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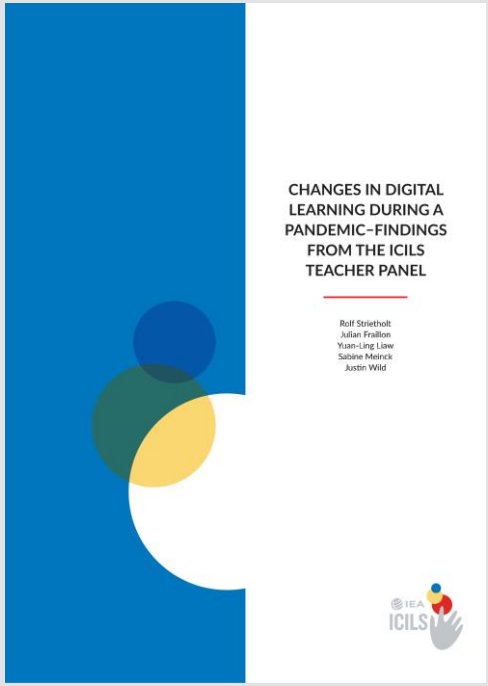
Researching education, improving learning

ICILS Teacher Panel

Digital learning in times of school closures



General Assembly, 26 Oct 2021

Rolf Strietholt, Julian Fraillon, Yuan-Ling Liaw,
Sabine Meinck, Justin Wild

Background

- Students all around the world were affected by school closures caused by COVID-19.
- Expectations were high that information and communication technology (ICT) could enable learning at a distance.
- At the same time, there were concerns that opportunities offered by ICT are not being well exploited and that social inequalities are increasing.

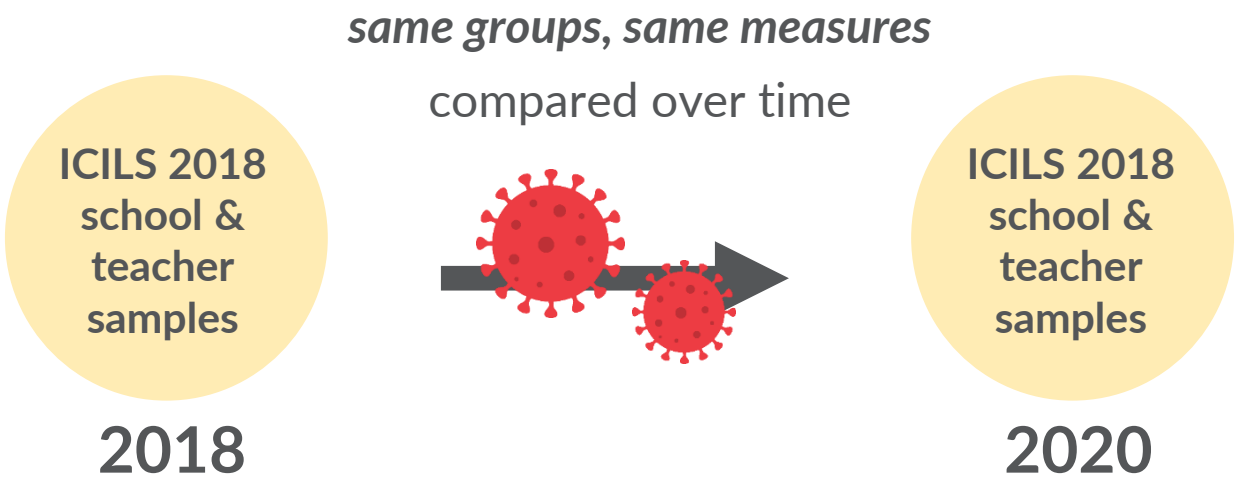
Key Questions

1. Have ICT-related resources, attitudes, and the use of communication and information technology **changed** after the outbreak of COVID-19?
2. Did **inequality** in educational opportunity increase during the COVID-19 pandemic?
3. How **stable** is school computer equipment, attitudes toward technology, and computer use over time within and across countries?

Design

Understanding how the role of ICT in schools has changed requires longitudinal data, ideally panel data.

- The **key challenge** is that COVID-19 was not predictable and consequently no study was initiated before the COVID-19 breakout.
- Our appraoch was to construct panel data using **ICILS 2018 as a baseline.**



