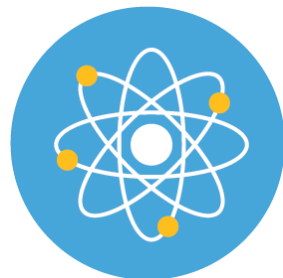


STEM Education Policies and Practices in Europe

Two Scientix Observatory reports on **STEM** education in Europe 2018



Science



Technology



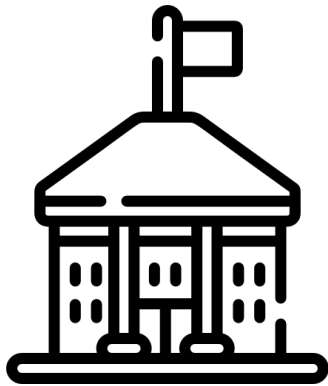
Engineering



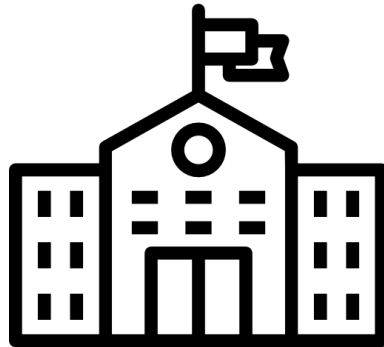
Mathematics

*NAME OF PRESENTER,
TITLE, ORGANISATION
PLACE, DATE*

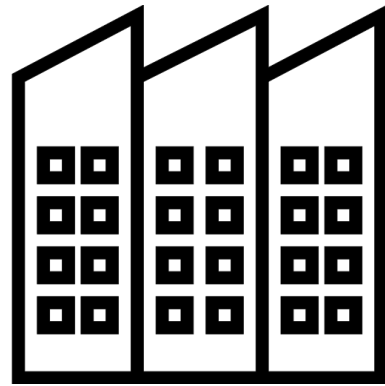
STEM Education Policies in Europe 2018



Ministries of Education



Universities



Industry



Data survey



Interviews



With the support of



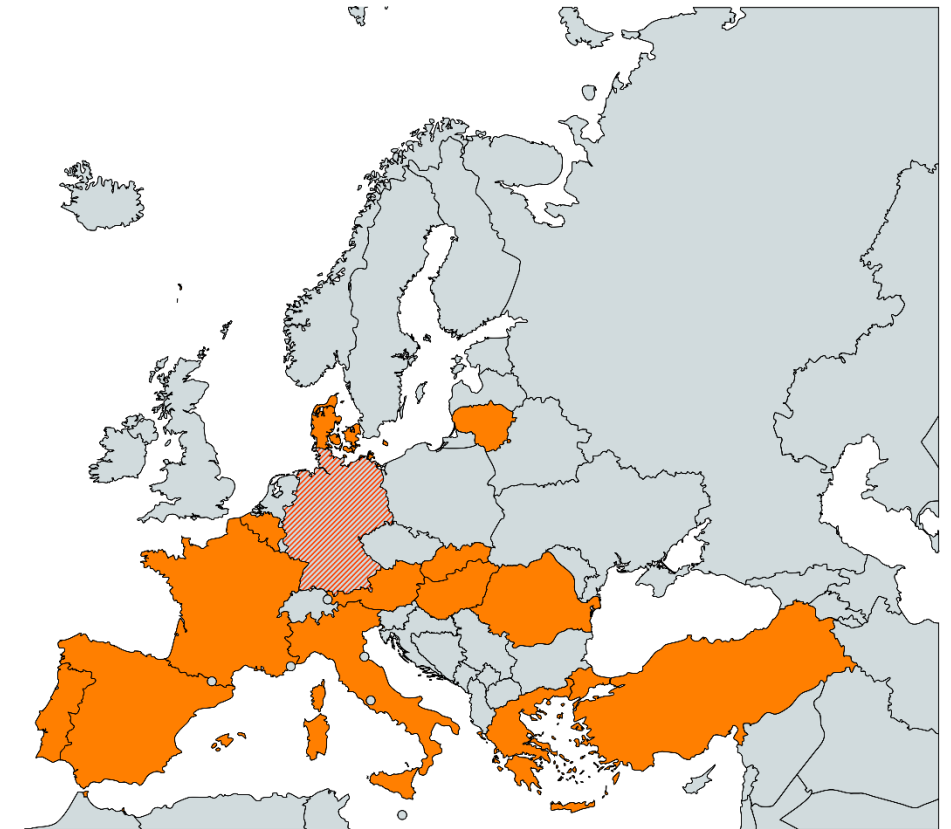
STEM Education Policies in Europe 2018

Countries analysed



14 countries

*Only university-industry feedback was collected from Germany



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STEM Education Policies in Europe 2018

