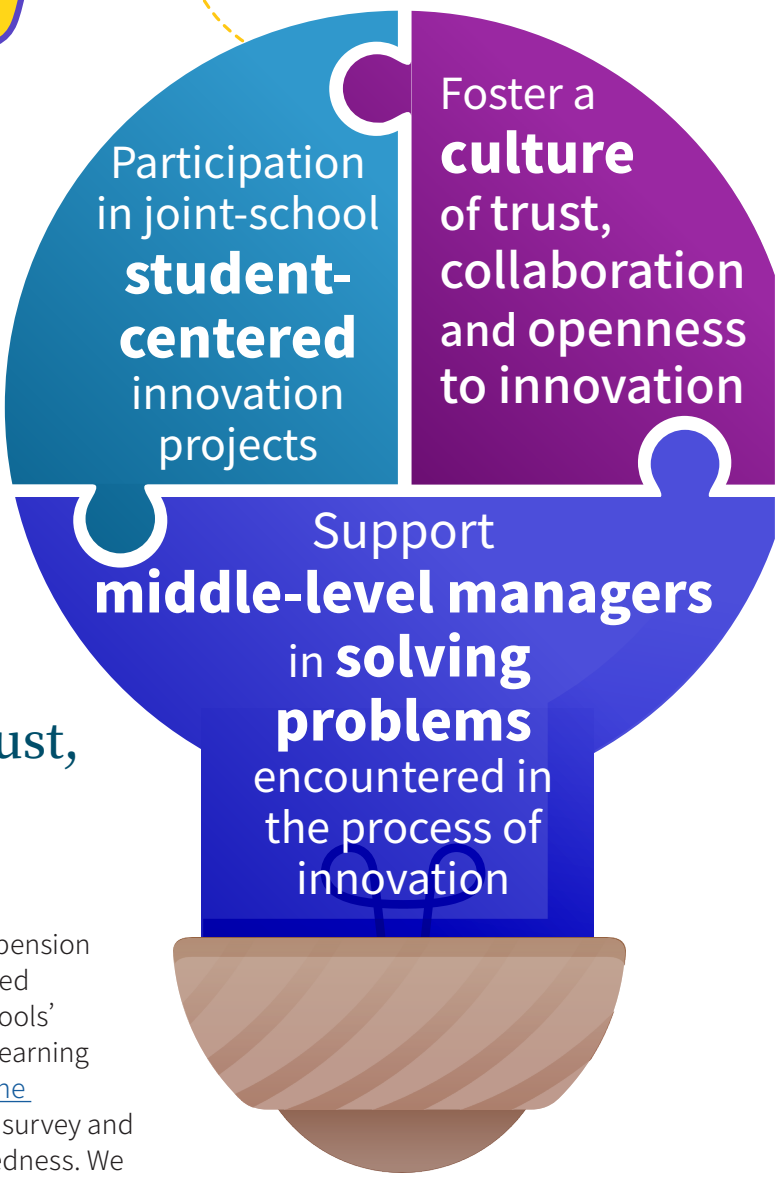
eCitizen Education 數碼素養360

Bulletin 4 (February 2021)

Multi-level School Leadership for online learning preparedness



Building a school culture of trust, collaboration and openness to 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 (T&L) Preparedness. Findings suggest that a school-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 T&L in 2020-21. In implementing these plans, senior leaders and non-academic middle-level managers are more optimistic and confident in the face of challenges, and often see failure as "room for improvement".

Organized by

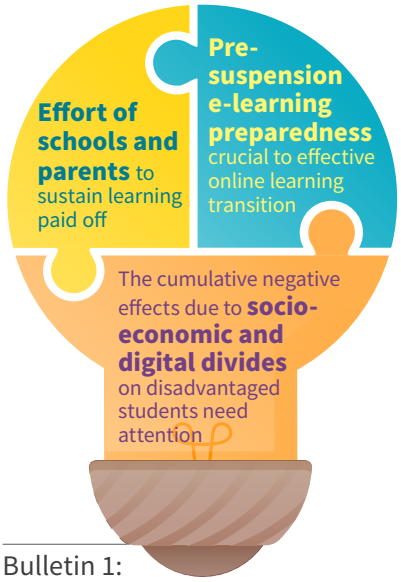
Learning and Assessment for DIGITAL CITIZENSHIP

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

Findings from earlier releases of study results

Key factors influencing school level online learning preparedness

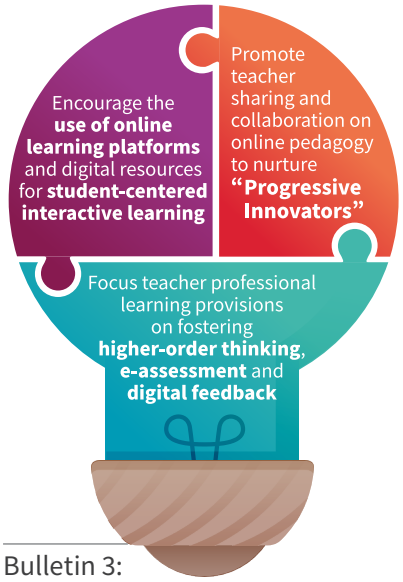
Outcomes and challenges of online learning during school suspension



Bulletin 1:

Bulletin 2:

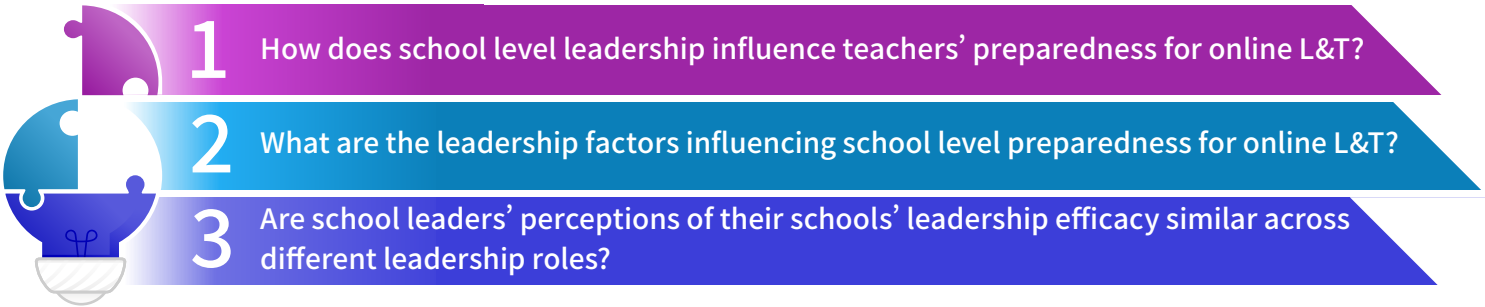
Key factors influencing online-learning preparedness for teachers



Bulletin 3:

Bulletin 4:

Research Questions for this bulletin



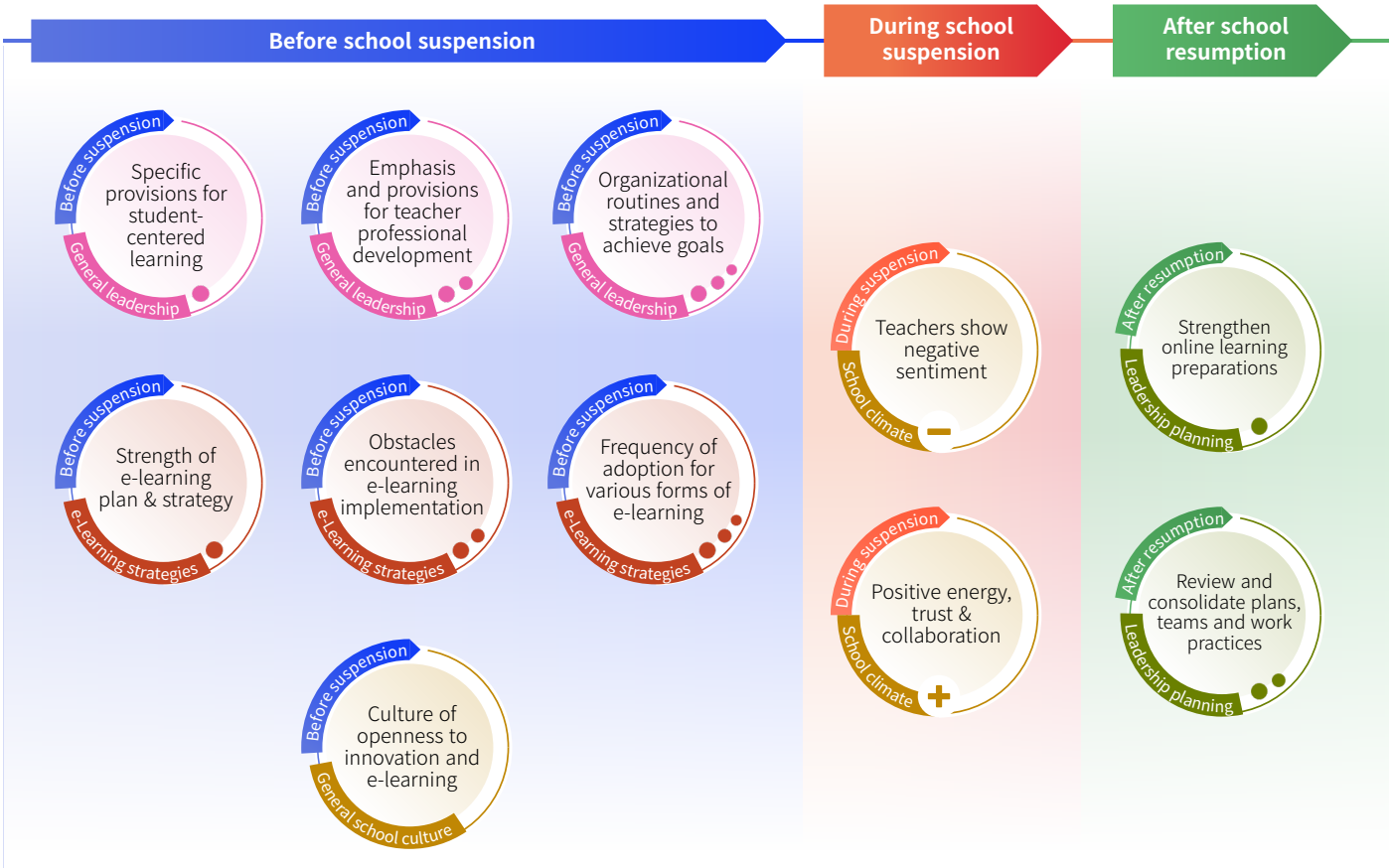
Research Design

We investigated school leaders' perceptions of the state of their schools' educational priorities, leadership practices and outcomes through a survey to school leaders. School leaders include both senior leaders, academic middle managers, and non-academic middle managers. All categories of school leaders respond to the same survey so that we can compare their perceptions.

Eleven indicators were calculated from responses to the school leader survey (see Figure 1). Of these:

- Seven factors are related to the perceived conditions *before school suspension* (those on the blue shaded background in Figure 1):
  - Three of these factors pertain to perceived general leadership conditions *before school suspension*: the extent to which the school had in place strategies for providing a school environment and support for student-centred learning such as catering for learner diversity, attention to students' physical and socio-emotional well-being and fostering students' 4Cs (critical thinking, communication, collaboration and creativity) development; the importance of various kinds of teacher professional development provisions (TPD), which can be classified into two subcategories: one type being participation in externally provided TPD activities such as courses and workshops, and the other involving teachers' active participation in school-based and/or joint-school curriculum innovation projects; and the extent to which specific organizational strategies and routines were adopted to achieve the school goals.
  - Another set of three factors pertain to the school's e-learning strategies and implementation *before school suspension*: the strength of the e-learning plan and strategy, which captures the extent to which e-learning plays a core role in the overall school development plan; the extent to which obstacles were encountered in e-learning implementation due to reluctance of teachers and students; and frequency of adoption for various forms of e-learning in the school.
  - One factor relates to the extent to which there was a culture of openness to innovation and e-learning among teachers in the school.
- A set of two factors related to the school climate *during the school suspension period*, which can be considered as indicators for school preparedness (those on the orange background in Figure 1): the extent

Figure 1. The list of 11 variables analyzed and reported in this Bulletin



to which teachers exhibited negative sentiments, such as anxiety and concerns; and the extent to which teachers demonstrated a sense of mission, positive energy, trust and collaboration.

- A set of two factors regarding leadership planning *after school resumption*, measuring the extent to which the school has plans to further strengthen its preparations for online learning based on the experiences gained during the school suspension period through: providing support for student-centered interactive online learning and authentic assessment through a variety of means; and reviewing and consolidating plans, teams and work practices.