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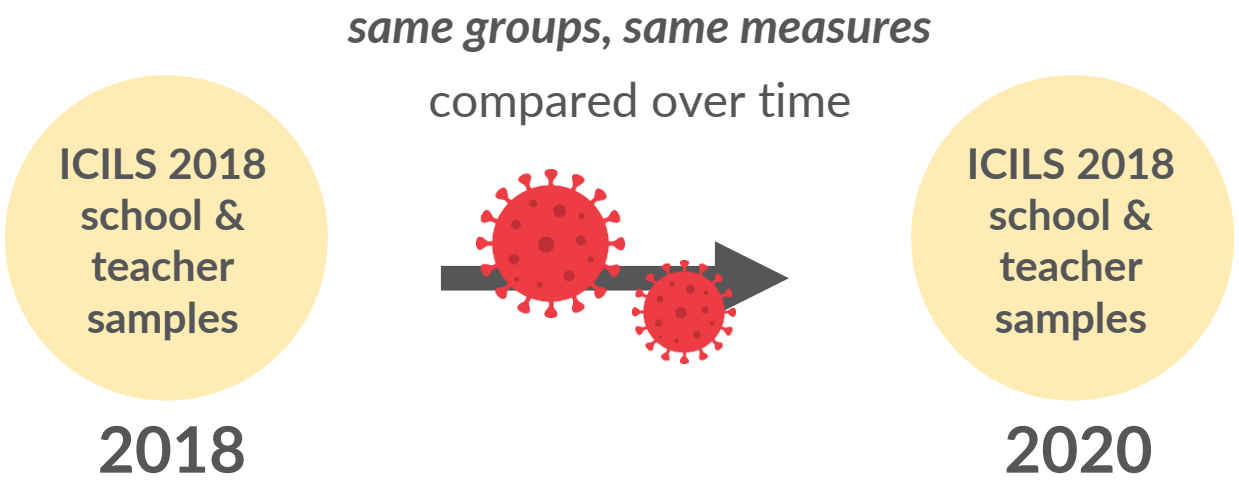
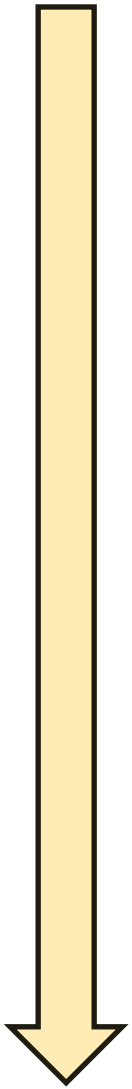
Utilizing the Existing Research Infrastructure

A lean and inexpensive study based on an existing study.

- Trialed **instruments** were ready to use.
- Random **samples** with sampling and replication weight were available.
- **Procedures** for data collection and processing were well established.



Timeline



2020: July	Invitation of NRCs (12 countries)
2020: Aug	Confirmation by Denmark, Finland, Uruguay
2020: Oct	Adopt of instruments (e.g., year), translations of few additional items, set up online survey system (OSS)
2020: Nov	Start survey
2021: Jan	End survey in Finland and Uruguay
2021: Mar	End survey in Denmark (school lockdown)
2021: Oct	Release of international report
2022: Nov	Release of public use file

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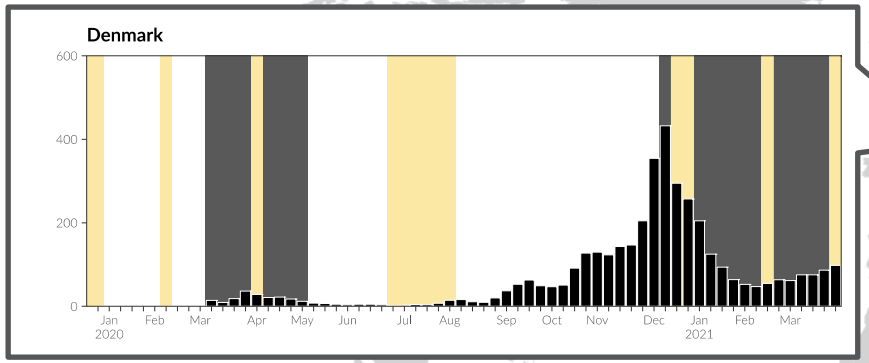
Country context: Infection Rates and School Closures across Countries