Five recommendations

- **Global approach** from primary education to continuous professional development
- **Break barriers** between subjects with pragmatic initiatives and build on countries' strengths
- Evaluating and integrating curriculum and pedagogical innovations with **positive experimentations rolled out** across entire education systems in Europe
- Common **European framework** for STEM education and coordinating national STEM initiatives
- Foster **deeper collaboration** with universities and industry to develop STEM teachers' skills

STEM Education Practices in Europe 2018

БЪЛГАРСКИ

HRVATSKI

ČEŠTINA

DANSK

EESTI

ENGLISH

SUOMI

FRANÇAIS

DEUTSCH

ΕΛΛΗΝΙΚΑ

MAGYAR

МАКЕДОНСКИ

ITALIANO

NORSK

LIETUVIŲ

СРПСКИ

NEDERLANDS

POLSKI

PORTUGUÊS

ROMÂNĂ

SLOVENČINA

SLOVENŠČINA

ESPAÑOL

SVENSKA

TÜRKÇE



Online survey in 25 languages (June – October 2018)

3,780 STEM teachers of students aged 10 to 19

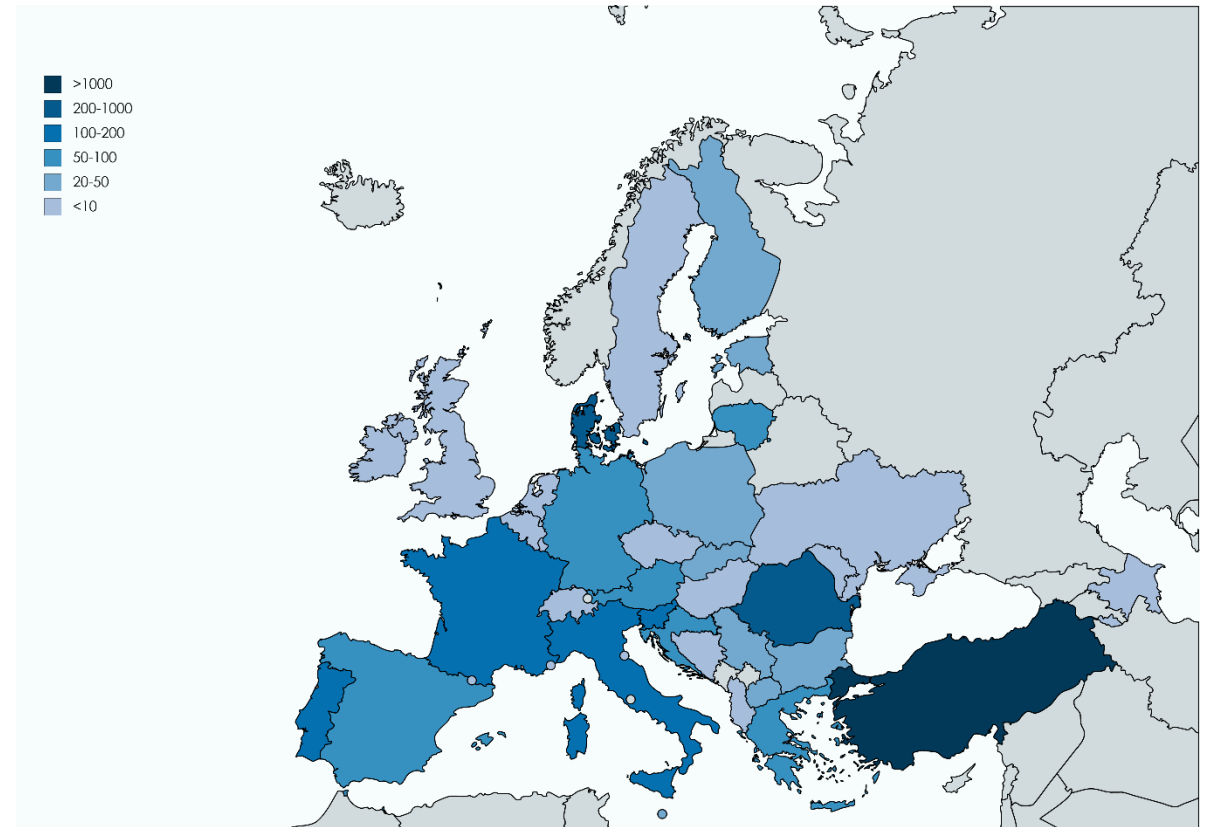
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Survey reached



