Critical Maths for Innovative Societies: New Book

How can mathematics education foster the skills that are appropriate for innovative societies? **Metacognitive pedagogies** explicitly train students to “think about their thinking” during learning. Research shows that these pedagogies improve not just **academic achievement** (content knowledge and understanding, the ability to handle unfamiliar problems etc.) but also **emotional outcomes** such as reduced anxiety or improved motivation.

**Critical Maths for Innovative Societies** by Zemira Mevarech and Bracha Kramarski reviews the empirical evidence on the impact of metacognitive pedagogies, and shows for example that:

- They improve students’ ability to solve complex, unfamiliar and non-routine problems.
- **Self-directed questioning** is an effective way to teach metacognitive skills, particularly the regulation of thinking through planning, monitoring, control and reflection.
- Metacognition can be taught and is effective in "regular" classrooms, with **ordinary teachers**, and at **all levels of education**.
- Metacognitive pedagogies are most effective when **combined with co-operative learning environments**, and applied across more than one discipline.

See also our related **blog posts** – **Maths education for innovative societies** and **Want to improve your problem solving skills? Try Metacognition** – and **podcasts** in **English** and **French**.

Please send us your feedback

- How common are metacognitive pedagogies in your country?
- What other mathematics pedagogies develop simultaneously technical skills, reasoning skills, and social and behavioural skills?

Other news

- **Art for Art’s Sake? The Impact of Arts Education** is now available in **French** and **Spanish**. Download the **Overview** in **English**, **French**, **German** and **Spanish**.
- Find all CERI Innovation Strategy **reports** on our website.

CERI’s Innovation Strategy for Education and Training

The **Innovation Strategy for Education and Training** of the OECD **Centre of Educational Research and Innovation** (CERI) explores new approaches to equip people with innovation skills and to support radical innovation and continuous improvement in education systems. It includes two strands:

- Education and skills for innovation
- Innovation and improvement in education

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