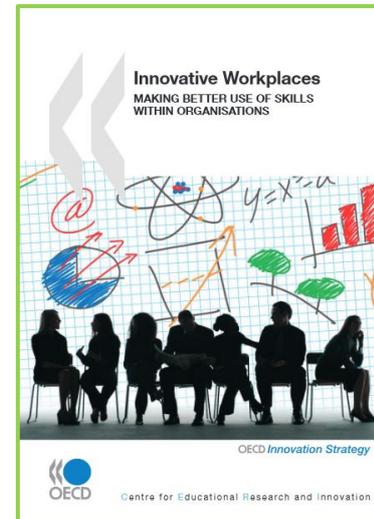
- Mevarech, Z. and B. Kramarski (2014), *Critical Maths for Innovative Societies: The Role of Metacognitive Pedagogies*, OECD Publishing.
- Hoidn, S. and K. Kärkkäinen (2014), "Promoting Skills for Innovation in Higher Education: A Literature Review on the Effectiveness of Problem-based Learning and of Teaching Behaviours", *OECD Education Working Papers*, No. 100, OECD Publishing.
- Lucas, B., G. Claxton and E. Spencer (2013), "Progression in student creativity in school: First steps towards new forms of formative assessments", *OECD Education Working Papers*, No. 86.
- Winner, E., T. Goldstein and S. Vincent-Lancrin (2013), *Art for Art's Sake? The Impact of Arts Education*, OECD Publishing.

The Future of CERI Innovation Strategy

Going forward, the project will wrap up ongoing work on innovation in education and undertake new work on assessing creative and critical skills.

Wrap up of work on innovation in education. The project will finalise its ongoing work on longitudinal information systems, learning organisations in services and education, educational R&D and inclusive innovation. The project will also pave the way for the development of indicators for a more systematic monitoring of the main drivers of an educational innovation ecosystem. The completion of this work will allow countries to identify their strengths and weaknesses on various dimensions of innovation in education, and to address them through more targeted policy making.

New work on assessing creative and critical skills. The project will further develop and refine a framework and prototype formative assessment tool for 21st century skills. The team will work with higher education institutions, schools and experts within countries to test the instrument and its language in different contexts. It will collect tasks and examples across countries to see how students demonstrate creative and critical thinking skills. This will help establish explicit developmental and progression standards for specific levels of schooling and/or higher education in chosen dimensions of creative and critical thinking skills. The work aims to help countries to develop approaches to promote students' creative and social skills, including prototyping tools for monitoring their acquisition in educational settings.



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