



Global Science of Learning
Education Network
<https://tdlc.ucsd.edu/GSLN>

FWE



Webinar: Lessons from How People Learn II: Opportunities and Imperatives for Education in a Post-COVID World
26 January 2021

Expanding Science of Learning Research to Multilevel Aligned Learning: Studying online learning preparedness of students, teachers, school leaders and the community in HK during COVID19

Professor Nancy Law

Deputy Director, CITE, University of Hong Kong

PI, Theme Based Research on Learning & Assessment of Digital Citizenship



Faculty of **Education**
The University of Hong Kong



The National Academies of
SCIENCES • ENGINEERING • MEDICINE

CONSENSUS STUDY REPORT

How People Learn II



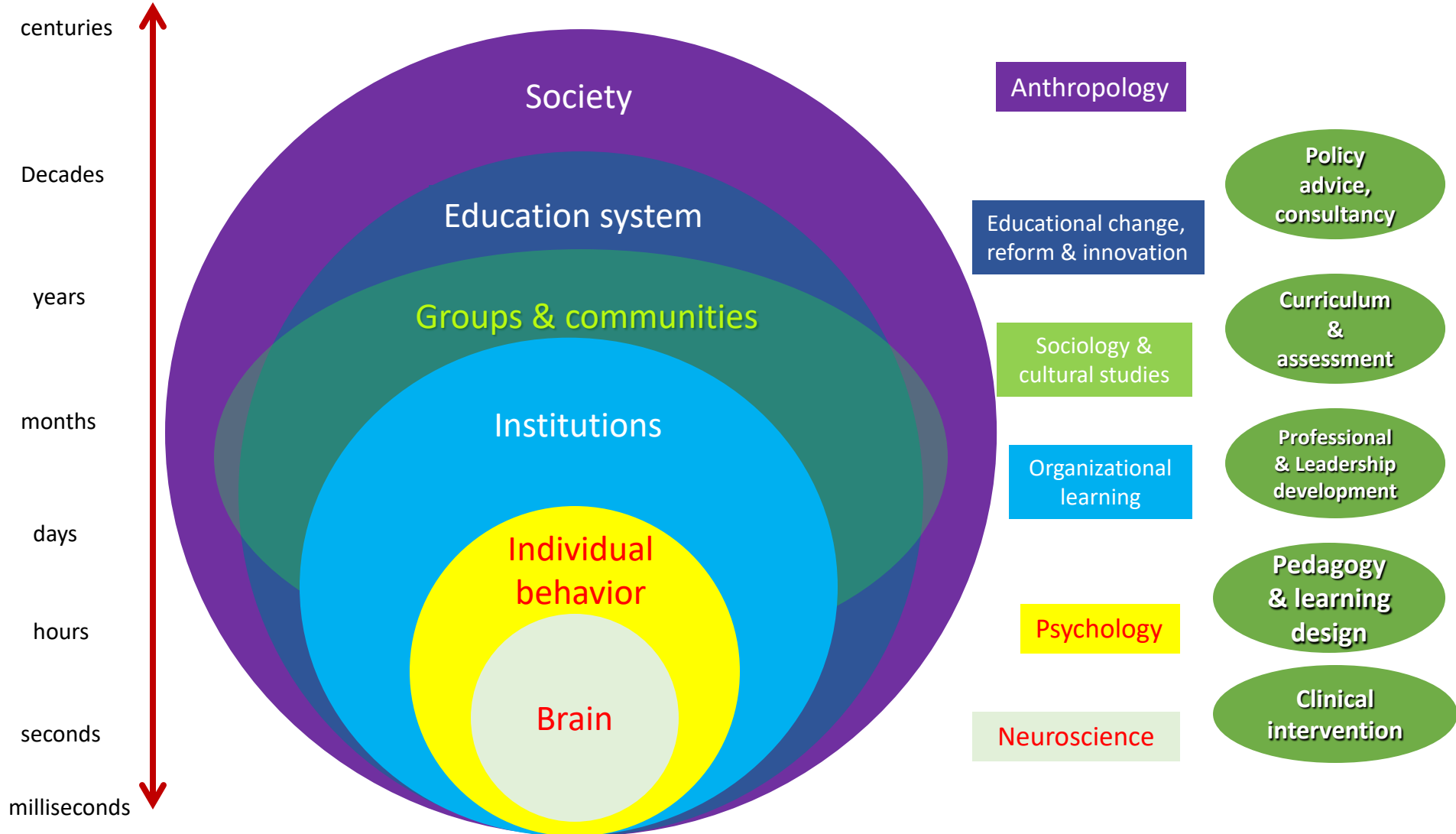
Learners,
Contexts,
and
Cultures

- There are multilevel factors influencing learners and learning
 - Socioemotional
 - Contextual
 - Cultural
- These “conditions for learning” have strong influence on the efficacy of the learning provisions and learning designs
- Conditions → Preparedness for learning needs to be in place at different levels