School closed School partially closed Holiday

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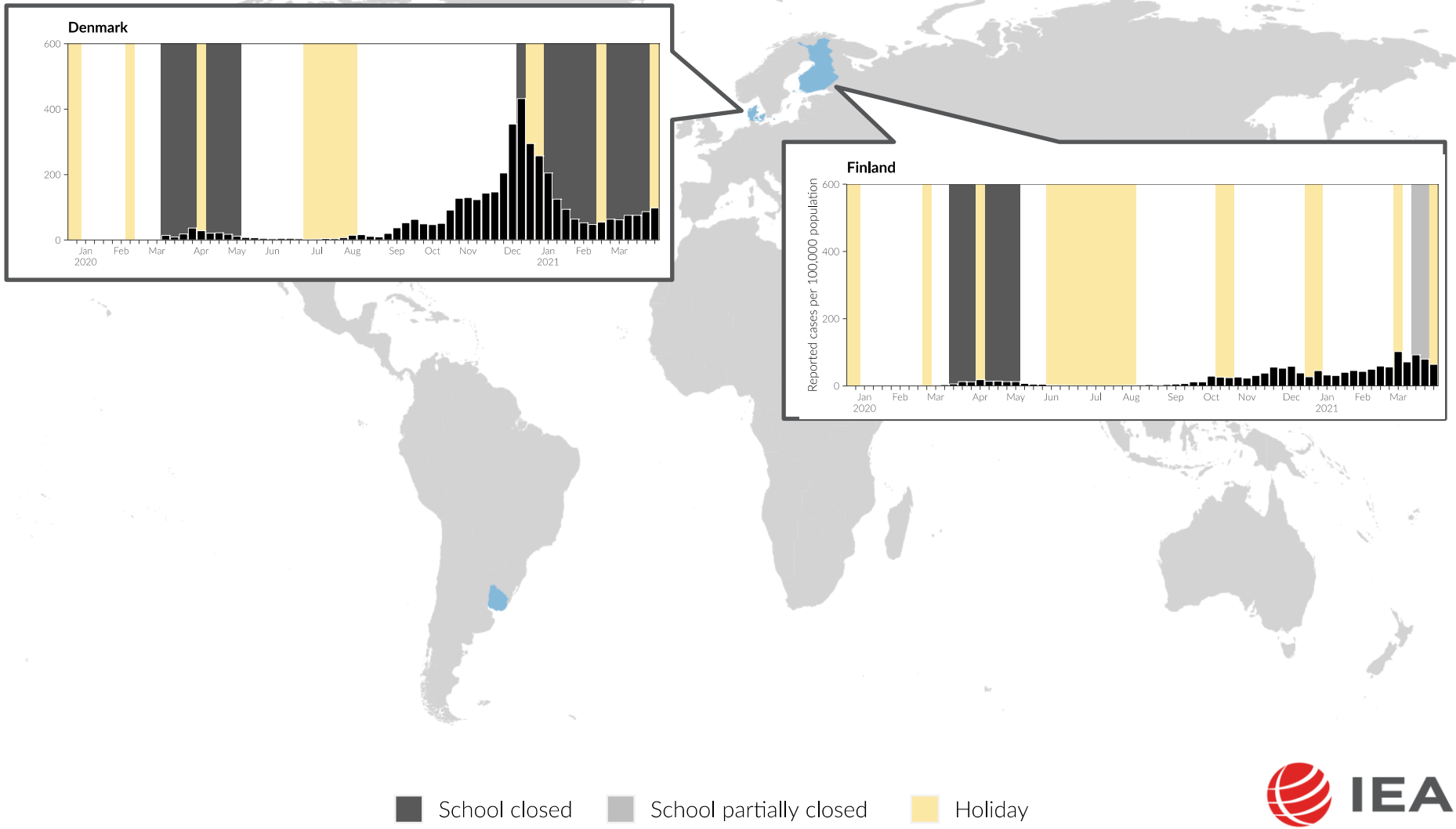

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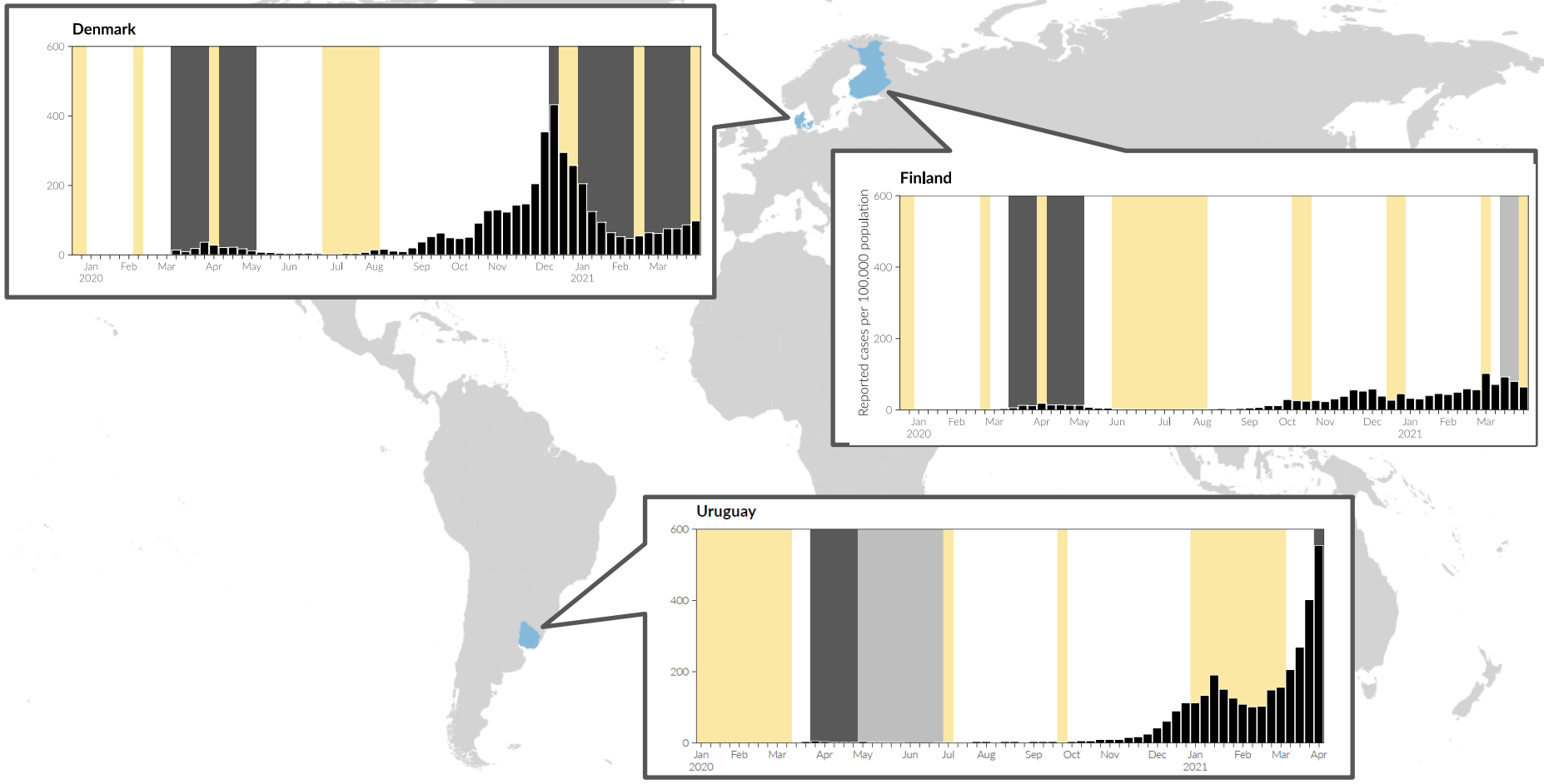