38 countries

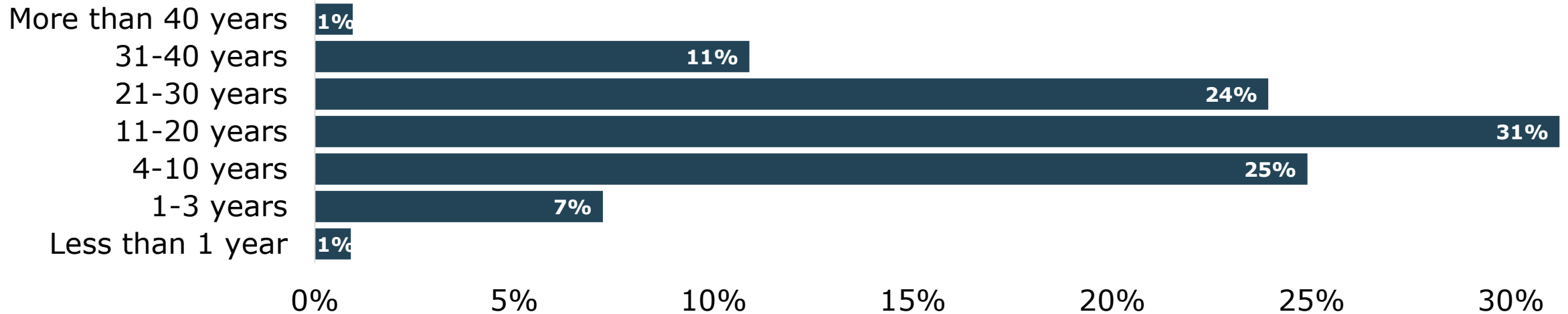


With the support of

STEM Education Practices in Europe 2018

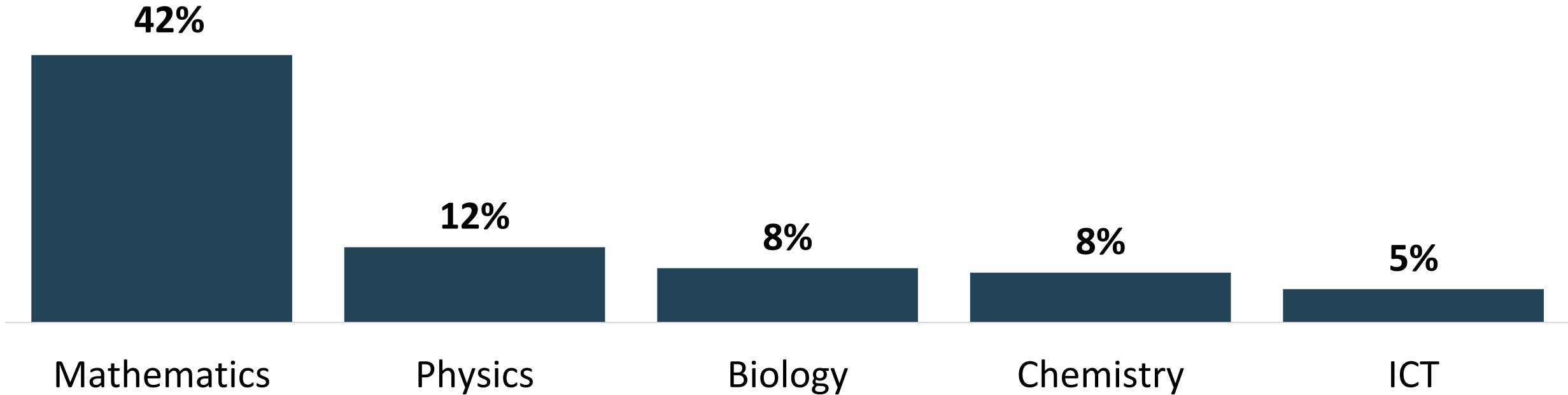
Years of experience teaching among participants

Based on 3,780 responses from teachers of Science, Technology, Engineering and Mathematics (STEM)



STEM Education Practices in Europe 2018

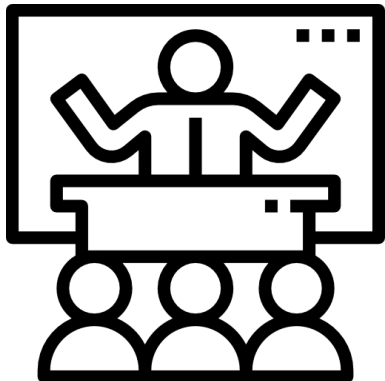
Main subjects taught among participants (out of 4,584 classes)