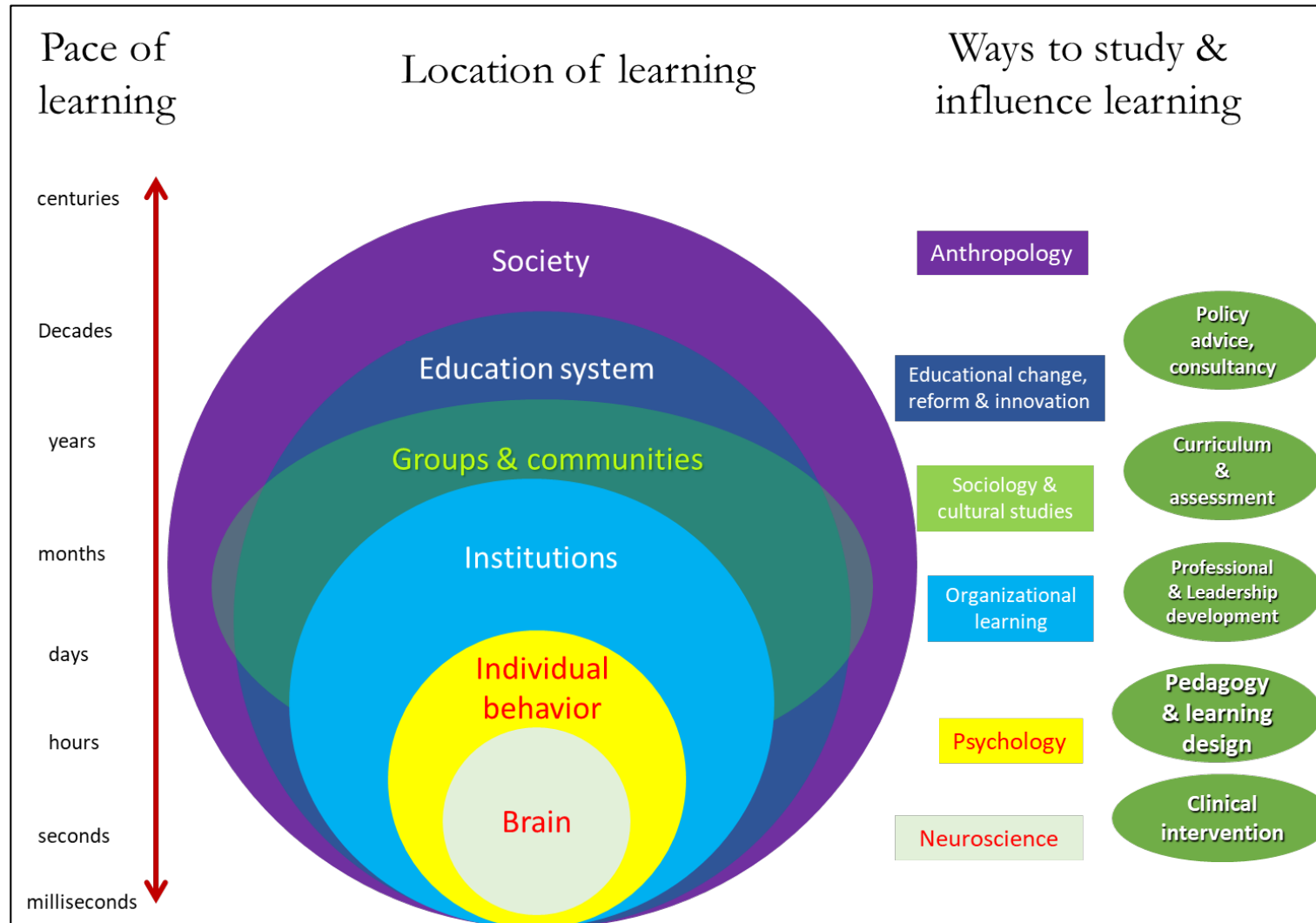
Pace of learning

Location of learning

Ways to study & influence learning



COVID-19 as a tsunami scale learning challenge



How do education systems & communities learn?

How do schools/institutions learn?

How do individuals learn?

- Students
- Teachers
- School middle managers
- School senior leaders
- Parents
-



eCitizen Education
數碼素養 360

A study of how students, families, teachers and schools coped with online learning during pandemic (2020-2021)

Data collection: mid-June to mid July 2020



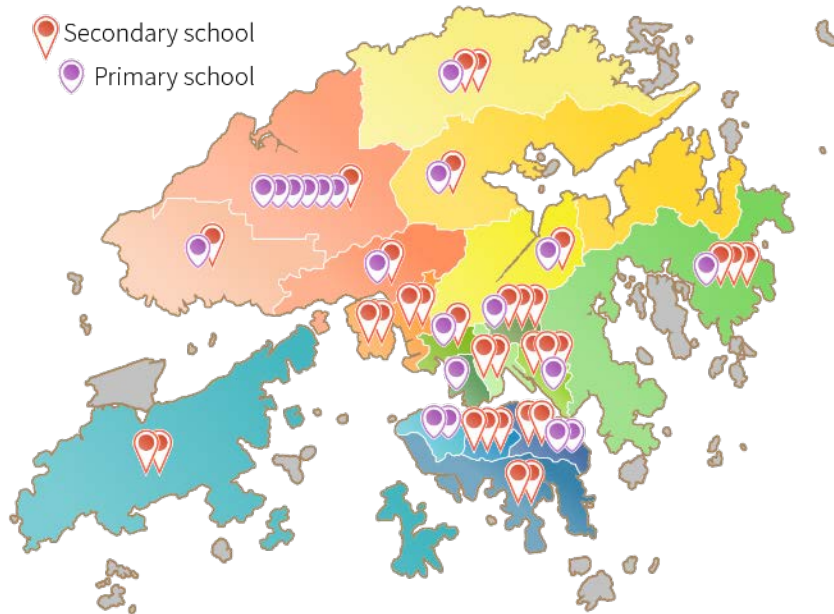
An action-oriented study to engage community partners in interpreting and making aligned efforts to support learning at all levels to.

Co-INVENT the New Normal

Study focus: online learning *preparedness*

- Students
- Families
- Teachers
- School leaders
- School level e-learning/online learning preparedness





Survey instruments

- Students
- Parents of participating students
- Teachers
- School leaders
 - Senior leaders
 - Middle managers (academic)
 - Middle managers (non-academic)
- e-learning coordinators

