

ICILS 2023

International Results



Researching education, improving learning

Julian Fraillon



About ICILS – what, how and who



Computer & Information Literacy

Digital Information Consumers

Search for, locate, access and manage information

Evaluate information and information sources

- Accuracy • Bias • Relevance

Digital Information Producers

Transform information

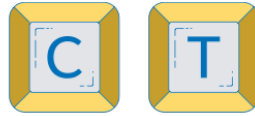
Create digital information products e.g.

- Webpages • Posters • Messages
- Presentations • Documents

Digital Citizens

Know about and understand computer use

Use information safely (consumer) and responsibly (producer)



Computational thinking

Conceptualizers

Formulate problems and sub-problems

Identify opportunities for efficiency and automation

Analyze data to make sense of systems

Operationalizers

Establish parameters and plan solutions

Develop algorithms, programs and interfaces

Test and refine solutions

Systems Thinkers

Identify and describe interrelated properties of natural and artificial systems and processes

ICILS instruments

Achievement measures

- CIL test (60 minutes)
- CT test (optional – 50 minutes)

Contextual questionnaires

- Students
- Teachers
- ICT coordinators
- School principals
- National research centers

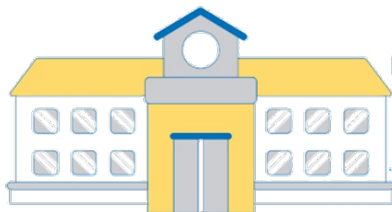
Who participated in ICILS 2023?