Sample and Panel Attrition

		2018	2020
Teachers	Denmark	1118	441 (39%)
	Finland	1853	1246 (67%)
	Uruguay	1320	469 (36%)
Principals[a]	Denmark	140	80 (57%)
	Finland	142	135 (95%)
	Uruguay	136	73 (53%)
ICT-Coordinators[a]	Denmark	128	66 (52%)
	Finland	141	136 (94%)
	Uruguay	129	63 (49%)

[a] School leaders and ICT-coordinators may be different individuals in 2018 and 2020.

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- **Non-response bias analyses** revealed mostly small and non-significant differences between participating and non-participating respondents.
- To account for this small bias **panel weight were adjusted.**

[a] School leaders and ICT-coordinators may be different individuals in 2018 and 2020.

Main Findings

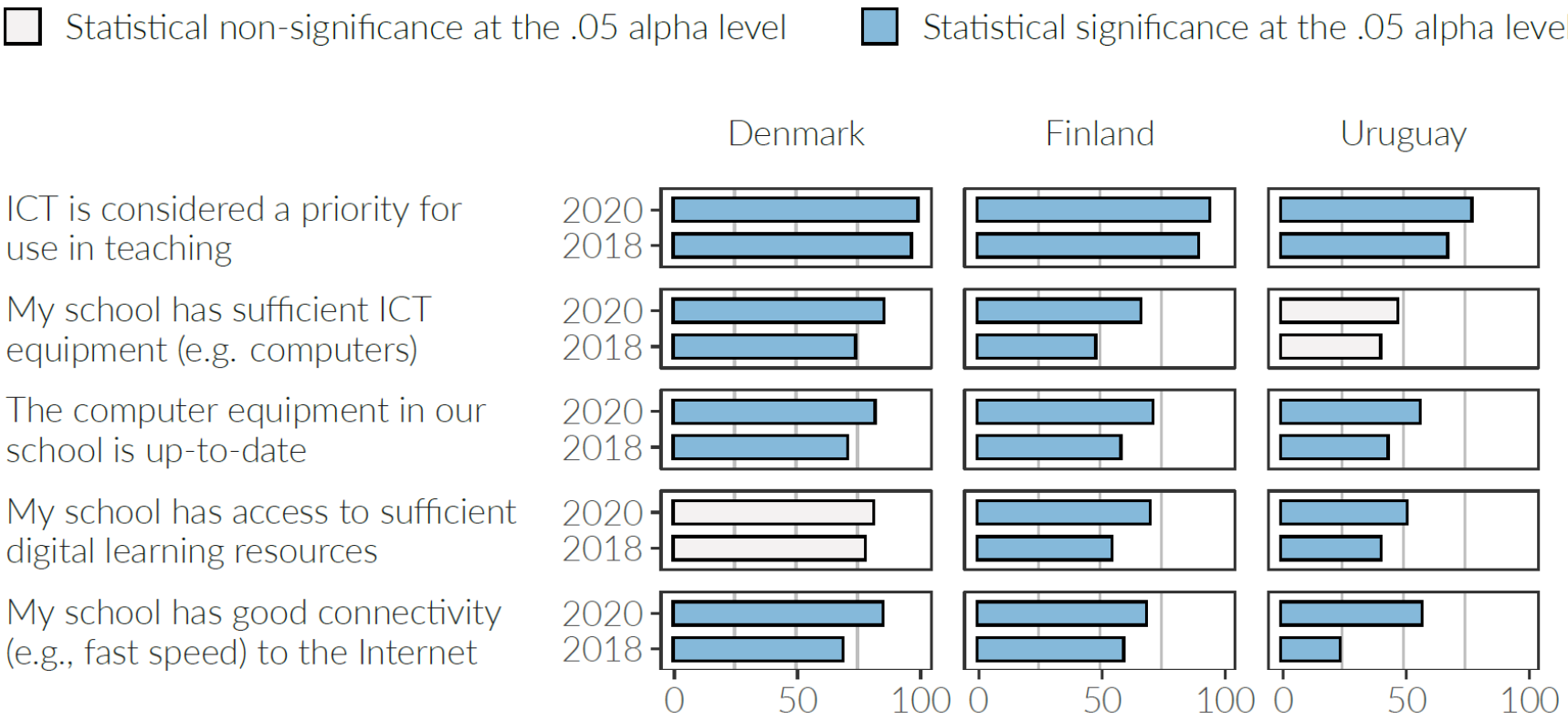
- Have ICT-related resources, attitudes, and the use of communication and information technology **changed** after the outbreak of COVID-19? →YES
- Did **inequality** in educational opportunity increase during the COVID-19 pandemic? →NO
- How **stable** is school computer equipment, attitudes toward technology, and computer use over time? →MIXED

Finding 1 – Change

The ICILS Teacher Panel provided strong evidence that teachers in Denmark, Finland, and Uruguay purposefully used ICT to continue learning during the pandemic.