STEM Education Practices in Europe 2018

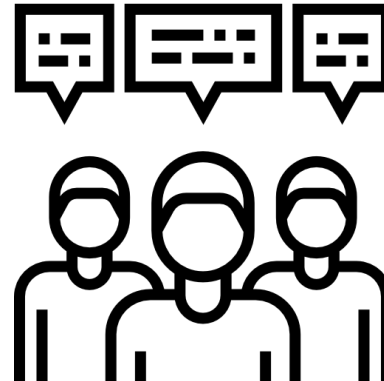
What teaching methods are STEM teachers using today?

In 3,980 Science, Technology, Engineering and Mathematics (STEM) classes



79%

Traditional Direct Instruction



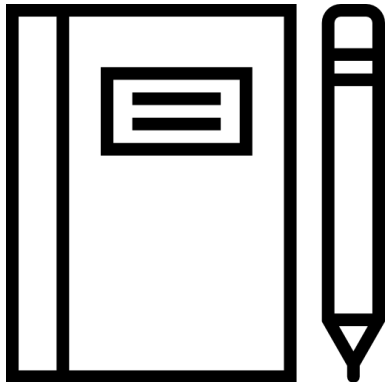
44%

Inquiry-Based Science Education

STEM Education Practices in Europe 2018

What resources do teachers use in STEM lessons today?

In 3,965 Science, Technology, Engineering and Mathematics (STEM) classes



88%

Paper-based materials



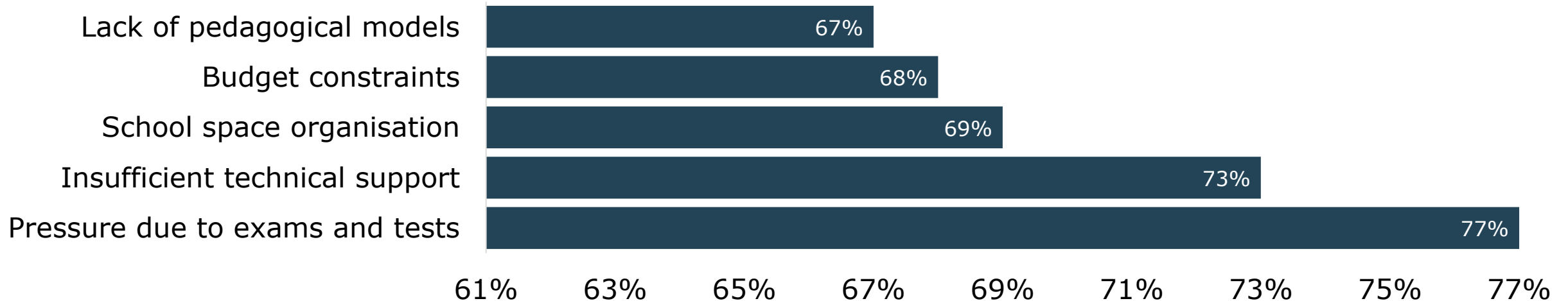
28%

Online collaborative tools

STEM Education Practices in Europe 2018

What is STEM teaching most often affected by today?

Based on 3,780 responses from teachers of Science, Technology, Engineering and Mathematics (STEM)



STEM Education Practices in Europe 2018

Is the industry providing teachers with enough materials today?

Based on 3,780 responses from teachers of Science, Technology, Engineering and Mathematics (STEM)

25% Use teaching materials from the industry now



93% Would like to use more materials from the industry

STEM Education Practices in Europe 2018

Do teachers spend time on their professional development?

Based on 3,780 responses from teachers of Science, Technology, Engineering and Mathematics (STEM)



65%

■ No

35%

■ Yes

STEM Education Practices in Europe 2018

Is innovative STEM teaching supported by colleagues at schools?