More than
130,000
eighth-grade students*



More than
60,000
teachers



More than
5,000
schools



In
34
countries and 1
benchmarking entity

*Typically about 14 years of age in most countries

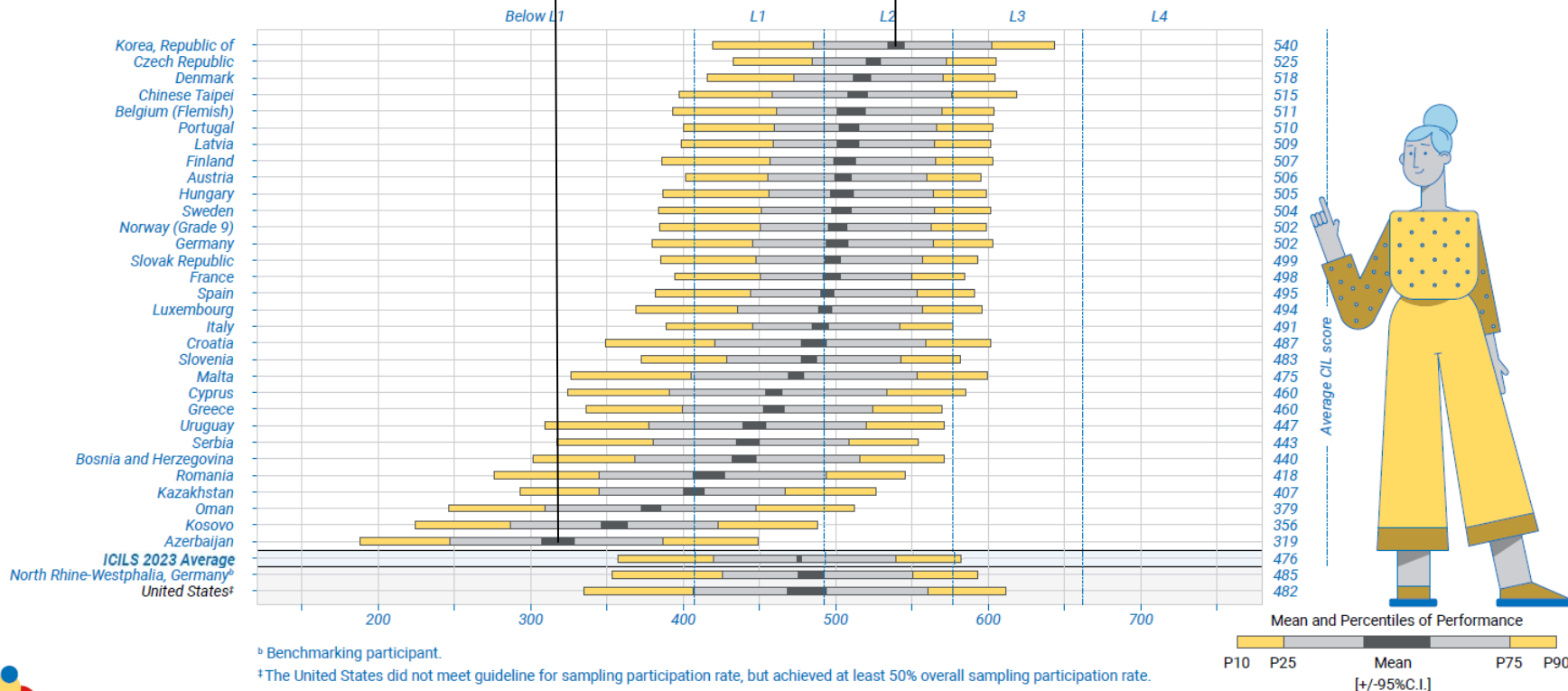
CIL Achievement

**Score distributions and student
proficiency**

CIL scale scores across countries

Lowest to highest
country averages

Lowest 10% to highest
10% within countries



Note: ICILS 2023 average is based on all non-benchmarking participants that met sampling participation requirements except Romania.

CIL LEVEL 3

Independence/Autonomy

👍 Self-directed engagement, emerging capacity to find, and critically evaluate information independently

CIL LEVEL 4

Precision

👍 Evaluative judgment and precise control

CIL LEVEL 2

Need Support

👍 Find information, and demonstrate some control over product creation with support