Figure 2. Distribution of school types in participating schools

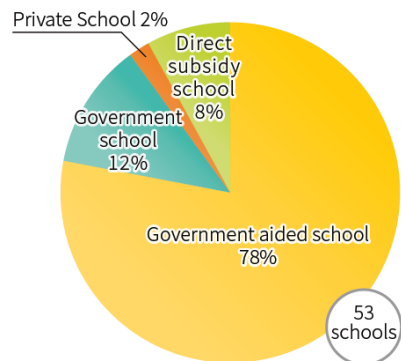
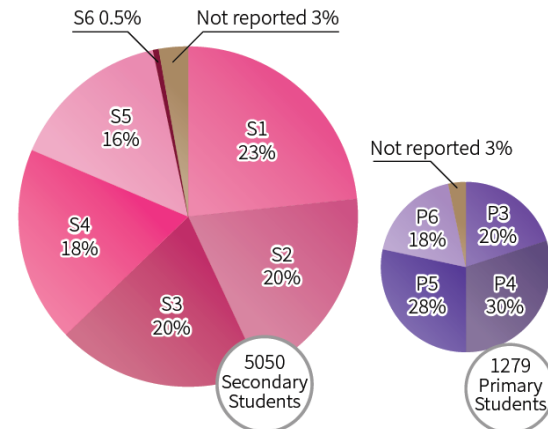
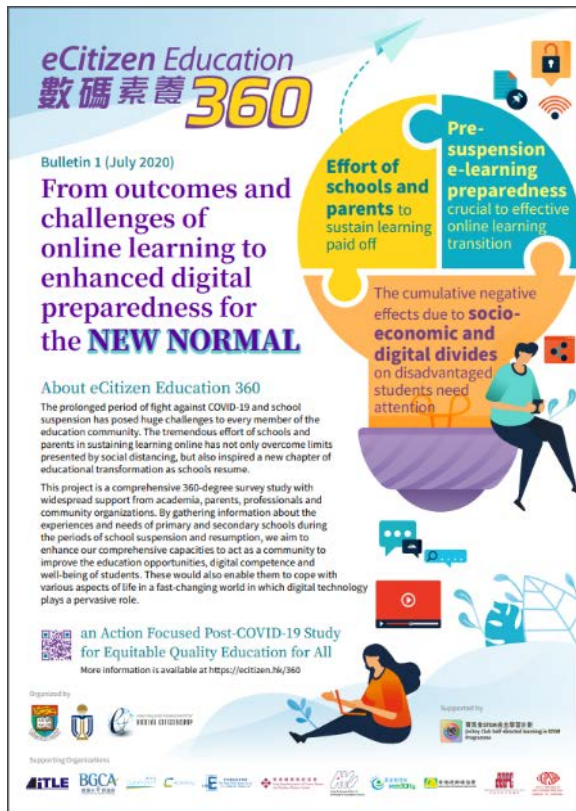


Figure 3. Grade level distribution of student respondents



	students	parents	teachers	sch leaders	schools	ICT
primary	1292	770	339	195	21	20
secondary	5213	1613	497	341	32	29
Total	6505	2383	836	536	53	49

Students' SES matters!



eCitizen Education 數碼素養 360
Bulletin 1 (July 2020)
From outcomes and challenges of online learning to enhanced digital preparedness for the NEW NORMAL

Effort of schools and parents to sustain learning paid off
Pre-suspension e-learning preparedness crucial to effective online learning transition

The cumulative negative effects due to **socio-economic and digital divides** on disadvantaged students need attention

About eCitizen Education 360
The prolonged period of fight against COVID-19 and school suspension has posed huge challenges to every member of the education community. The tremendous effort of schools and parents in sustaining learning online has not only overcome limits presented by social distancing, but also inspired a new chapter of educational transformation as schools resume.

This project is a comprehensive 360-degree survey study with widespread support from academia, parents, professionals and community organizations. By gathering information about the experiences and needs of primary and secondary schools during the periods of school suspension and resumption, we aim to enhance our comprehensive capacities to act as a community to improve the education opportunities, digital competence and well-being of students. These would also enable them to cope with various aspects of life in a fast-changing world in which digital technology plays a pervasive role.

An Action Focused Post-COVID-19 Study for Equitable Quality Education for All
More information is available at <https://ecitizen.hk/360>

Supported by: [Logos of supporting organizations]

Access to large screen devices

Levels of stress experienced by students

Figure 5. Levels of adequacy in Internet and digital device access for home-based learning

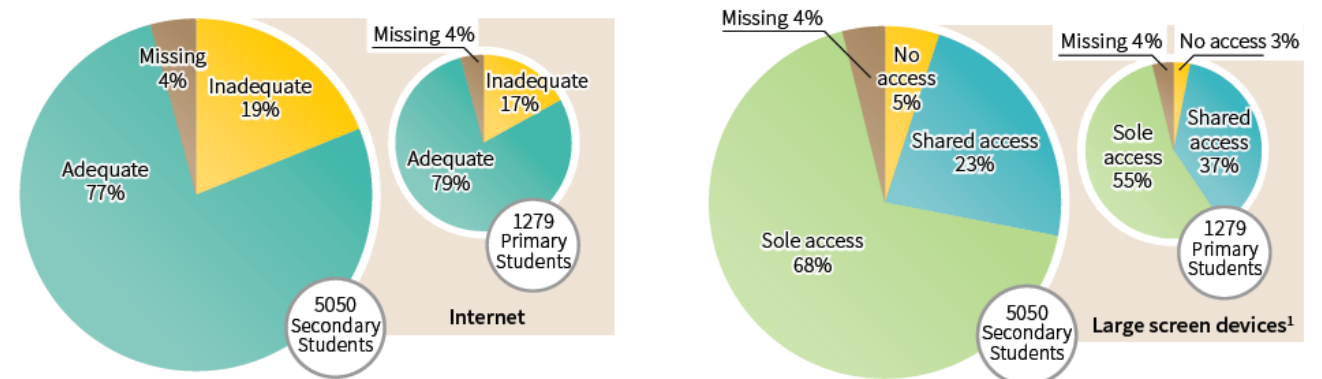


Table 3. Levels of stress experienced by students from different SES backgrounds

Sources of worry for students	Secondary students		Primary students	
	Higher SES ¹ students	Lower SES ¹ students	Higher SES ¹ students	Lower SES ¹ students
Upcoming examination	3.6	3.8**	3.1	3.3
Preparation for future career	3.3	3.5***	N/A ²	N/A ²
Always think about going online	3.1	3.2**	3.1	3.2
Long-term negative effect on learning	3.0	3.3***	3.2	3.1
Catching up with schoolwork	2.8	3.1***	2.0	2.4

¹ SES is computed using the following indicators: have a desk to study, own personal room, have a quiet place to study at home, the number of books at home, and the highest level of education completed by parents.