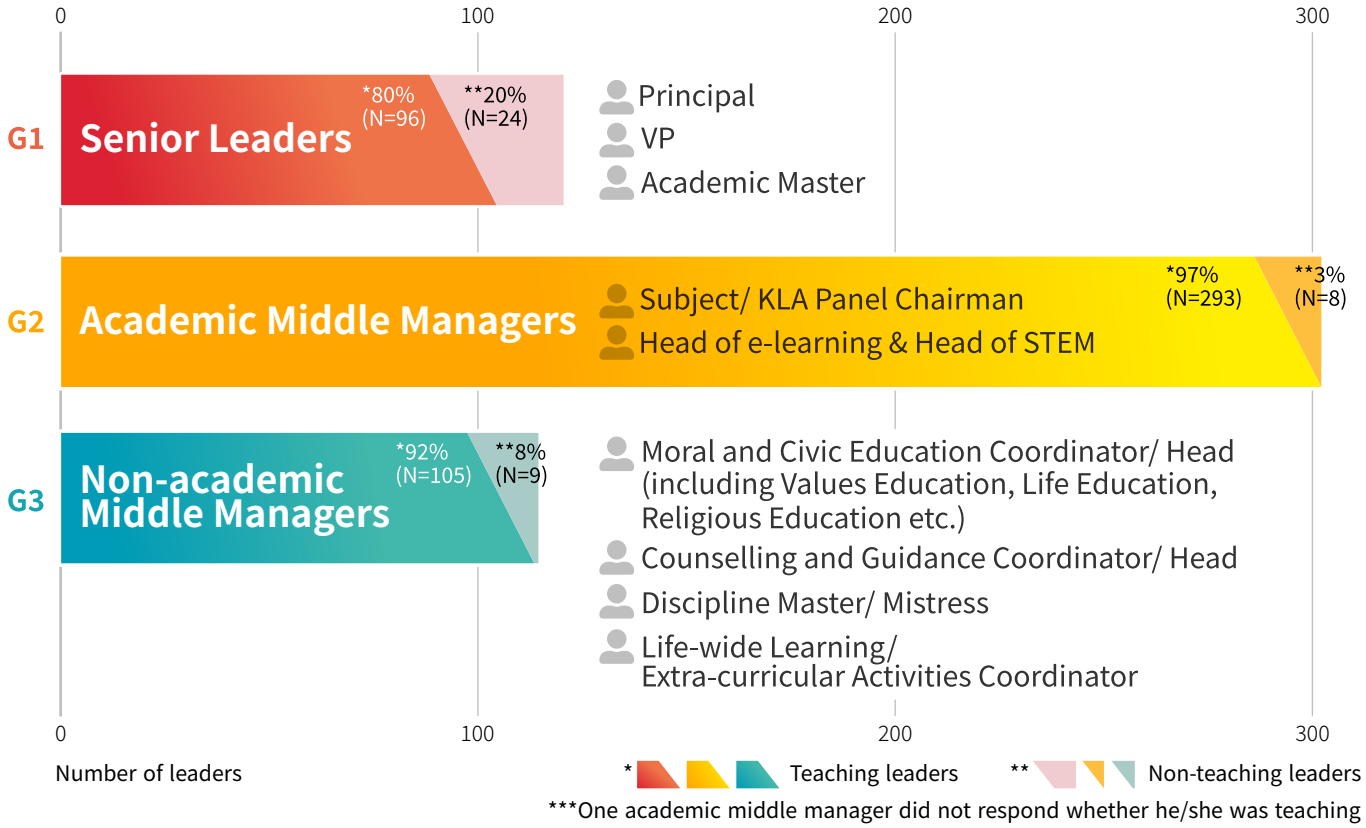
Profile of the Surveyed School Leaders

A total of 536 responses from school leaders (195 primary school leaders from 19 primary schools and 341 secondary school leaders from 29 secondary schools) were included in the analysis for Bulletin 4.

School leaders can be categorized into three groups based on the main leadership roles they play in the school. Group 1 G1 refers to Senior Leaders, which include Principals, Vice Principals, and Heads of Academics. Academic Middle Managers are grouped under G2, comprising heads of school subjects / KLAs (Key Learning Areas), and coordinators of e-learning / STEM. Non-academic Middle Managers are grouped under G3, and include heads / coordinators of Moral and Civic Education / Values Education / Life Education / Religious Education, etc., Counselling and Guidance Coordinators, Discipline Masters / Mistresses, and Life-wide learning / Extra-curricular activities Coordinators. Figure 2 shows the distribution of the surveyed school leaders across the three role groups. For school leaders who take up roles in more than one role category, they are grouped under the first listed role group. For example, if the head of academics is also head of mathematics, s/he will be grouped under G1. If a discipline master is also head of mathematics, s/he will be grouped under G2.

Whether the school leader has classroom teaching duties may also influence his/her perception of the state of school development and online T&L implementation, we have also indicated in Figure 2 the percentage of leaders who also has classroom teaching duties in addition to the leadership duties. It can be seen that 20% of the surveyed senior leaders do not have teaching duties, whereas only 3% of the academic middle managers do not have teaching duties.

Figure 2. Percentage of surveyed school leaders in each of the leadership areas and distribution of school leader roles



***One academic middle manager did not respond whether he/she was teaching

School Leadership Factors Influencing Teachers' Online Teaching Preparedness

The 11 factors computed from the school leader survey responses reflect the perceived situation in each school before, during and after school suspension by its leaders. We investigated whether any of these factors predict the online teaching preparedness of the teachers in the same school by using multi-level structural equation modelling (SEM). The seven before school suspension indicators and two during school suspension indicators from the school leader survey were used as predictors, and the three teacher online teaching preparedness indicators reported in Bulletin 3 as dependent variables in the models. Figure 3 shows the results of the analysis. The three most important preparedness indicators found from the analysis of the Teacher Survey data reported in Bulletin 3 are: (1) the extent to which teachers shared and collaborated with peers on online pedagogy, (2) the extent to which teachers collaborated on administrative and logistic issues related to online teaching, and (3) the teachers' self-efficacy in designing and implementing online teaching. These three teacher indicators are marked as T1, T2 and T3 in Figure 3.

As the analysis results in Figure 3 show, there are three statistically significant school leadership predictors for teachers' online teaching preparedness. The thickness of the arrows in the Figure indicates the strength of the prediction. The analysis results show that the strongest predictor is the perceived positive energy, trust, and collaboration during school suspension, which reflects the extent to which a positive school climate existed during school suspension. It positively predicts all three teacher preparedness indicators.

Figure 3. Results of the SEM on school leaders predicting teachers' outcomes

The second significant predictor is the extent to which obstacles to e-learning implementation existed before school suspension. It is a negative predictor, indicating that schools in which their leaders report more obstacles in e-learning implementation pre-school-suspension, the teachers are less likely to report collaborating with peers on online teaching administration and logistics, and more likely to report lower self-efficacy in the design and implementation of online teaching.

The third significant predictor is the emphasis placed by the school on teacher professional development (TPD). The analysis found that TPD is a more complex indicator. Whether emphasis on TPD contributes positively or negatively to teacher preparedness depends on the type of TPD that is being emphasized. If the TPD emphasis is on teachers' participation in external provisions of basic TPD courses/workshops, it contributed negatively to teacher collaboration. On the other hand, if the TPD emphasis is on teacher learning through participation in school-based and/or joint-school curriculum and pedagogical innovation projects, it predicts higher levels of self-efficacy for online teaching.