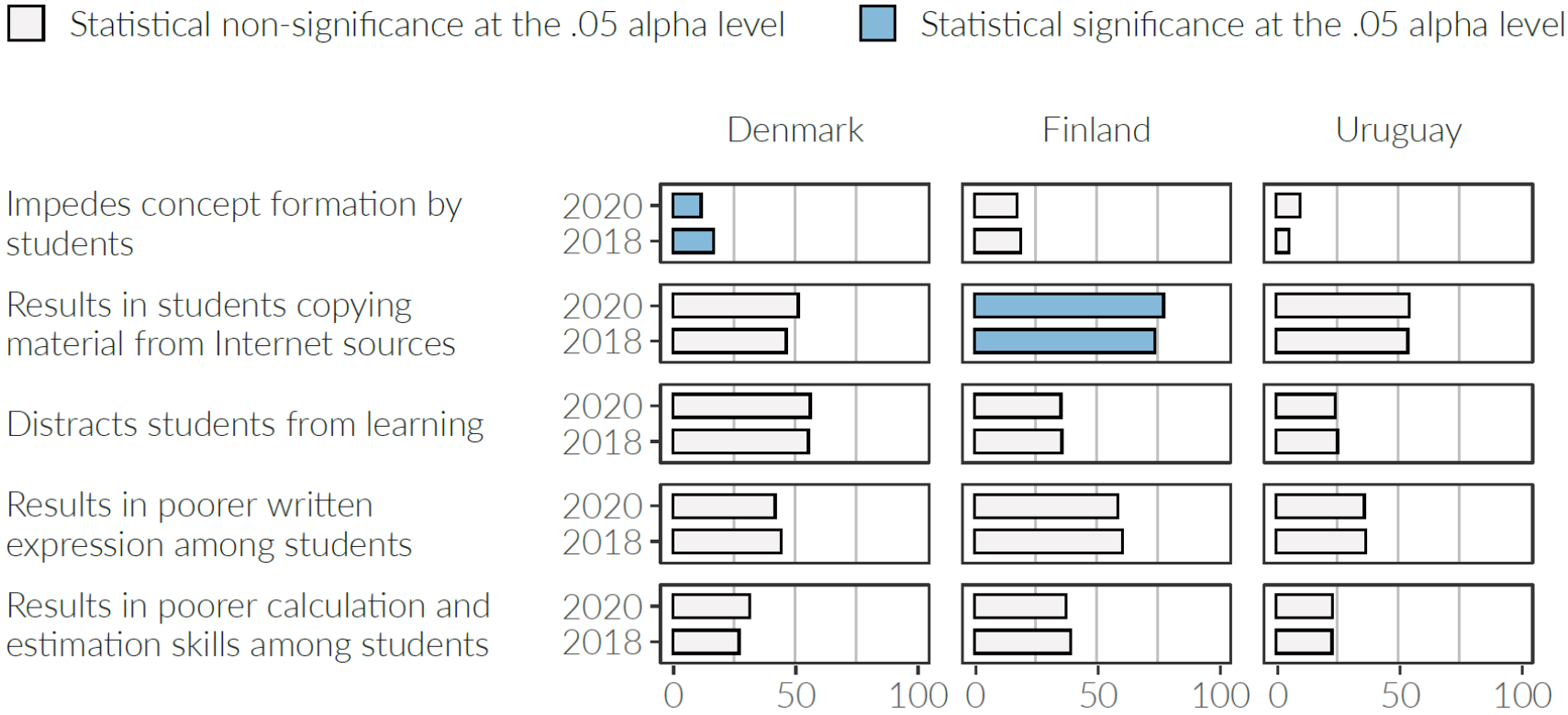
- Teachers in all countries used ICT for learning and teaching significantly more frequently.
  - Learning management systems and collaborative software
  - ICT-resources at school
  - Teachers collaboration with respect to ICT
  - Emphasis on students' capability to use ICT
- There is little change in teachers' general attitudes about the advantages and disadvantages of ICT for learning and teaching and the learning goals.