² Primary students were not asked this question.

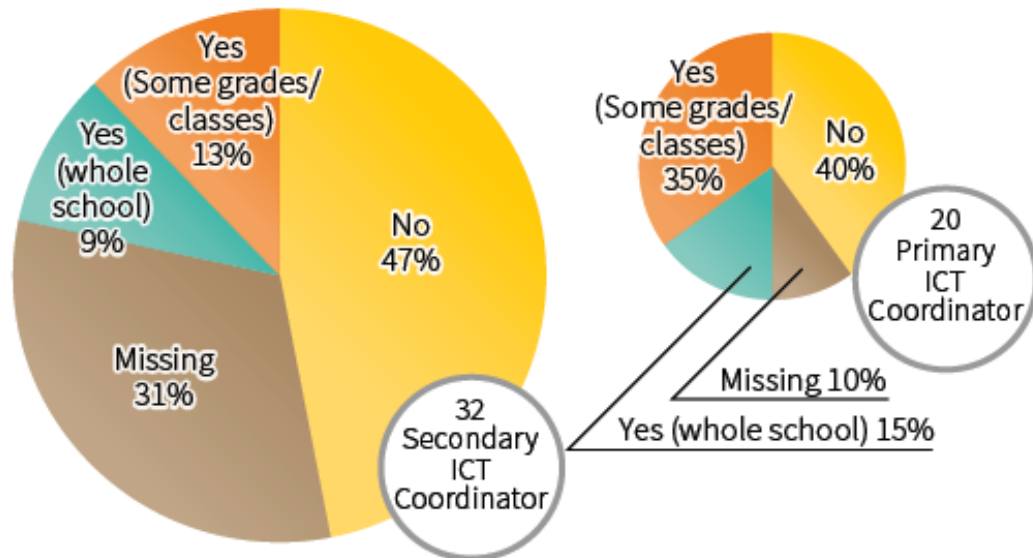
** Significant at <.01

*** Significant at <.001

The 1st set of findings released on July 20, 2020

Students learn better, teachers feel they teach better online if their schools are e-learning prepared before school suspension

Figure 6. Participating schools' BYOD status according to the ICT coordinator survey



N.B. The participating SEN school implemented BYOD in some grades/classes.

School participation in **Bring Your Own Device Program** is one prominent indicator for school level e-learning preparedness

E-learning team composition and functions matter!

eCitizen Education
數碼素養 **360**

Bulletin 2 (August 2020)

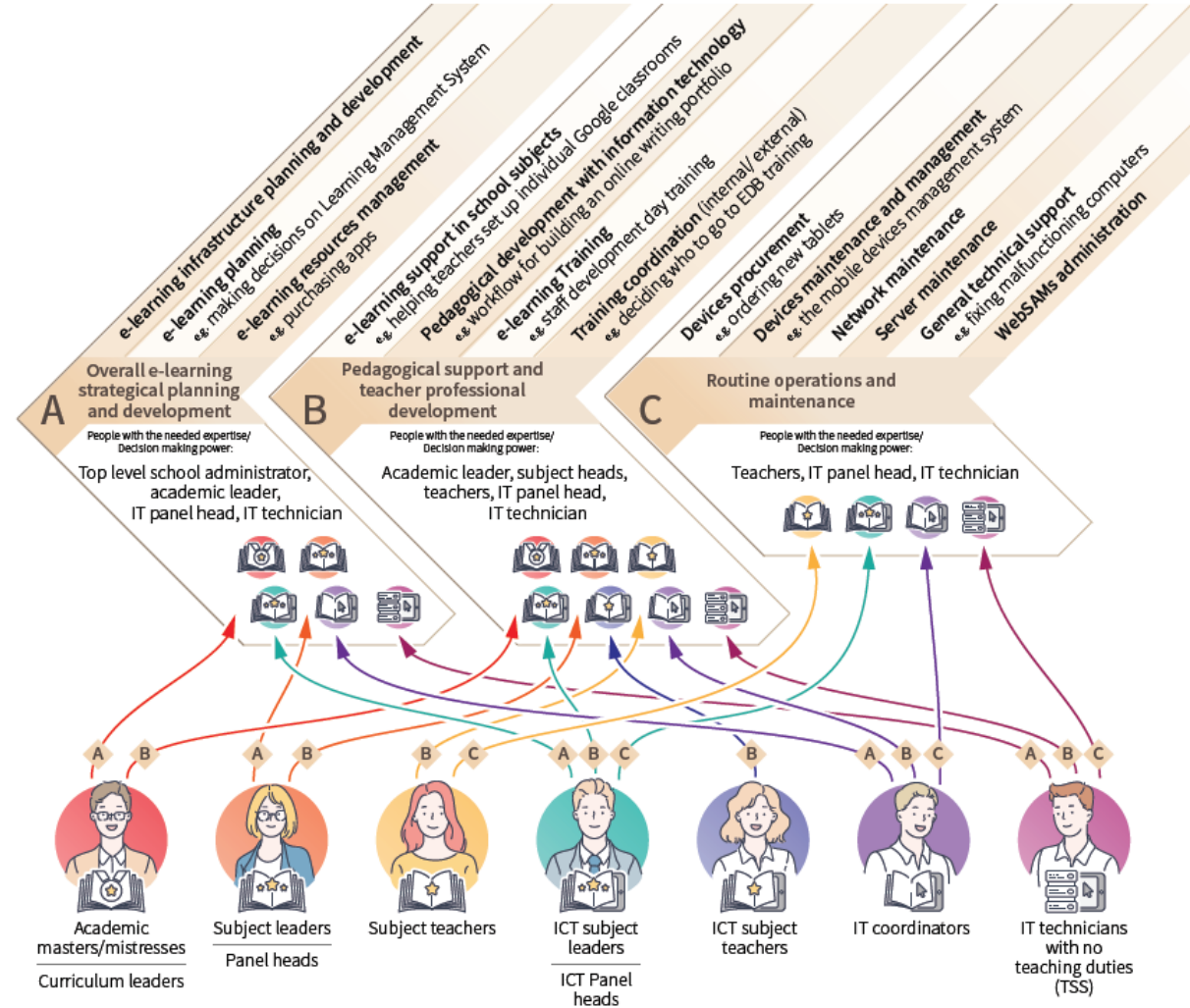
Online-learning preparedness for schools