Based on 3,780 responses from teachers of Science, Technology, Engineering and Mathematics (STEM)



26%

■ No

74%

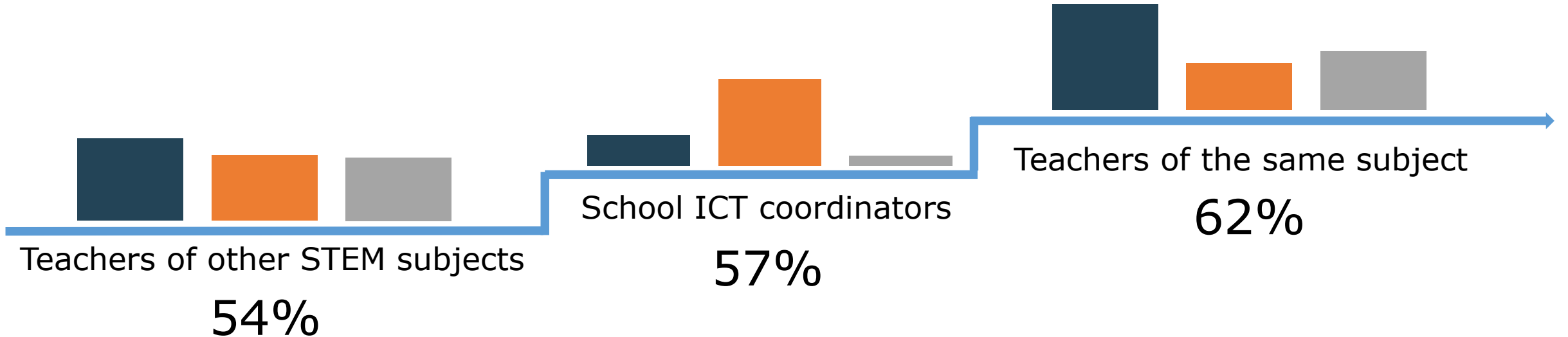
■ Yes

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STEM Education Practices in Europe 2018

Where do STEM teachers get their support from today?

Based on 3,780 responses from teachers of Science, Technology, Engineering and Mathematics (STEM)



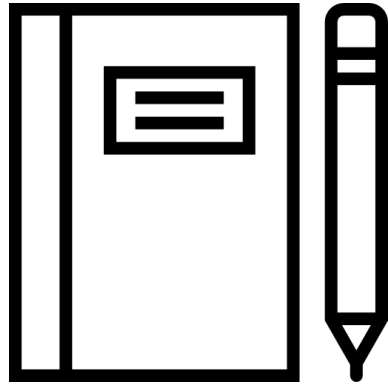
■ Pedagogy and ICT
 ■ Mostly ICT
 ■ Mostly Pedagogy

STEM Education Practices in Europe 2018

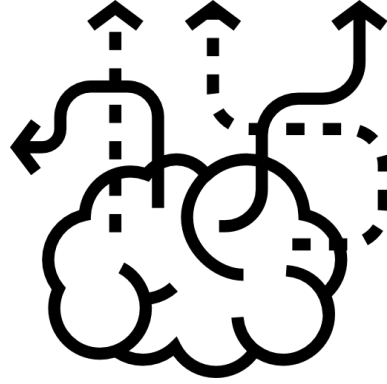
Key findings of the survey



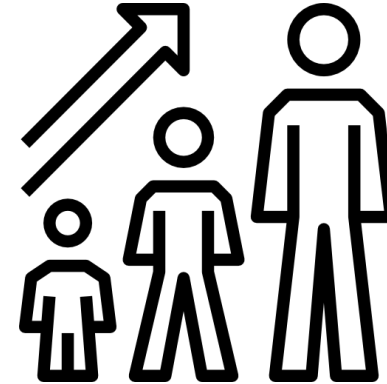
Traditional
instruction
remains dominant



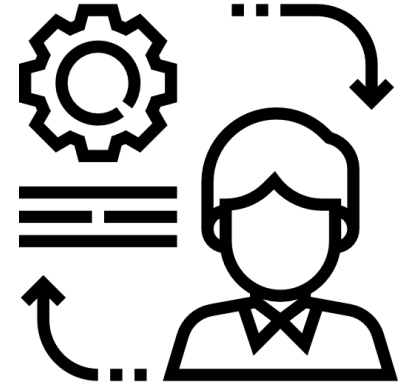
Paper-based
materials are
used extensively



Limited time on
professional
development



Experience
increases
innovation



There is room for
collaboration with
industry

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STEM Education Practices in Europe 2018

Five recommendations

- **Support international networks of exchange** so STEM teachers can improve their practice
- Offer more **professional development** for STEM teachers and school-industry collaboration
- **Innovate the STEM curriculum and assessment** in support of innovative pedagogies
- Support the development and implementation of **whole-school STEM-oriented strategies**
- Strengthen **trans-disciplinary collaboration** to encourage the uptake of integrative STEM teaching and cooperation among teachers