

## Executive summary

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, how teachers develop and use their pedagogical resources, and to what extent change can be linked to improvements would provide a substantial increase in the international education knowledge base.

Measuring Innovation in Education offers new perspectives to address this need for measurement in educational innovation through a comparison of innovation in education to innovation in other sectors, identification of specific innovations across educational systems, and construction of metrics to examine the relationship between educational innovation and changes in educational outcomes.

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### **Key findings on innovation in the education sector**

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Some of the innovation indicators are derived from a survey covering tertiary graduates in 19 European countries, and casting light on several dimensions of innovation in education and other sectors of the economy (or society). Here are some key findings:

- Contrary to common belief, there is a fair level of innovation in the education sector, both relative to other sectors of society and in absolute terms. 70% of graduates employed in the education sector consider their establishments as highly innovative, on par with the economy average (69%).
- Within education, innovation intensity is greatest in higher education, with secondary and primary education approximately equal.
- Compared to other sectors, knowledge and method innovation is above average in education, product and service innovation is below average, and technology innovation is at the average sectorial level.
- Education is at or below the average in terms of the speed of adoption of innovation: 38% of graduates reported that their educational establishment was mostly at the forefront in adopting innovations, new knowledge or methods (against 41% on average in the economy).
- Higher education stands out in terms of speed of adopting innovation, above the economy average, and well above the rate in primary and secondary education.
- The education sector has significantly higher levels of innovation than the public administration on all our indicators and is at least as innovative as the health sector on each measure.

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**Key findings on innovation  
in primary and secondary education**

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Another approach to measuring innovation in education is based on assessing significant changes in key practices in educational establishments, be they pedagogic or organisational. This approach was implemented using international surveys such as PISA, TIMSS and PIRLS. Some of the key findings are as follows:

- There have been large increases in innovative pedagogic practices across all countries covered in areas such as relating lessons to real life, higher order skills, data and text interpretation and personalisation of teaching.
- In their pedagogic practice, teachers have innovated in their use of assessments and in the accessibility and use of support resources for instruction.
- Educational organisations have innovated in the areas of special education, creation of professional learning communities for teachers, evaluation and analytics and relationship building with external stakeholders, such as parents.
- In general, countries with greater levels of innovation see increases in certain educational outcomes, including higher (and improving) 8th grade mathematics performance, more equitable learning outcomes across ability and more satisfied teachers.
- Innovative educational systems generally have higher expenditures than non-innovative systems; however, their students are no more satisfied than those in less innovative systems.
- Overall, innovation has been higher with regards to classroom practices than school practices between 2000 and 2011.
- Taking all practices together in an overall composite innovation index, countries in which there has been the most innovation at the classroom and school levels in primary and secondary education include Denmark (37 points), Indonesia (36 points), Korea (32 points) and the Netherlands (30 points). Countries where there has been the least innovation include the Czech Republic (15 points), Austria (16 points), New Zealand and the United States (both 17 points). The OECD average is at 22 points. (These points can be read as an average effect size multiplied by 100.)

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**Towards surveys on innovation  
in education?**

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While this report uses existing international datasets, improved measures would entail more specific studies. Our preferred approach to measuring innovation in education would be to develop a dedicated international survey – or at least survey instrument. This survey would ideally:

- Adopt and adapt the “organisational change” approach using matched employer-employee-user surveys.
- Be administered to the central educational administration (ministries, relevant local authorities) and to educational establishments in primary, secondary and tertiary education
- Question three levels of stakeholders (principal/president, teachers/faculty and students) about the state and changes in their work practices and work environment.
- Infer innovation by comparing whether the investigated practice was used (or used to the same extent) at the time of the survey and, say, three years before.

- Ask respondents their opinion about the impact of these practices (or change in these practices) on different educational goals (e.g. learning outcomes, equity, access, cost-efficiency).
- Capture the sources and objectives of planned innovations, to what extent these planned improvements are implemented and perceived on the ground, and the extent of unplanned innovations.
- Cover the broad innovation areas: products and services offered by educational organisations to their users/clients (e.g. textbooks, study programmes); pedagogic practice (e.g. pedagogies, introduction of new teaching or administrative equipment); organisational practice (e.g. organisational routines, human resource practices, knowledge management practices; support for the introduction of new ideas and practices, participation in training and retraining courses); external relations (e.g. relationships with parents, employers, research organisations, other academic institutions, advertisement practices).
- Collect information about the broader environment in which these practices take place, such as information about size of establishment and classrooms, number of classes, competition with other schools in the neighbourhood, regulation and regulatory changes.