Preparedness for quality online learning experiences and outcomes

Hong Kong launched its first IT in Education (ITE) Strategy in 1998, which thereby marking the first official policy in which Information and Communication Technology (ICT) is treated as an integral part of the whole curriculum to support learning and teaching, beyond simply a segregated school subject. The second ITE Strategy launched in 2003 formally highlighted a major role of ITE in achieving the overall curriculum reform goals announced the year before. In 2011, the Education Bureau (EDB) funded 21 e-learning pilot projects, many of which were joint ventures involving several schools, for the purpose of fostering e-learning good practices that promote student-centered, transformative learning. This, over the past two decades, for ICT use in education at the policy level, there has been a gradual shift to focus on e-learning, i.e. the use of digital technology with the emphasis on supporting student learning. During this time, schools have developed different digital infrastructure, curriculum priorities and support structures for e-learning. These prior developments and experiences for e-learning also laid the foundation for online learning during the COVID-19 pandemic which triggered school suspension. In this Study, we collect data about schools' e-learning policy and implementation to investigate the key features that constitute **preparedness** for quality **online learning** experiences and outcomes.



More information is available at <https://ecitizen.hk/>



School suspension aggravates digital literacy divide

Table 7. Students' self-reported learning outcomes and academic self-efficacy

Students' self-reported learning outcomes		Low SES ¹ Mean (SD) ²	Middle SES ¹ Mean (SD) ²	High SES ¹ Mean (SD) ²
<i>During schools suspension</i>	Digital skills improvement	-0.18 (1.03)	0.00 (1.01)	0.18 (0.93)
	Learning new digital skills	-0.15 (0.99)	0.05 (1.00)	0.08 (0.99)
	Academic self-efficacy	-0.21 (1.06)	0.02 (0.99)	0.18 (0.92)
<i>Before school suspension</i>	Academic self-efficacy	-0.15 (1.09)	0.00 (0.97)	0.15 (0.93)

¹ SES score is computed using the following indicators: have a desk to study, own personal room, have a quiet place to study at home, the number of books at home, and the highest level of education completed by parents. Students with SES scores within the top 30% of the total sample is categorized at high SES students, those scoring in the bottom 30% are categorized as low SES students, and the remaining 40% is categorized as middle SES.

² These outcome scores have been standardized to have a mean of 0 and a standard deviation of 1.

School e-learning preparedness is a protective factor for low SES students

Table 8. Multilevel modeling results for teacher preparedness indicators predicting student experiences and outcomes

Teacher preparedness for online teaching	Student online learning experiences and outcomes <i>during school suspension</i>		
	Regression coefficient (p-values) ¹		
	Participation in online learning activities	Learning new digital skills	Academic self-efficacy
Availability of general technical support for online L&T			0.28 (p=0.01)
Teachers' extent of use of different e-learning tools	0.46 (p=0.07)		
	0.4 (p=0.02)		
	0.37 (p=0.04)		
Teachers' perceived effectiveness of online teaching methods	-0.35 (p=0.07)		0.28 (p=0.01)
		0.4 (p=0.07)	0.39 (p=0.05)
¹ Regression coefficient and p-values shown only for statistically significant results at the .10 level.	Low SES students	Middle SES students	High SES students

What factors influence teachers' online teaching preparedness?

eCitizen Education
數碼素養 **360**

Bulletin 3 (November 2020)

Online-learning preparedness for teachers

Progressive innovative teachers and online preparedness for the new normal

In the first release of research findings from the eCitizen Education 360 study, we reported that pre-suspension e-learning preparedness was crucial to effective online learning transition during the COVID-19 induced school suspension period. e-Learning Preparedness of a school include having an e-learning strategy well-integrated into the school's overall development plans and giving a high priority to student-centred e-learning pedagogies. Further, it was found that schools that participated in the BYOD program generally had higher levels of e-learning preparedness.

In **bulletin 2**, we explored in detail schools' e-learning policy and implementation to investigate the key features that constitute preparedness for quality online learning experiences and outcomes. There was a huge diversity across schools in the number of staff members, their roles and functions involved in e-learning coordination. Further, e-learning coordination and the school's vision for e-learning have a major impact on the experience and perceived outcomes of online learning reported by teachers and students.