CIL BELOW LEVEL 1

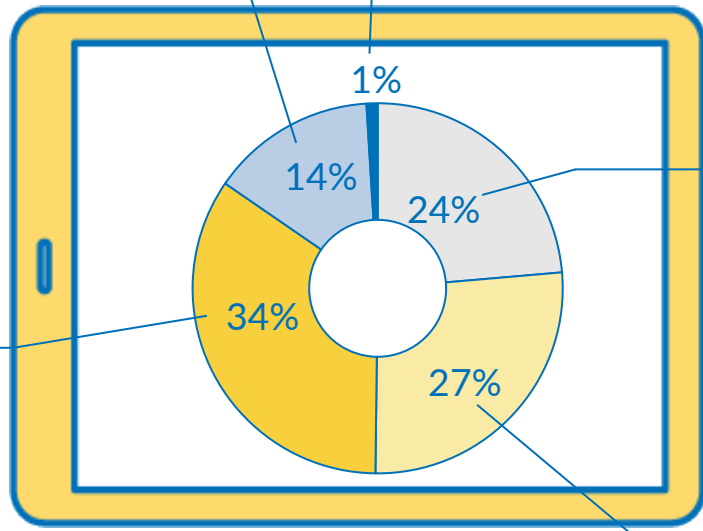
Undeveloped

👍 Simple actions under explicit instruction

CIL LEVEL 1

Basic/Functional

👍 Routine file management and editing tasks, under explicit instruction



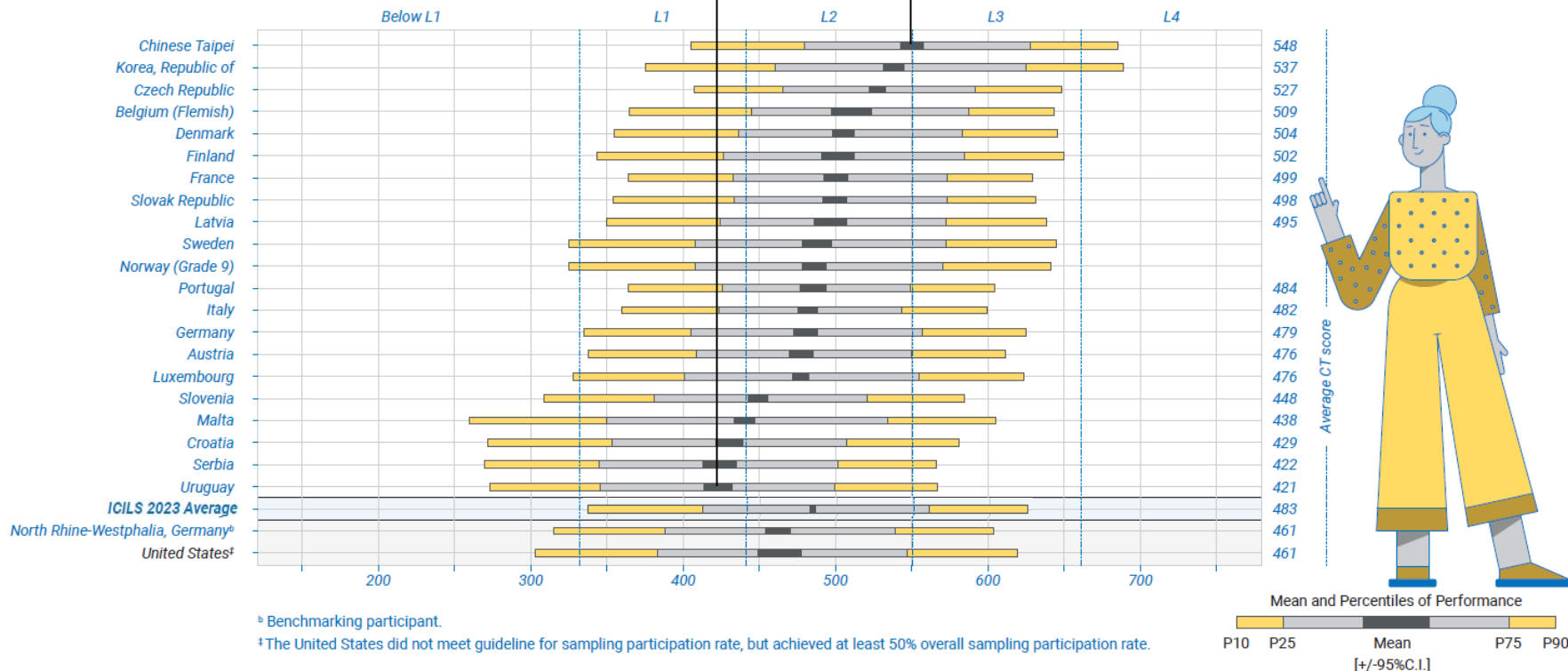
CT Achievement

**Score distributions and student
proficiency**

CT scale scores across countries

Lowest to highest
country averages

Lowest 10% to highest
10% within countries



Note: ICILS 2023 average is based on all non-benchmarking participants that met sampling participation requirements.

CT.

CT LEVEL 3

Integrated Problem Solving

- 👍 Define system behaviors under varying conditions; solutions with nested combinations of commands including loops and conditional logic

CT LEVEL 4

Systems Thinking

- 👍 Formulate and represent problems in a structured manner, implement elegant, efficient solutions