These findings about the relationship between school level factors and teacher preparedness are fully consistent with findings from Bulletin 3, which highlights teacher collaboration on online pedagogy and in general online teacher administration and logistics to be the most important teacher preparedness indicators for online teaching. A positive school climate is most important and conducive to teacher collaboration. Moreover, teacher learning (or TPD) needs to be connected to school-based efforts on pedagogical and e-learning related innovations for it to bring about productive learning outcomes in teachers' online L&T practices.

School Level Online L&T Preparedness

To seek a better understanding of how situations before school suspension predict a school's situation during and after school suspension, we conducted another set of analysis using SEM. Results of the analysis are presented in Figure 4.

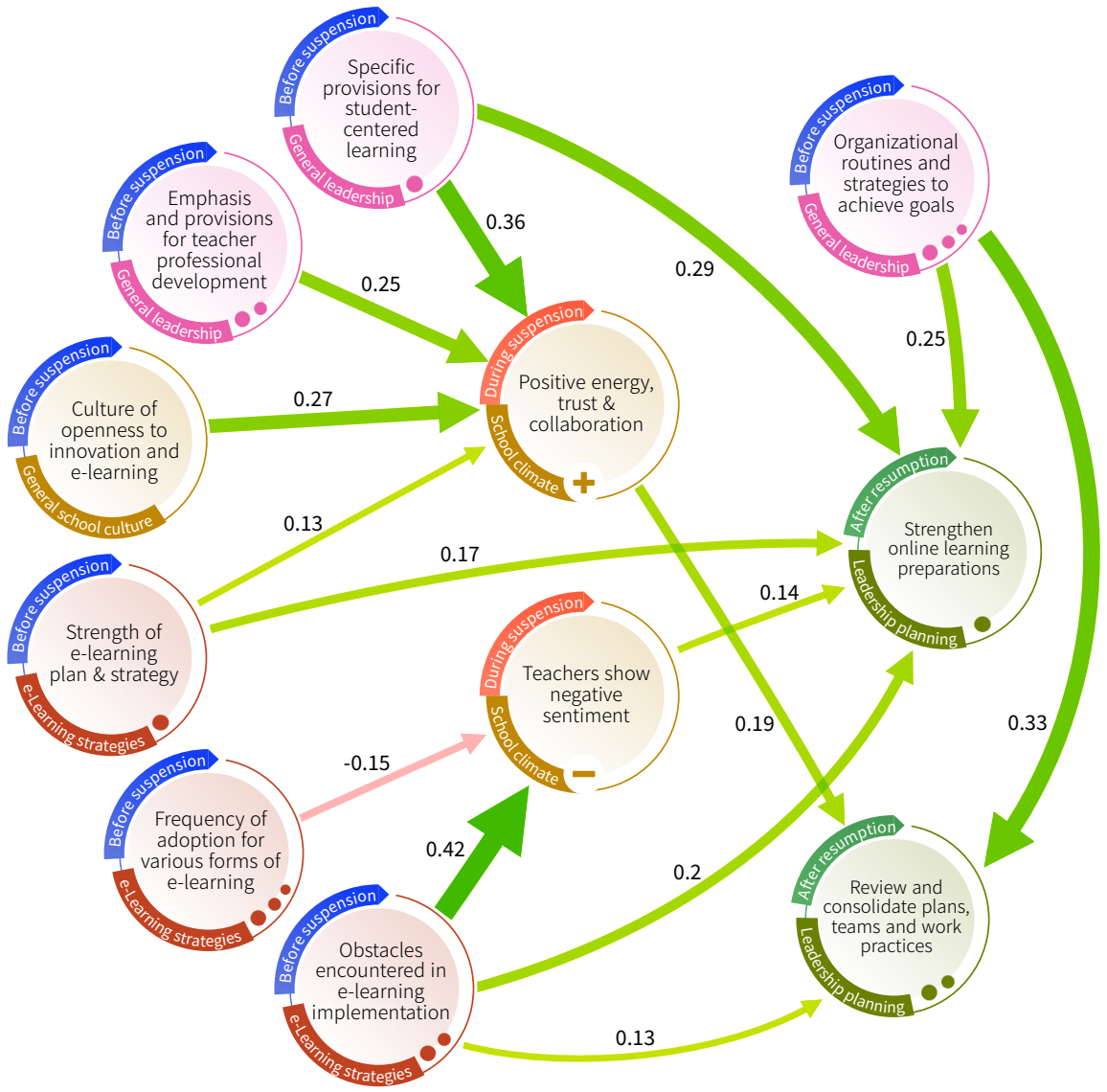
General leadership capacity and innovation culture of the school predicts positive school climate

The two school leadership indicators during the school suspension period relate to the school climate, one positive and the other negative. These can be taken as the core school level preparedness indicators. Positive climate (sense of mission, positive energy, trust and collaboration) during school suspension is significantly predicted by the level of efficacy of overall general school leadership (having specific provisions for student-centered learning, emphasis on TPD, and the extent to which the school has a culture of trust and openness to curriculum innovation and e-learning) before school suspension. Another positive predictor of positive school climate during school suspension is the strength of the school's e-learning plan and strategy before school suspension, though the coefficient of the relationship is smaller than the other predictors.

Obstacles in e-learning plan, strategy and implementation predicts negative school climate

The other school level preparedness indicator is the extent to which there was an adverse school climate (teachers showing negative sentiment, stress and worries) during school suspension. The strongest predictor of a negative school climate is the extent to which school leaders reported obstacles in e-learning implementation before school suspension. It was also found that higher reported frequencies of e-learning implementation before school suspension predict lower levels of negative climate. These findings are not

Figure 4. Results of the SEM conducted on 11 variables listed in Figure 1



surprising since the more frequent teachers had actually used various forms of e-learning prior to school suspension, the less anxious and concerned they would be when lessons had to be taught fully online. Further, if teachers were reluctant to implement e-learning before school suspension, they would also be prone to have negative sentiments towards online teaching.

It is noteworthy that positive climate is primarily related to the school's status in overall development whereas the negative climate is directly related to the e-learning planning and implementation before school suspension. Both are important indicators of school preparedness for online L&T.

Pre-suspension school leadership capacity is a stronger predictor for post-suspension planning for strengthened preparedness

We also investigated the extent to which the schools were making plans to prepare the school for further challenges in the new school year due to the unpredictability of the pandemic. The two rightmost indicators in Figure 1 measure the extent to which the school planned to strengthen its online learning preparations and review and consolidate plans, teams and work practices based on the experiences gathered during the school suspension period.