Finding 1 – Change
ICT-resources at school



Finding 1 – Change

Perceptions about negative outcomes of ICT use



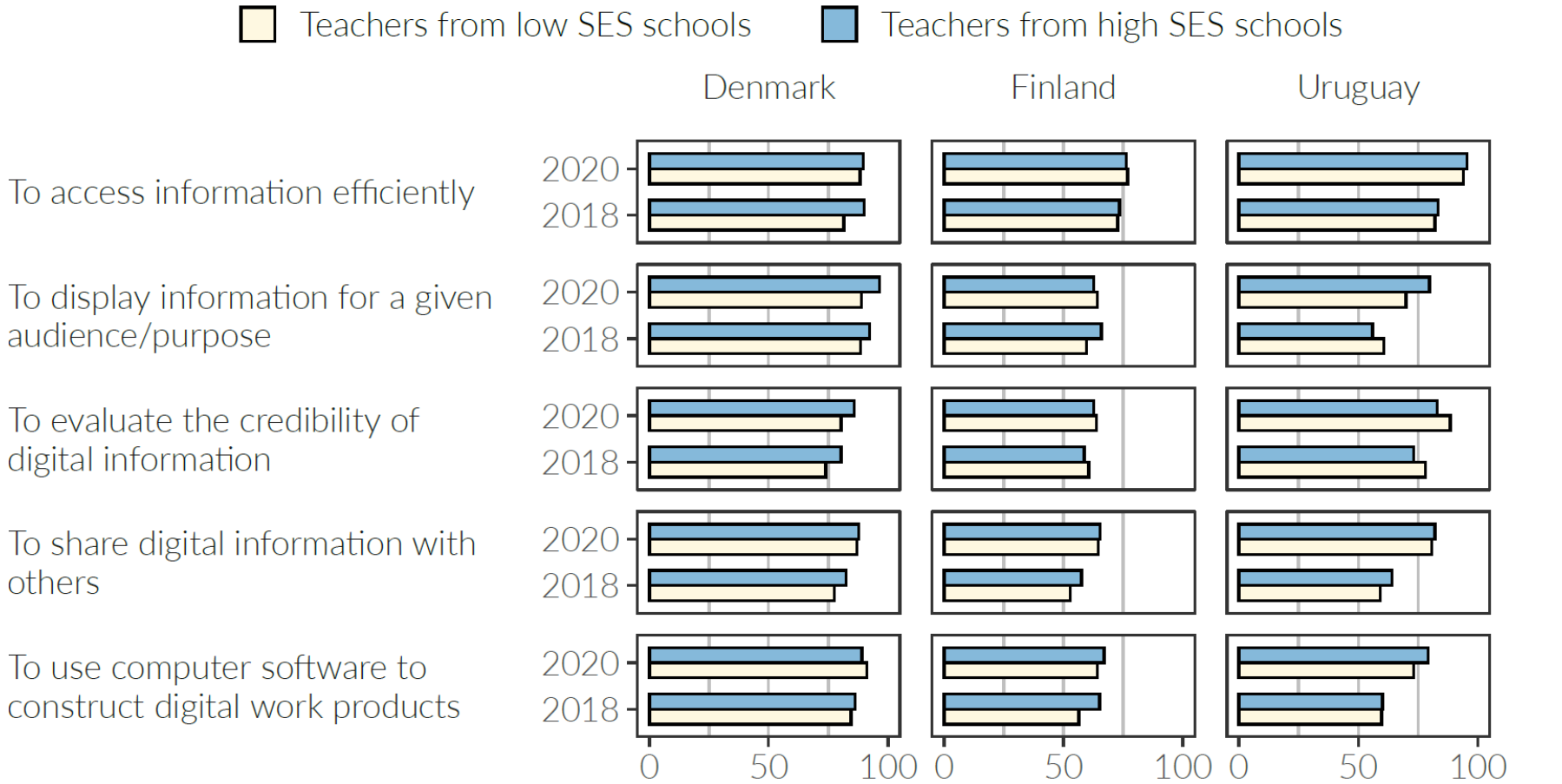
Finding 2 – Inequality

It was widely suspected that the COVID-19 pandemic exacerbated existing social inequalities in the education system.

- To investigate inequalities in educational opportunity, we compared ICT resources and teachers' use of ICT in schools with socioeconomically advantaged and disadvantaged student bodies.
- The classification of schools was based on information on students' socioeconomic status from 2018.
- In terms of school ICT resources and their use, we found rather small opportunity gaps before the pandemic and the existing gaps remained stable during the pandemic.

Finding 2 – Inequality

Teachers' emphasis on developing ICT-related skills in class by SES groups and study cycle