CT BELOW LEVEL 1

Basic Interaction

- 👍 Simple actions under explicit instructions

CT LEVEL 2

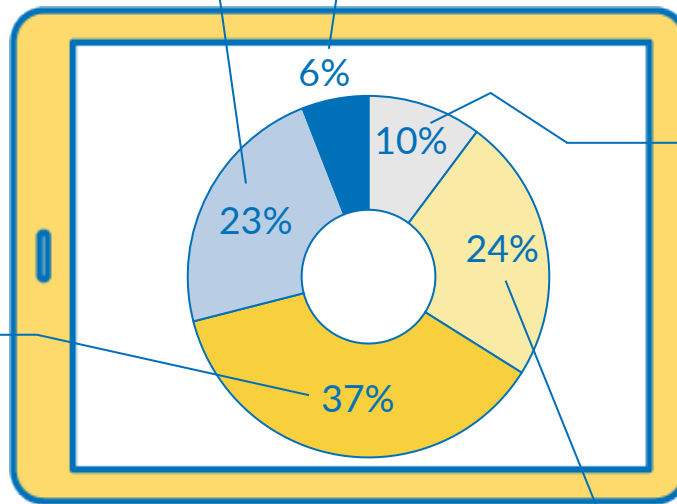
Structured Problem Solving

- 👍 Structured, algorithms with a small range of commands and concepts

CT LEVEL 1

Fundamental Sequencing

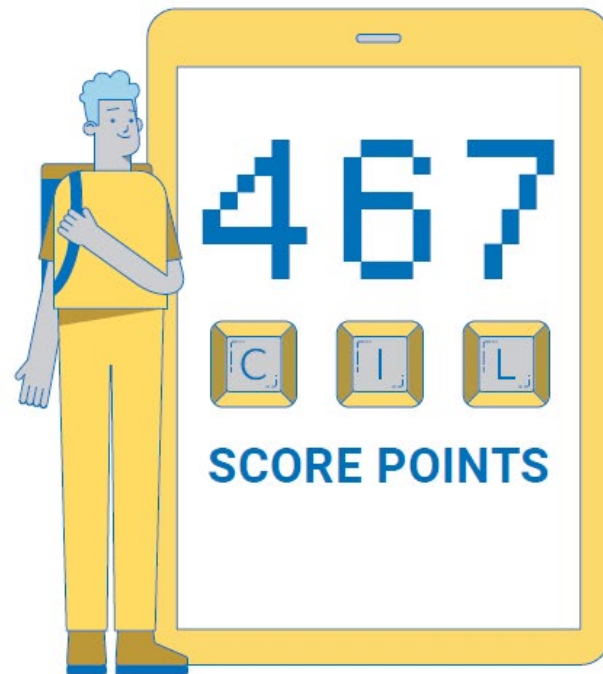
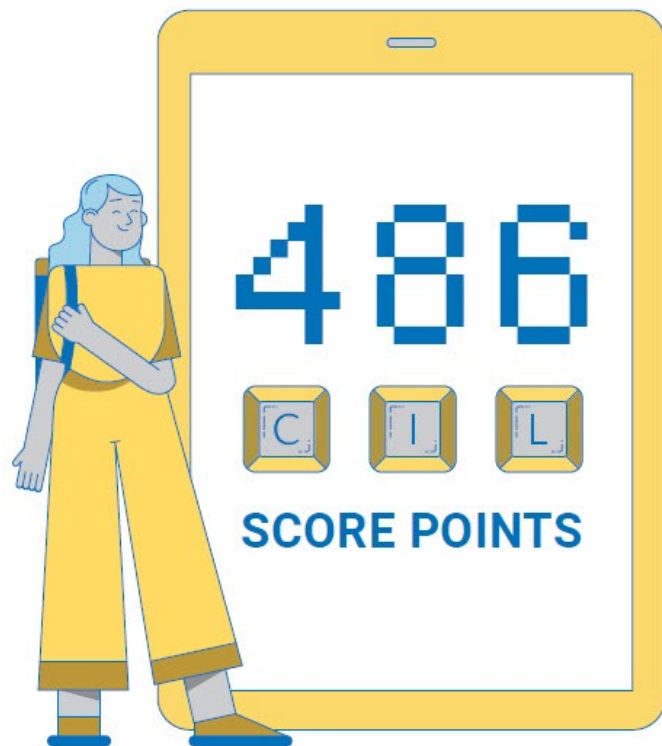
- 👍 Recognize patterns, create simple sequential algorithms