The analysis results presented in Figure 4 shows two strongest significant predictors for further planning to strengthen online L&T preparedness: the extent to which the school already had specific provisions for student-centered learning, and the organizational routines and strategies for achieving its goals before school suspension. There are three other weaker but still statistically significant and positive predictors for

the school's further planning for online T&L preparedness: the strength of its e-learning plan and strategies before school suspension; obstacles encountered in e-learning implementation before school suspension; and teachers' negative sentiments during school suspension. It is obvious from these results that negative experiences or weaknesses exposed before and during the school suspension period are likely to stimulate more efforts to further improve the school's preparedness for online L&T. However, the strength of prediction from the indicators of weakness are much lower than those associated with the general leadership capacities already existing within the schools.

The second planning indicator — the extent to which the school plans to review and consolidate plans, teams, and work practices — is positively predicted by three indicators. The strongest predictor is the extent to which organizational routines and strategies are in place in the school to achieve its goals. The second predictor is the extent of positive climate evident in the school during school suspension. The weakest predictor is the extent to which the school encountered obstacles in e-learning implementation. Thus, similar to the first planning indicator, even though prior weakness is likely to trigger further planning, the strength of prediction is lower than those associated with strengths exhibited before and during school suspension. These results indicate that learning from negative experiences alone is inadequate to help relatively unprepared schools to make up for the shortfall in preparedness.

How School Leaders in Different Roles Perceive the State of School Development

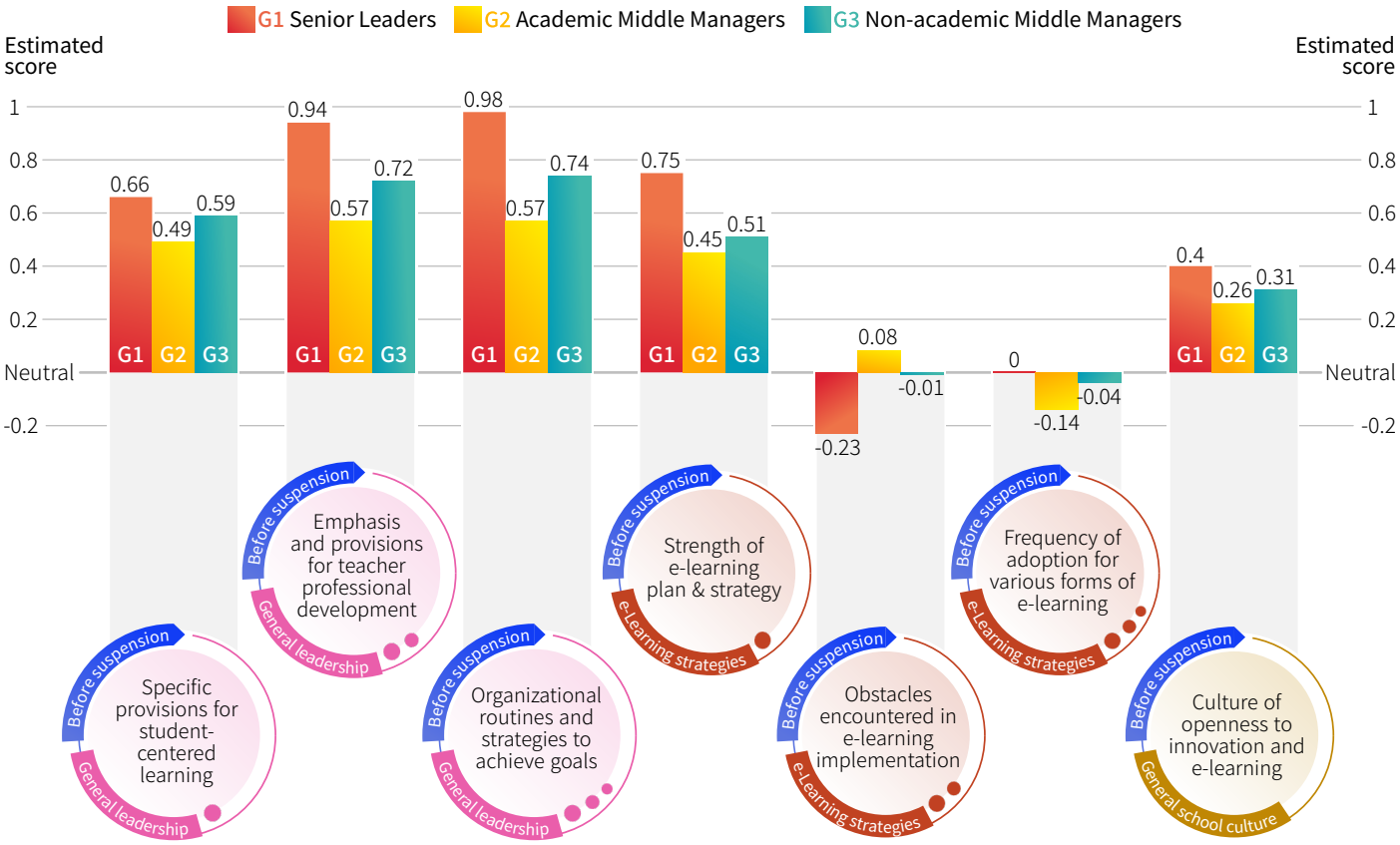
School leaders in different positional roles are charged with different responsibilities and may encounter different challenges during the school suspension period. We thus explore whether leaders in the same school may have different perceptions of their school's situation before, during and after the school suspension period.

Figure 5 presents the perceptions of the three groups of school leaders regarding the seven indicators before school suspension. "Zero" on the y-axis represents a neutral position for the respective indicators. The results show that the surveyed senior leaders G1 generally held the most positive view towards their schools' overall leadership efficacy (the three leftmost indicators), whereas the academic middle managers G2 tended to hold the least positive view. It also shows that among the three groups of school leaders, G1 leaders held the highest regard for the strength of their schools' e-learning plans and the highest rating for the presence of a culture of openness to innovation and e-learning in their schools before school suspension, while G2 leaders similarly held the lowest perceived strengths for their schools regarding these indicators.

Regarding the two e-learning related pre-suspension indicators, the perceptions of the three groups of leaders were also different. G1 leaders in general did not report having encountered obstacles in their school's e-learning implementation (hence a negative mean), whereas G2 leaders on average reported having encountered obstacles, and G3 leaders' views on this was neutral. For the indicator about frequencies of e-learning adoption before school suspension, G1 leaders considered their school to have a medium presence whereas G2 leaders considered the frequencies to be on a low side, while G3 leaders' responses were slightly below medium.

Overall, the analysis results show that senior leaders generally have a more optimistic view of the situation in their schools before the pandemic than middle level managers, and among the latter, the academic middle managers had the least optimistic views. It has to be noted that G2 leaders are also mostly classroom teachers (only 3% of G2 leaders do not have any teaching duties). This means that they have firsthand experiences of

Figure 5. Results of estimated score of G1, G2 and G3 on 7 indicators before school suspension



how school level policy and innovative initiatives may impact on the everyday experiences of teachers and students. They are also more likely to be assigned roles as implementation leaders and agents of change in new curriculum/pedagogical initiatives, and hence are in the frontline to solve emerging problems, including negativities from other teachers. G3 leaders are somewhat more optimistic than G2 leaders, possibly because students' non-academic development is not as keenly scrutinized and thus have more space for change and adaptation in those areas.