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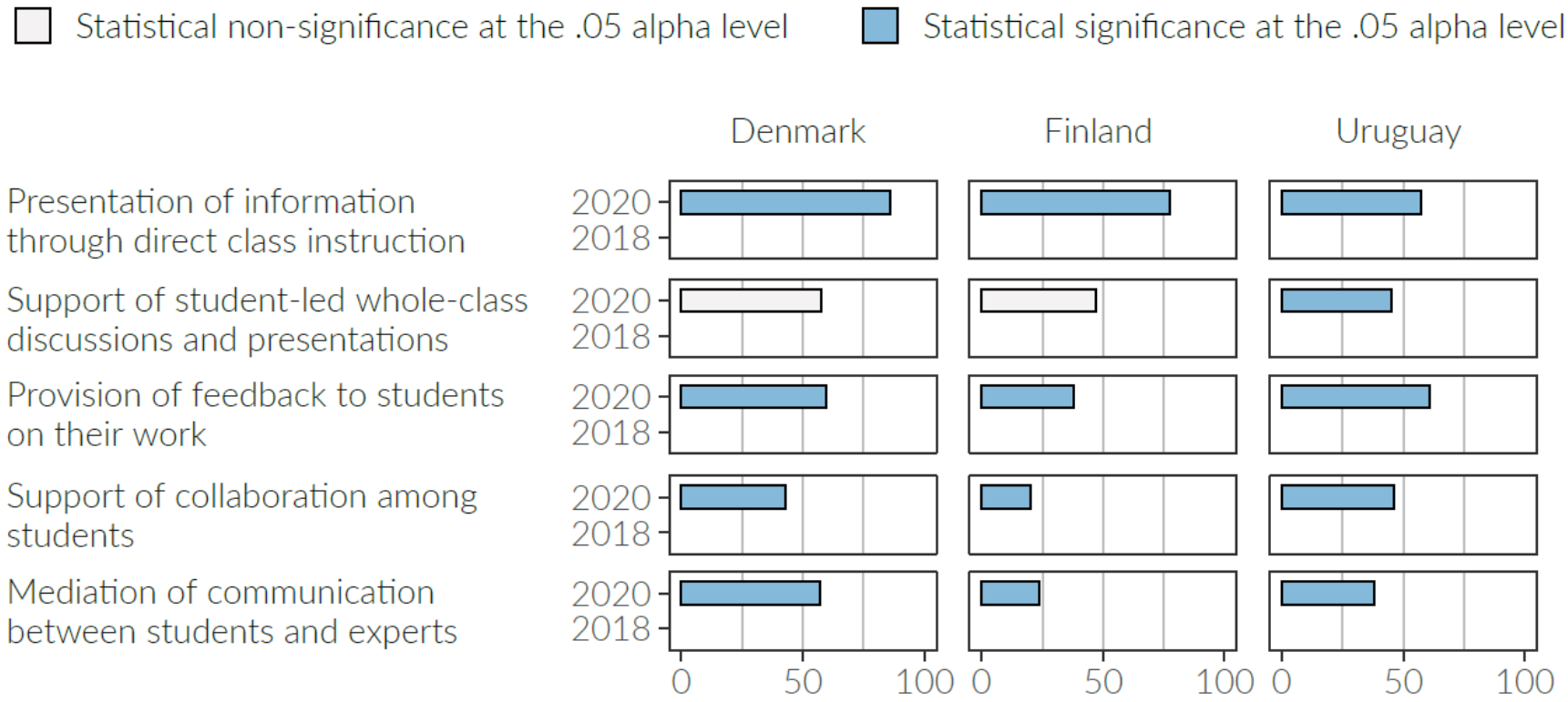
Finding 3 – Stability within & across countries

The ICILS Teacher Panel showed a high degree of stability in the use of ICT at the teacher level, whereas differences between countries have diminished.

- **Experience matters** – teachers who used ICT more frequently before the pandemic continued to do so during the pandemic. This was an almost universal pattern that we observed across most topics and uses within all three countries.
- From a comparative perspective, we observed that ICT was used most frequently in Denmark, followed by Finland and Uruguay. Although the international differences observed in 2018 did not completely vanish in most areas, we observed a **reduction in international differences**.

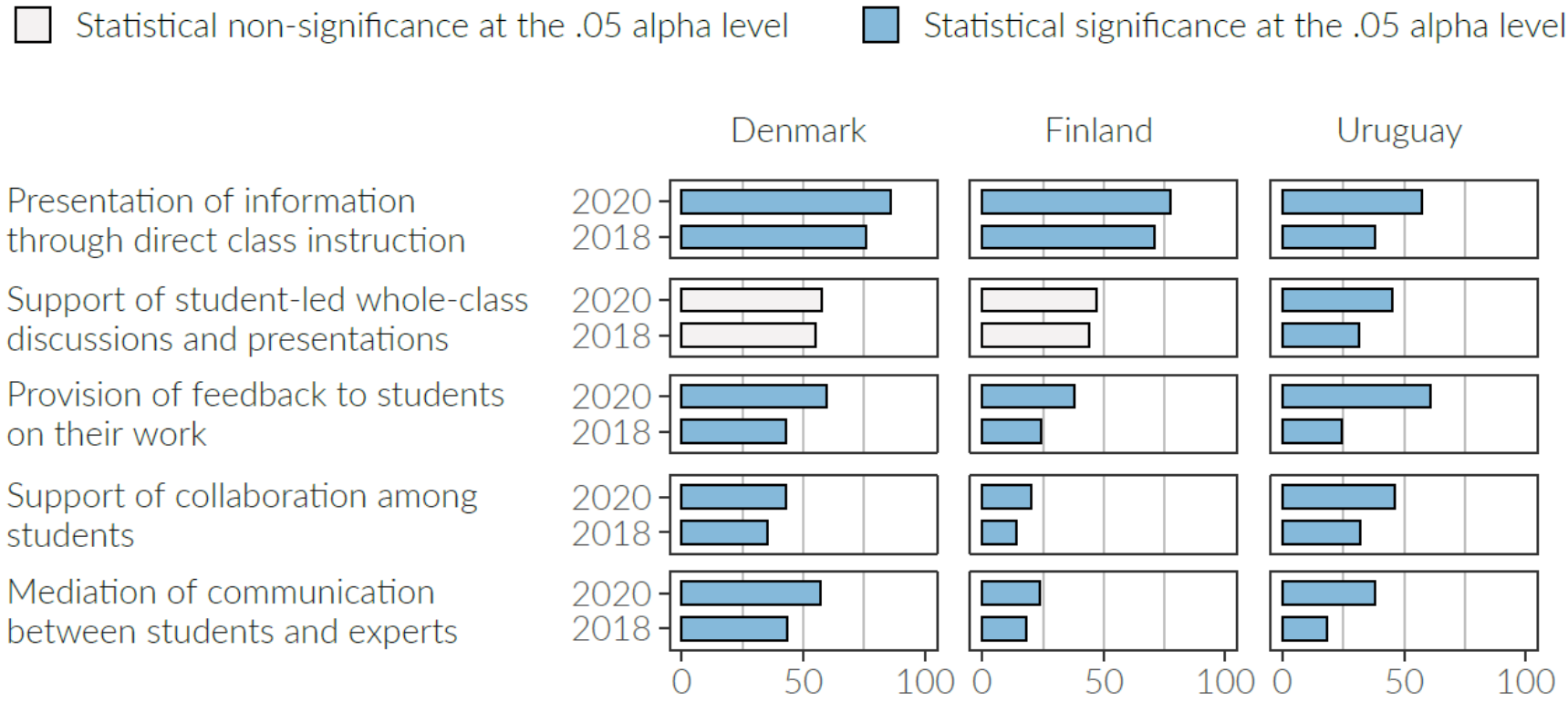
Finding 3 – Stability within & across countries