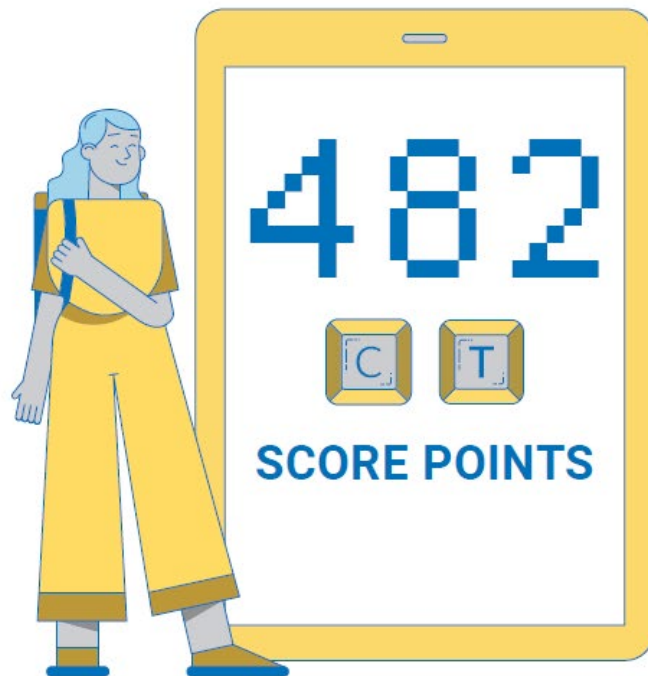
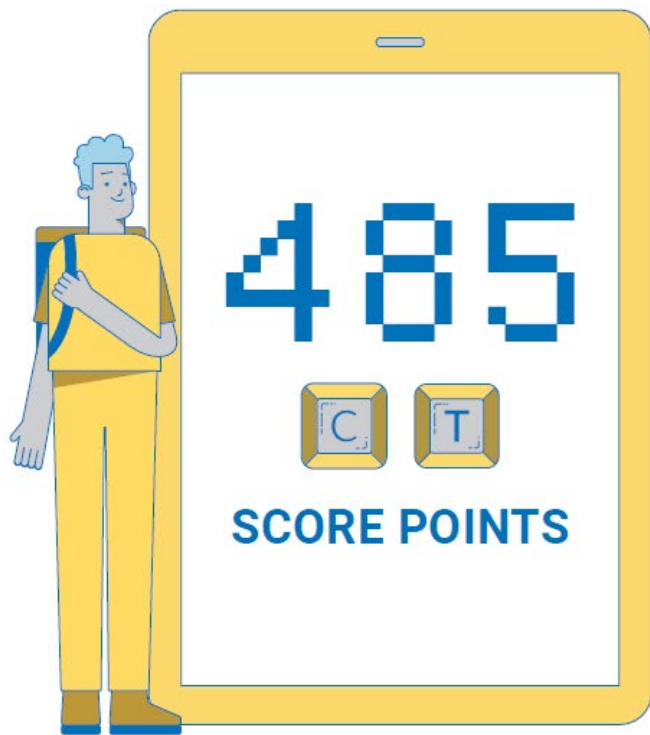
CIL and CT Achievement

Gender differences

CIL



CT

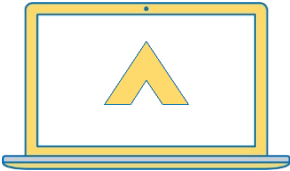


CIL and CT Achievement

Changes since 2013

CIL 2013 – 2023

0
countries
higher average CIL
achievement

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1
country
same average CIL
achievement

A yellow laptop icon with a blue outline. The screen displays a yellow equals sign.

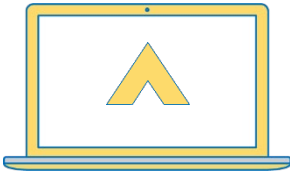
6
countries
lower average CIL
achievement

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7 countries with comparable data

CIL 2018 – 2023

2
countries
higher average CIL
achievement

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5
countries
same average CIL
achievement

A yellow laptop icon with a blue outline. The screen displays a yellow equals sign.

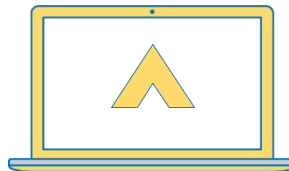
3
countries and 1 b.p.
lower average CIL
achievement

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10 countries and 1 b.p. with comparable data
2 countries also in 2013