Progressive v.s. Risk Averse Leaders

We explored whether there are typical groupings of school leaders based on their perceptions of the pre-suspension state of school development. Using Latent Class Analysis (LCA), we found two statistically satisfactory ways to cluster school leaders, one based on the general leadership and school culture indicators, and the other based on the e-learning leadership indicators.

Results of applying LCA to the four indicators pertaining to general leadership and school culture towards innovation and e-learning, school leaders can be categorized into two classes of similar sizes, and the results are presented in Figure 6. Class 1 leaders are optimistic, confident, and progressive. They attached much higher importance to provisions for student-centered learning, TPD, and regular reviews of school routines and strategies to achieve targeted school development goals. They also perceive much higher levels of openness to innovation and e-learning in the school culture. We thus refer to this class of leaders as *optimistic, firm and progressive* leaders. Class 2 leaders also have positive perceptions of these four indicators, but to a much lower level. They are referred to as *pragmatic and risk averse* because of their lower concern about student-centered learning and TPD, and their almost neutral position regarding whether there is a culture of openness to innovation and e-learning in the school.

The LCA results on the three e-learning related indicators yielded a three-class solution, which are presented in Figure 7. Class 1 leaders had the highest rating for the effectiveness of their schools' e-learning plans and strategies, disagreed that the school encountered barriers in e-learning implementation, and considered that the school had a relatively high frequency of e-learning adoption even before school suspension. We thus refer to these leaders as *e-learning mature*. Class 2 leaders also held a positive

rating for their schools' e-learning plans and strategies, but reported the highest perceived obstacles among the three classes, and a relatively low frequency of e-learning adoption. They are referred to as *e-learning progressive* since they are still positive about their schools' e-learning plan. Judging from the relatively high level of obstacles encountered in e-learning implementation, they were probably also firm in their commitment to advancing e-learning implementation, even though it was still an uphill battle in the process. Class 3 leaders held a very negative view of their school's e-learning plan and strategies and reported an extremely low frequency of e-learning adoption before school suspension. The reported level of obstacles encountered was lower than for Class 2, possibly because of the lack of implementation efforts. The Class 3 leaders are thus referred to as *e-learning averse*.

Figure 6. Results of recentered predicted mean by class on general leadership factors

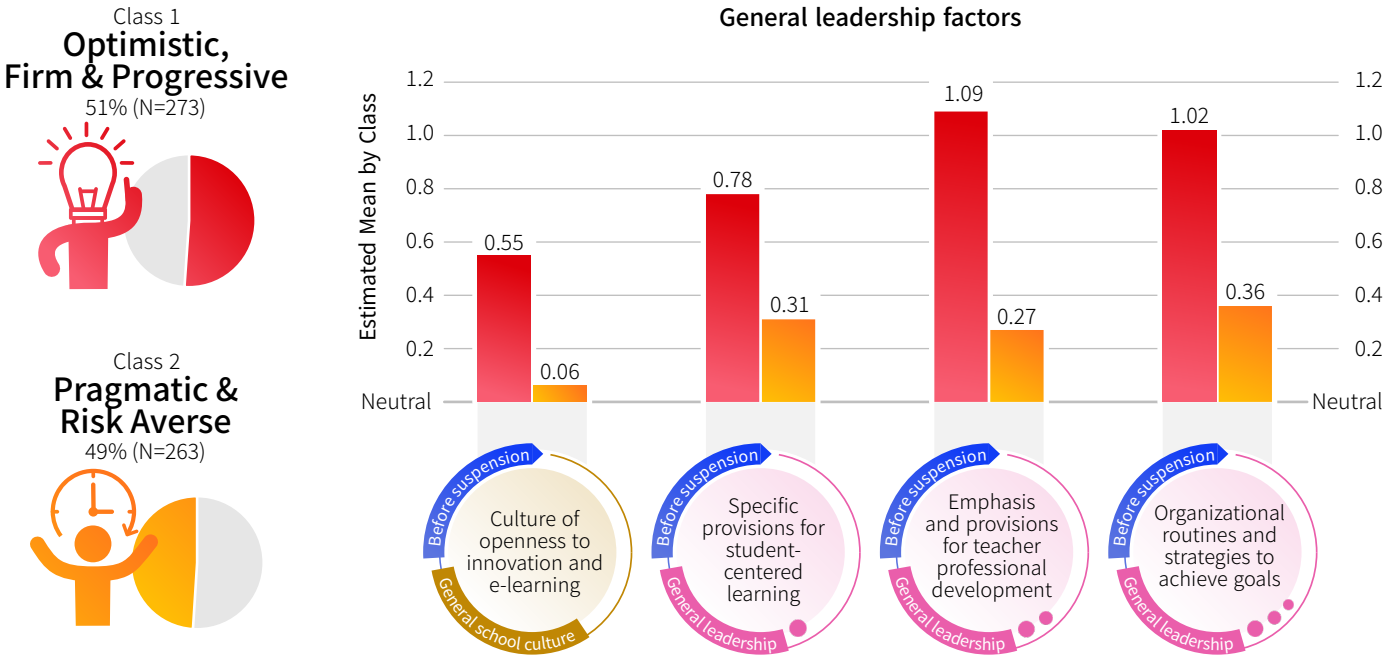
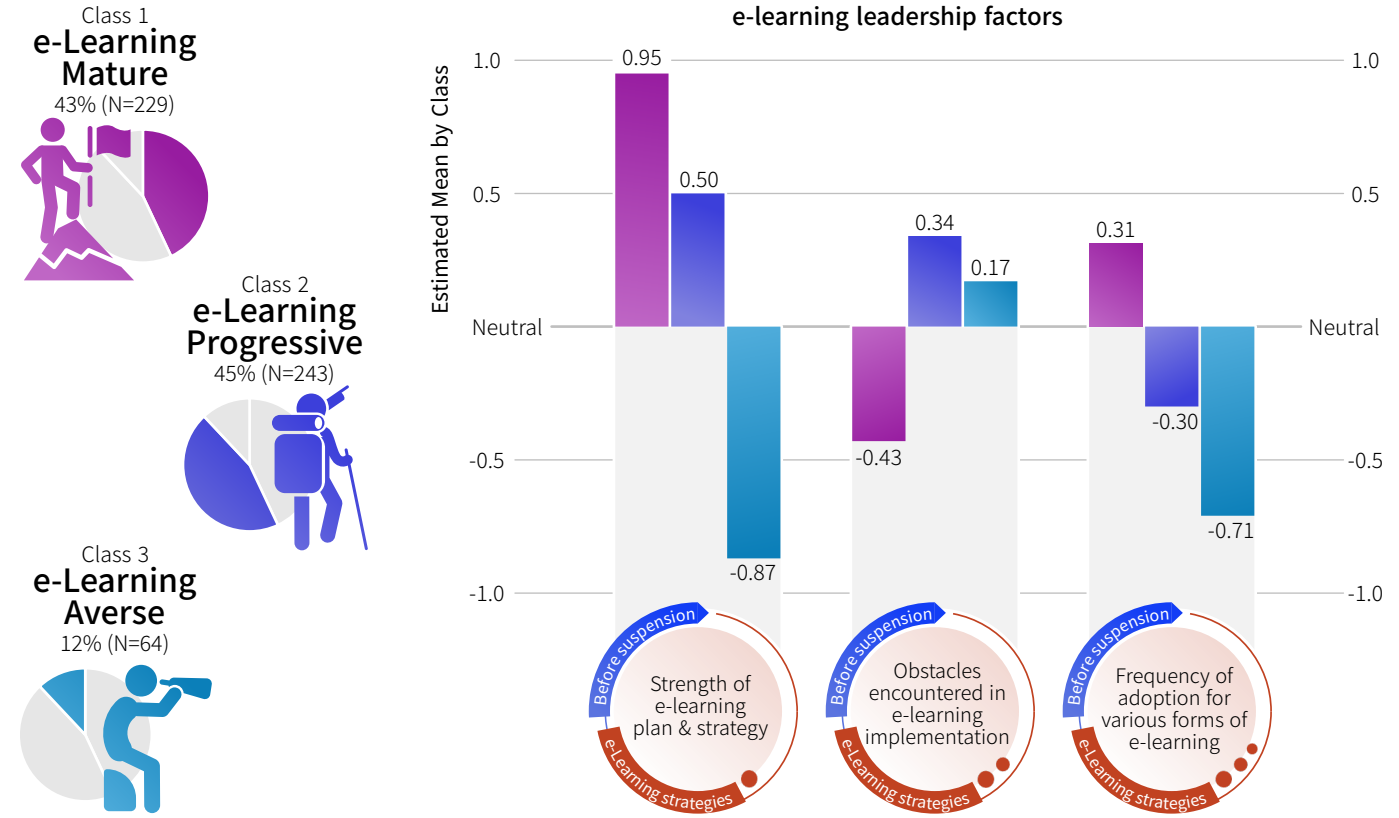