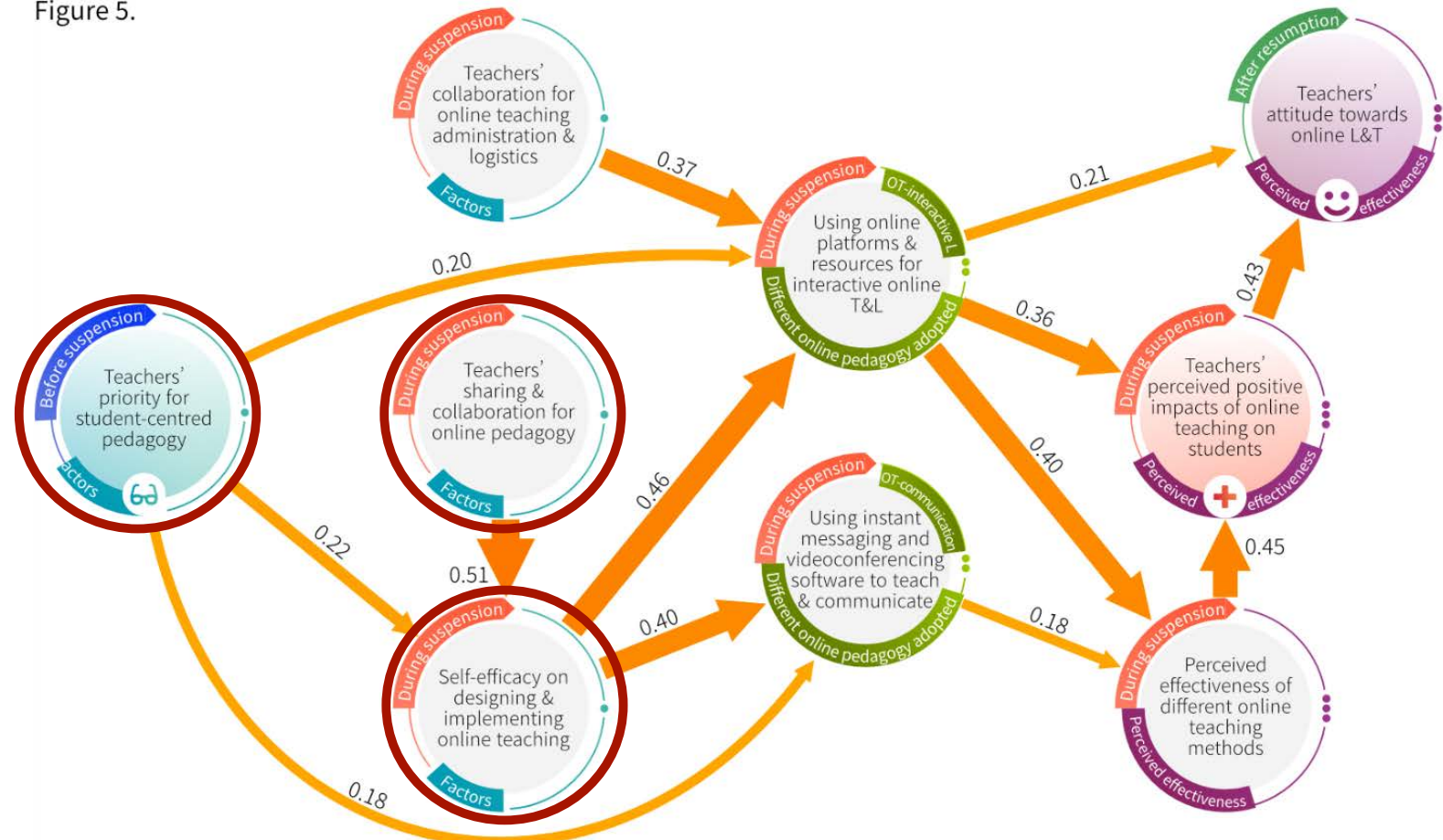
In this bulletin, we report on the in-depth analysis of the teacher survey data to understand what constituted the key characteristics of teachers who were most prepared for the shift to fully online learning, and what factors contribute most to such teacher preparedness.



More information is available at <https://ecitizen.hk/360/>



Figure 5.

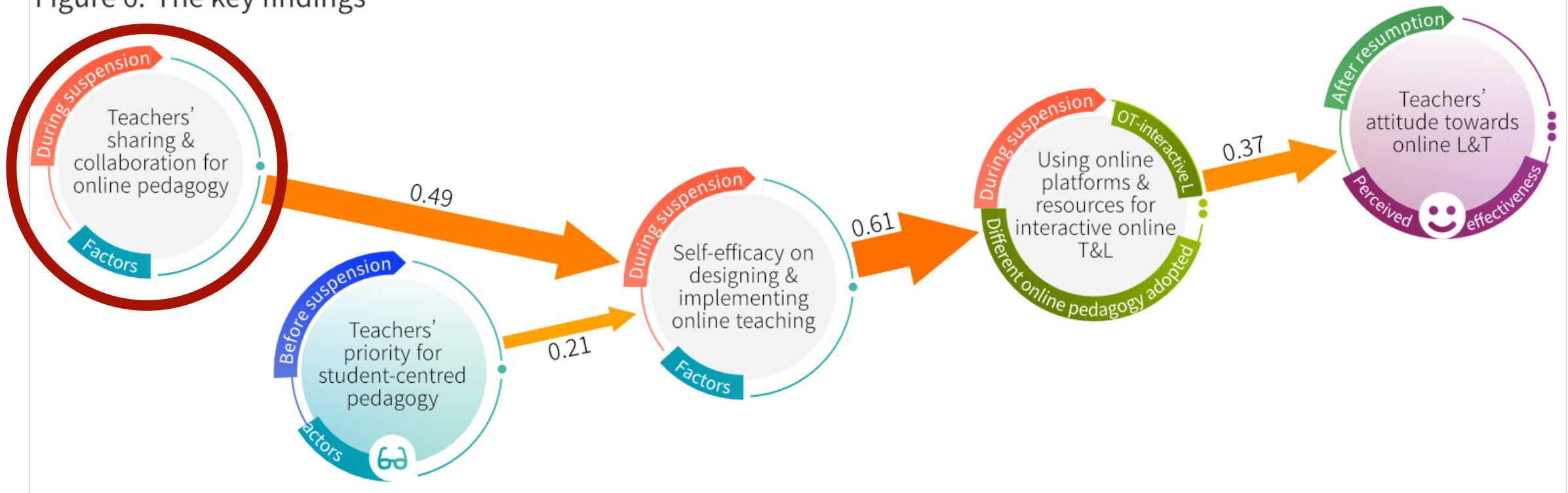


Structural equation modeling

The 3rd set of findings released on Nov 3, 2020

Teachers' sharing & collaboration for online pedagogy: greatest influence on teacher's *Online Teaching Preparedness*

Figure 6. The key findings



What school leadership practices have the most impact on online learning preparedness?

eCitizen Education 數碼素養 360

Bulletin 4 (January 2021)