CT 2018 – 2023

1
countries
higher average CT
achievement



5
countries
same average CT
achievement



1
country and 1 b.p.
lower average CT
achievement



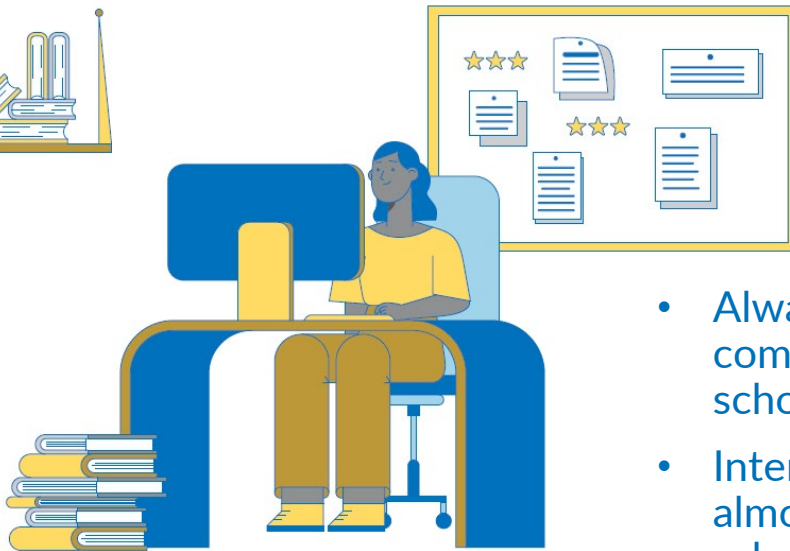
7 countries and 1 b.p. with comparable data

CIL and CT Achievement

SES and access differences

Higher achievement (CIL and CT)

- At least one tertiary educated parent
- More than 26 books in the home
- Non-immigrant background
- Speak test language at home



- 2 or more computers at home
- 5 or more years' experience using computers
- Always have access to a computer at home to do schoolwork
- Internet disruptions never or almost never disrupt their schoolwork

Student Engagement with ICT

Use of ICT on school days

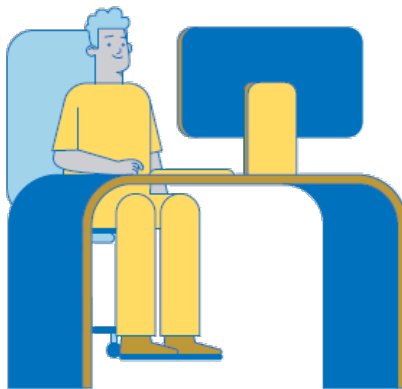
Students reporting at least daily ICT use:

33%

at school for
schoolwork

35%

at school for other
purposes

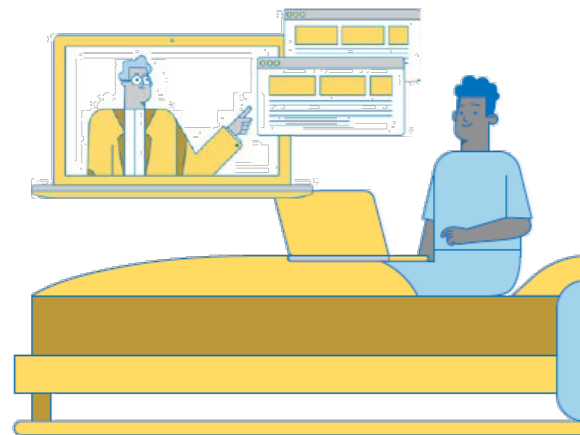


47%

outside of school for
schoolwork

75%

outside of school for other
purposes



Self-efficacy

Most students reported being able to do tasks moderately or very well when using **Information and Communications Technology (ICT)**.



91%

Write or edit text for a school assignment

75%

Create a multi-media presentation (with sound, pictures, or video)

91%

Search for relevant information for a school project on the internet

84%

Judge whether you can trust information you find on the internet

63%

Find the original sources of information referred to in an article on the internet, if the URL is not given

Learning about internet-related tasks

Students reported having learned, **at least to a moderate extent**,
at school, and **outside of school** to...