Figure 7. Results of recentered predicted mean by class on e-learning leadership factors



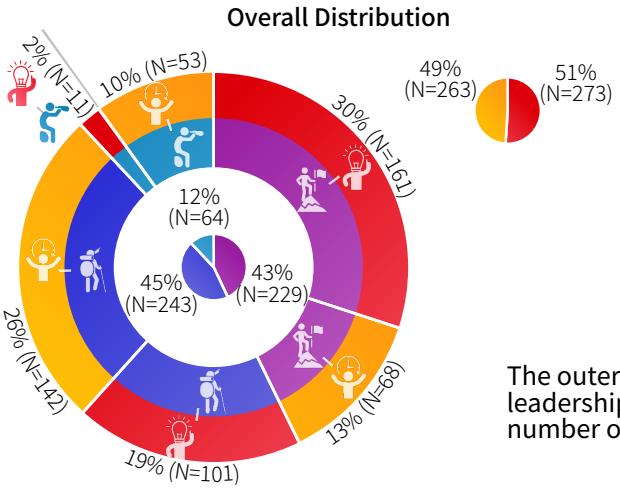
Distribution of school leaders across the different leader classifications

As each of the school leaders can be classified according to their perceptions of the general leadership status as well as the e-learning planning and implementation status in their schools, they can be classified into one of six possible combinations of classification based on these two classification schemes, as shown in Table 1. It can be seen that leaders who were *optimistic, firm and progressive* are most likely to be *e-learning mature* as well, and least likely to be *e-learning averse*. On the other hand, the *e-learning averse* leaders are most likely to be *pragmatic and risk averse*. Figure 8 provides a graphical representation of the results presented in Table 1. It is reassuring to see that only less than 10% of all surveyed school leaders were *pragmatic and risk averse*, and *e-learning averse*. The vast majority of school leaders are willing to explore e-learning implementation even though they may encounter problems and challenges.

Table 1. Results of distribution of school leaders respondents across the six combinations of grouping

Number of leaders	e-Learning Leadership		
General Leadership	e-Learning Mature	e-Learning Progressive	e-Learning Averse
Optimistic, Firm & Progressive	161	101	11
Pragmatic & Risk Averse	68	142	53

Figure 8. Distribution of school leaders across the combination of six leadership classes

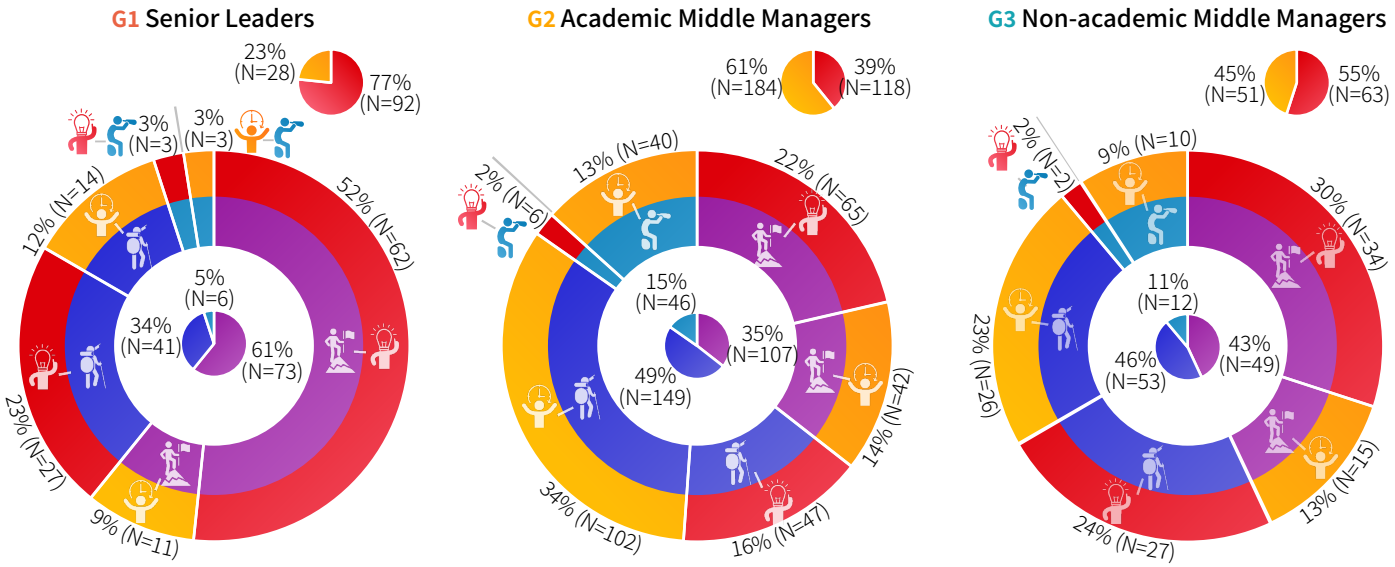


The outer ring shows the number of leaders in each general leadership classification while the inner ring shows the number of leaders in each e-learning leadership class.