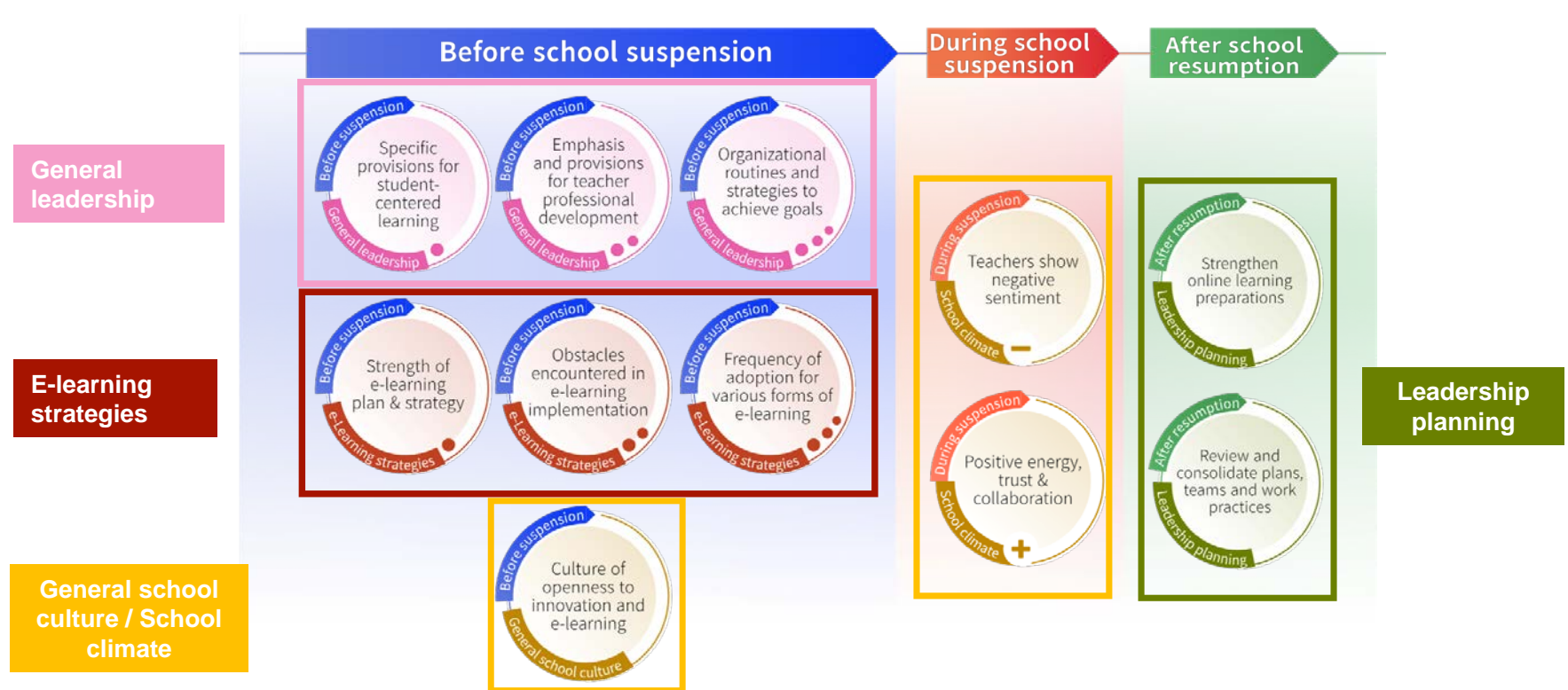
Multi-Level School Leadership for online learning preparedness

Building a school culture of trust and collaboration for pedagogical innovation

In bulletin 1, we reported the importance of pre-school-suspension e-learning preparedness, including priority to student-centred pedagogies and integration of e-learning strategies into schools' overall development plans, to effective transition to online learning during the COVID-19 induced school suspension period. In the second bulletin, we zoomed into the e-learning coordinator survey and investigated key features of schools' online learning preparedness. We discovered that the membership and roles of the e-learning coordination team, and teacher professional development provisions constitute the most important school level implementation factors. In the third bulletin, we identified four typical groupings of teachers on e-learning innovation. Findings also showed that teachers' engagement in online teaching related collaboration in school is the best predictor of their Online Teaching Preparedness.

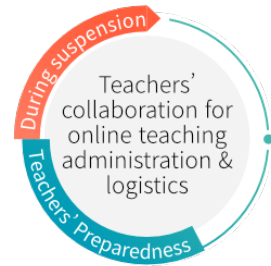
In this bulletin, we examine the role of specific leadership practices in promoting Online Teaching and Learning (OTL) Preparedness. Findings suggest that campus-wide culture of collaboration, mutual trust, and openness to innovation are key conditions for online teaching and learning preparedness. In addition, leaders' overall school development priorities and strategies are the strongest predictors of positive school culture and forward planning for online TEL in 2020-21. In implementing these plans, senior leaders and middle-level non-academic leaders are more optimistic and confident in the face of challenges, and often see failure as "room for improvement".