A cross-sectional perspective on ICT use for teaching…



Finding 3 – Stability within & across countries

The longitudinal perspective shows Uruguay's remarkable catching-up



Summary and outlook

- The ICILS Teacher Panel is the first **comparative longitudinal study** on the use of ICT and the first panel study the IEA has conducted in 40 years. Descriptions of change based on panel data **extend conventional cross-sectional** comparisons.
- Key findings:
  - The **ICT use increased** massively during the pandemic.
  - **Social inequality** in educational opportunity did **not increase** (with respect to ICT resources and their use).
  - At the teacher level **experience matters**, previous ICT was is a strong predictor of the use during the pandemic.
  - At the national level, we observed that cross-sectional **international differences decreased**.
- From a research perspective, the COVID-19 pandemic is an external shock to education systems. The ICILS Teacher Panel **captures longitudinal variation** induced by this shock. The panel data provides a basis for further secondary analysis on the determinants of ICT use.

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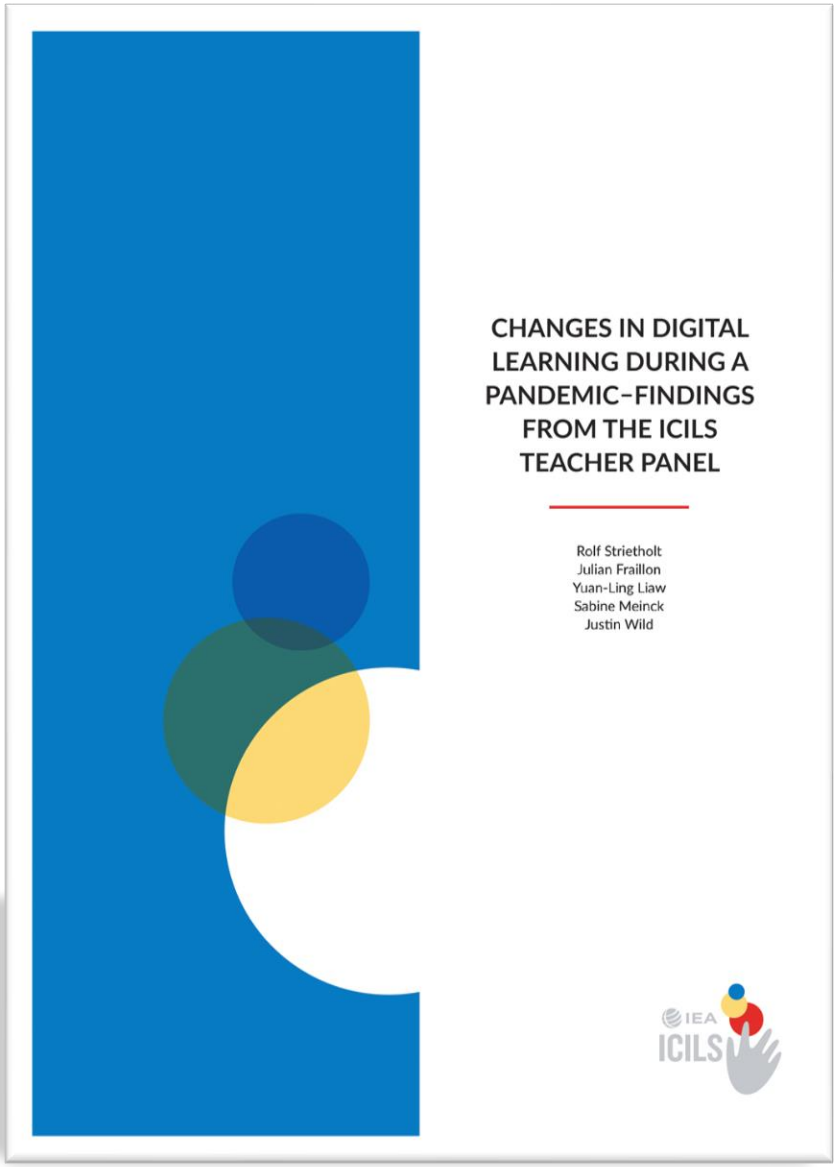

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Thank you!

Questions? Feedback?