...use the internet to
find information

62% | 81%

...refine internet
searches

60% | 73%

...evaluate the reliability
of information online

63% | 68%

...include accurate references to
internet sources

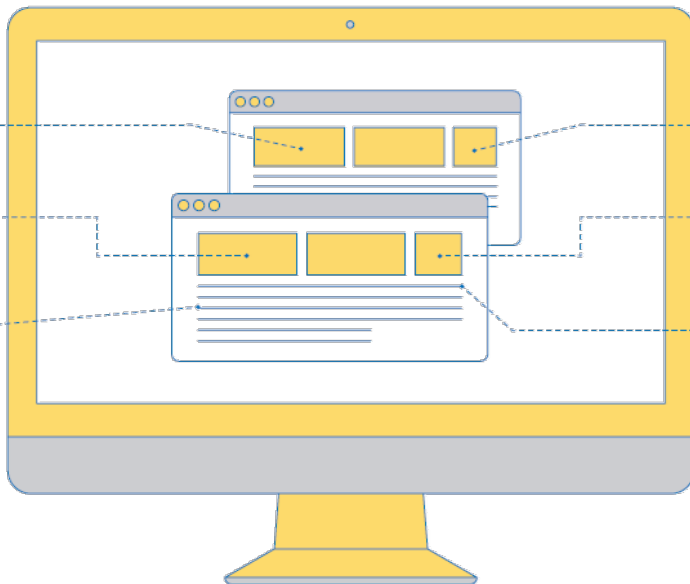
65% | 63%

...judge whether a message
from someone is a scam

56% | 74%

...manage privacy settings for
internet accounts and ICT
devices

52% | 74%



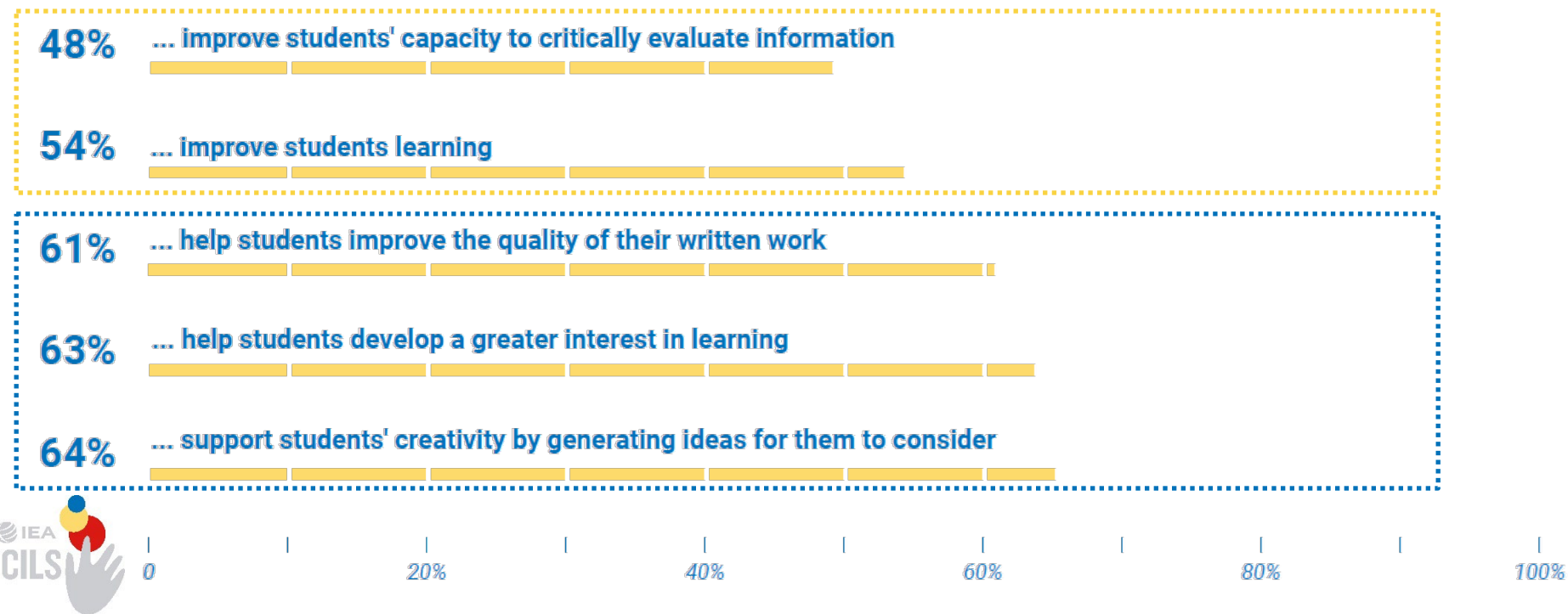
Generative AI in schools (international option)