More information is available at <https://ecitizen-360/>

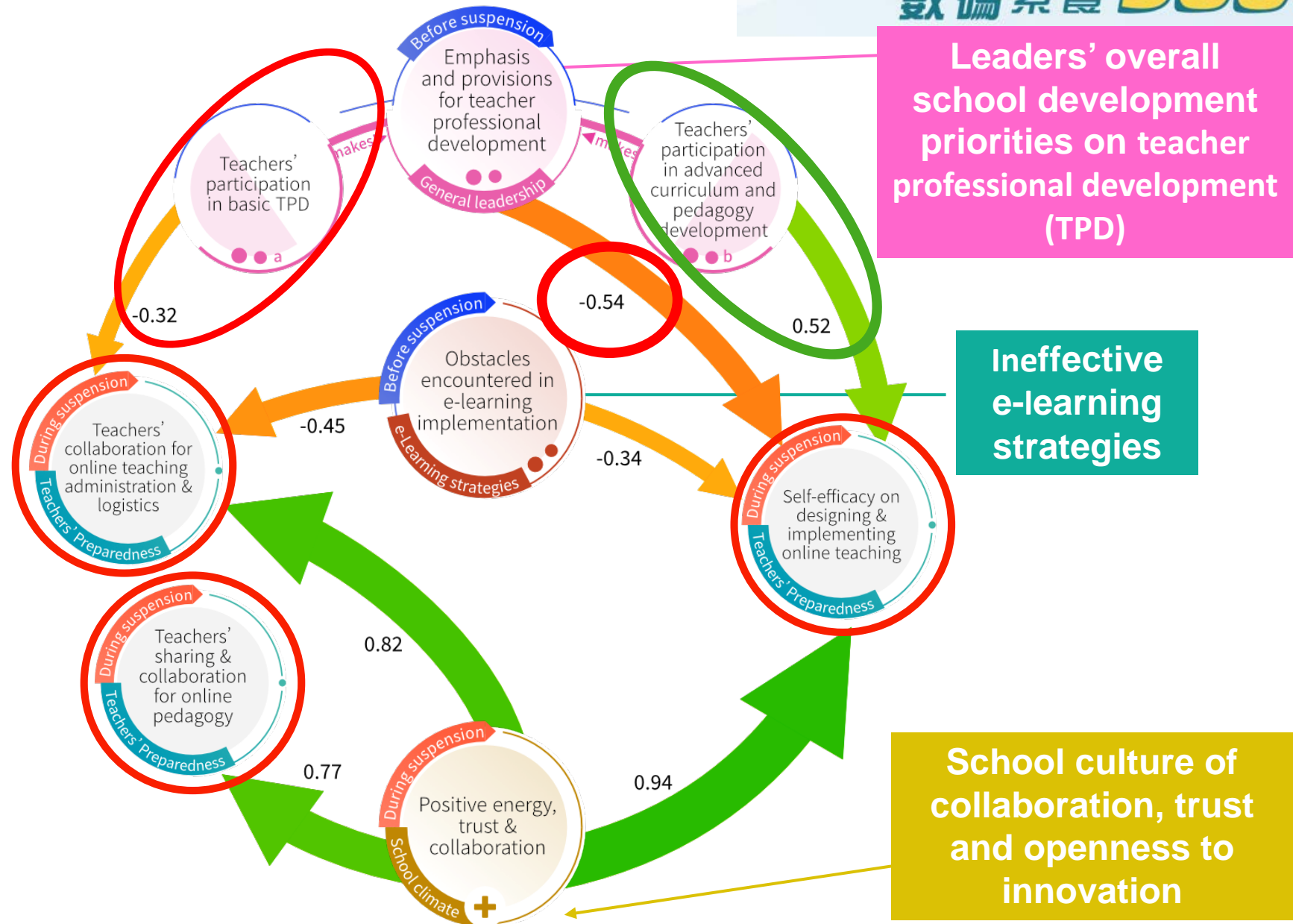



The 4th set of findings released on Jan 19, 2021

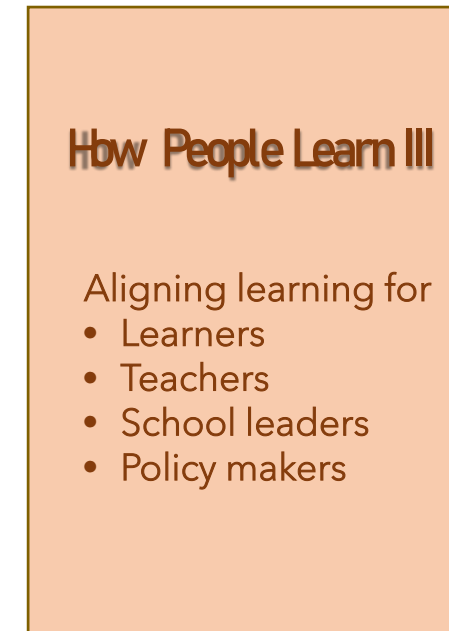
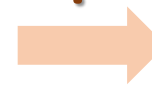
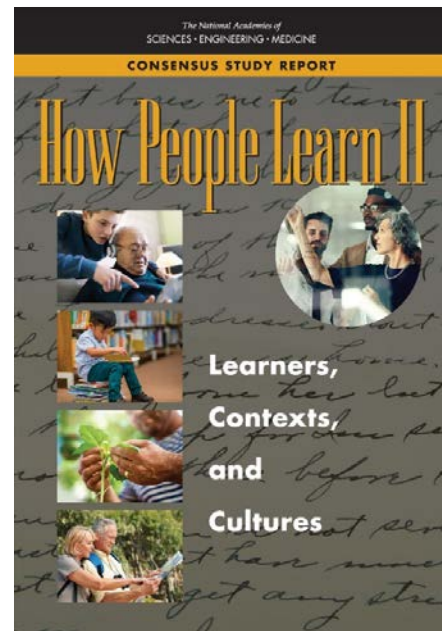
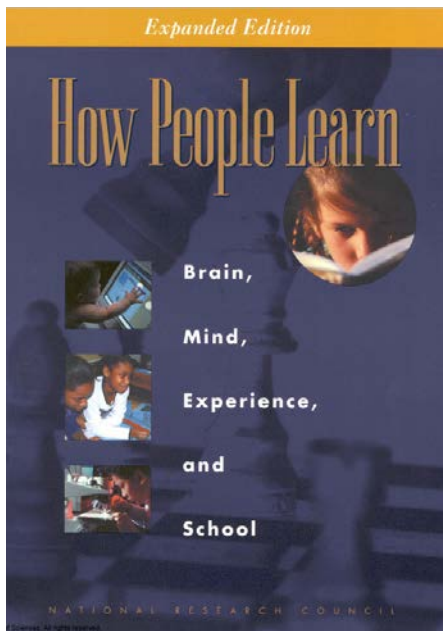
In the 3th bulletin
(from Teacher Surveys):
The most significant factors to
Teachers'
online teaching preparedness



In the 3th bulletin
(from Teacher Surveys):
The most significant factors to
Teachers' online teaching preparedness



Building a Culture of Trust, Collaboration, and Openness to Innovation through Multi-level School Leadership is the Key to Online Learning and Teaching Preparedness during the New Normal



Project website:

<https://ecitizen.hk/360/>



Research bulletins:

<https://ecitizen.hk/360/bulletins-reports#bulletins>