Generative AI in schools

- Questions for school principals developed in mid 2023
- 12 countries participated:
 - Chile, Chinese Taipei, Cyprus, Denmark, Greece, Republic of Korea, Norway, Romania, Slovak Republic, Slovenia, Sweden and Uruguay

Generative AI and students – potential benefits

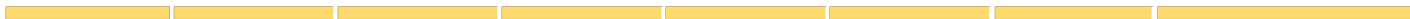
Potential benefits for student motivation and writing skills were reported as being more likely than improvements to students' general learning and critical evaluation capacities



Generative AI and students – potential drawbacks

Principals in schools accounting for at least 80% of students reported concern about the potential for plagiarism, misinformation and loss of independent learning skills

86% ... encourage students to submit work that is not their own.



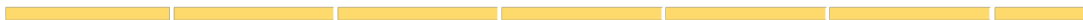
80% ... confuse students with false, misleading, or biased information.



80% ... result in students becoming dependent on the tools rather than learning for themselves.



66% ... make it difficult for students to develop a deep understanding of concepts.



40% ... make students anxious about the influence of technology on the world.



Generative AI and teachers – potential benefits

At least two-thirds of students were in schools where principals saw the potential of generative AI to support teachers' planning and resource generation

80% ... make it easier for teachers to create learning resources.

70% ... make it easier for teachers to plan lessons.

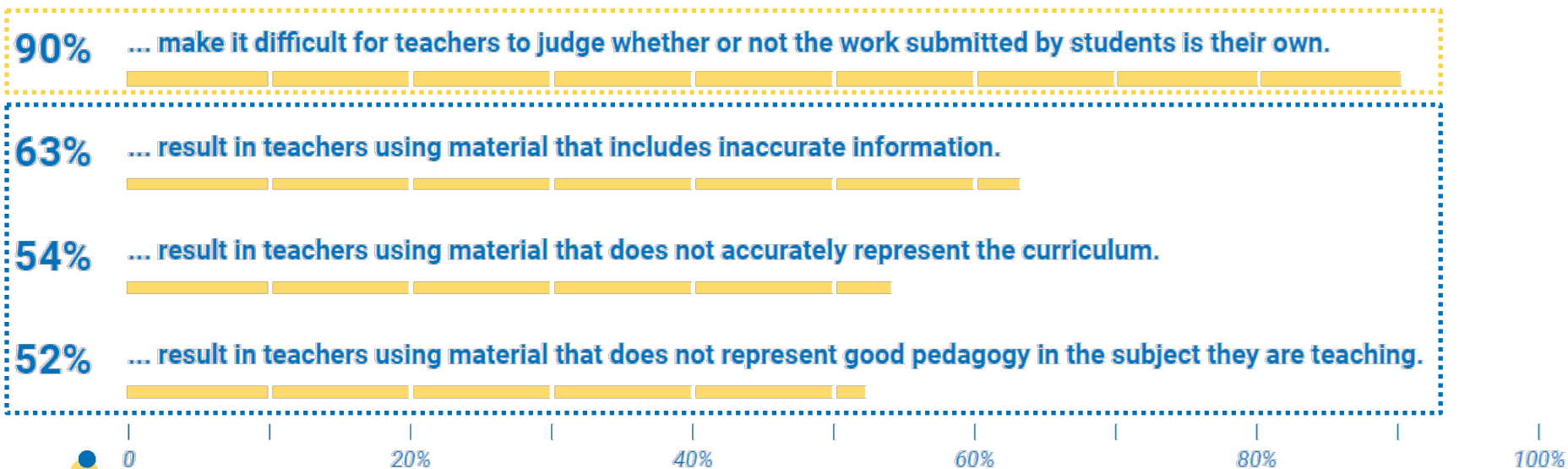
68% ... make it easier for teachers to create individualized learning programs for their students.

64% ... help teachers generate feedback to students about their work.

60% ... help teachers assess their students' work.

Generative AI and teachers – potential drawbacks

Managing plagiarism, was a primary concern for principals, and more than half the students were in schools where principals were also concerned about inaccurate or inappropriate AI-generated learning content



Thank you



Researching education, improving learning