Senior leaders are most likely to be *optimistic, firm, progressive*, and *e-learning mature*

We further investigated whether the distributions of school leaders into these six classifications are similar or different for each of the three leadership role groups. The results are presented in Figure 9. The results show that more than half of the G1 senior leaders are *optimistic, firm and progressive* as well as *e-learning mature*, while the G2 academic middle managers have a much lower percentage in this most positive classification.

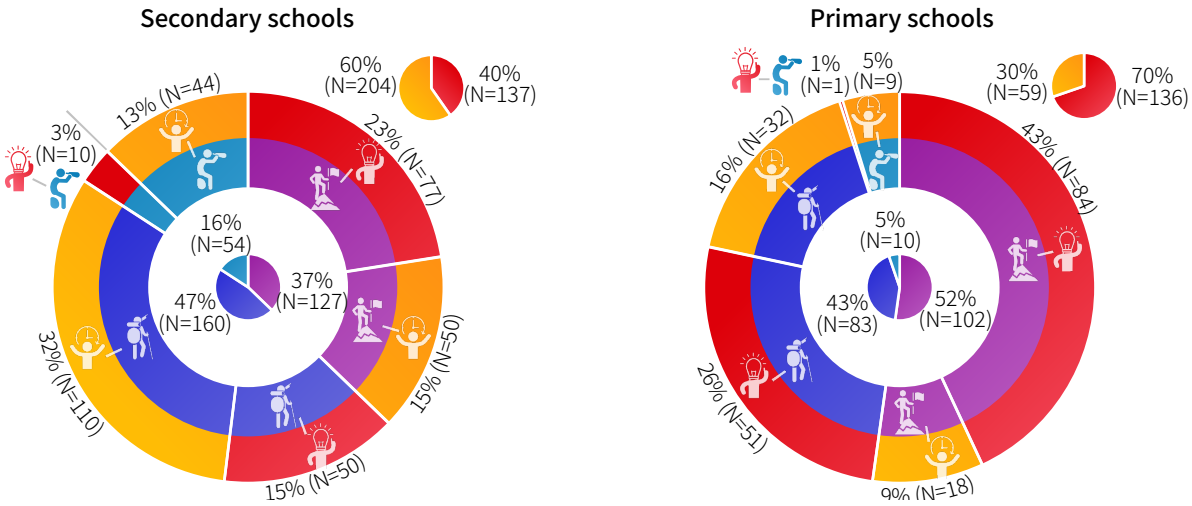
Figure 9. Distribution of each group of leaders across the six classes according to their perceptions of the schools' general and e-learning development status



Primary school leaders are more likely to be optimistic, firm, progressive, and e-learning mature than secondary school leaders

We also investigated the distribution of primary and secondary school leaders across the six classes of leadership characteristics. The results presented in Figure 10 clearly show that primary school leaders are much more likely to be *optimistic, firm and progressive* as well as *e-learning mature* compare to secondary school leaders. This is possibly because pressures on students' academic performance, particularly in the senior years in secondary schools are much higher than those in primary schools.

Figure 10. Distribution of general and e-learning leadership classes membership across groupings of leader roles with respect to school levels (i.e. primary or secondary schools)



Summary of findings

In this bulletin, we measure the school level preparedness for online learning and teaching through measuring the school leaders' perception of the efficacy of their schools' leadership practices with regard to overall school development and e-learning specific plans, strategies and implementation. By analyzing the school leadership survey data in conjunction with the findings related to teacher preparedness for online L&T from Bulletin 3, we have the following key findings.

School-wide culture of openness to innovation and a climate of collaboration, mutual trust, and collaboration at the school level are key to fostering teacher preparedness for online L&T

The three key factors constituting teachers' preparedness for online L&T are the extent to which teachers had opportunities to share and collaborate on online pedagogy, to collaborate on administration and logistics related to online teaching, and teachers' online teaching self-efficacy. Our analysis shows that the single most important predictor of all three teacher preparedness factors is the extent to which there is a climate of positive energy, sense of mission, trust and collaboration during the school suspension period. A pre-suspension culture of openness to innovations and e-learning is an important contributor to the presence of a positive school climate during school suspension.

Schools' overall development priorities and strategies are the strongest predictors of positive school climate and post-suspension planning for online T&L

Our research findings show that overall school leadership priorities and strategies regarding student-centered learning and teacher professional development are the strongest predictors for presence of a positive school climate during school suspension and post-suspension planning, though e-learning specific planning and strategies also matter.

Engagement in school-based and joint school pedagogical innovation projects is the most effective form of professional development for online teaching preparedness

While the analysis shows that emphasis on providing teachers with professional development opportunities is a significant predictor of teacher preparedness for online teaching, the effect depends greatly on the form of TPD opportunities provided. Emphasis on external TPD courses/workshops is a negative predictor of the extent to which teachers collaborate for administrative and logistic arrangements for online teaching, whereas an emphasis on TPD through teachers' engagement in school-based and/or joint school pedagogical innovation projects is a positive predictor of teachers' self-efficacy in the design and implementation of online teaching. This finding is understandable as any new pedagogy or e-learning needs to be adapted for implementation in specific school contexts, and requires coordination and collaboration. TPD connected with school-based e-learning/innovation implementation provide opportunities for teachers to work in teams on plans for adaptation and refinement. This is particularly important when teachers are under serious pressure to deliver online teaching.

Senior leaders and non-academic middle-level managers are more optimistic and confident in the face of challenges, and often see failure as "room for improvement"

Senior leaders are the most optimistic and confident about their schools' capacity to take on more progressive, student-centered approaches to learning in general and in the effective implementation of e-learning, while academic middle-level managers are the least optimistic and confident. The differences in the three groups of leaders in their perceptions of the situation in their schools are likely due to the different leadership roles they play. Academic middle managers are in the front line of supporting teachers in their schools regarding pedagogical and e-learning innovations in their respective academic areas, and have the most direct encounter with resistance from other teachers and students. Communication and collaboration among the three groups of school leaders would be important in enhancing school-level preparedness for online L&T.

Recommendations

1. Schools need to reach out for external support for teacher professional learning and leadership development to enhance their online T&L preparedness, rather than by "learning through failures" only. Participation in school-based projects that foster pedagogical innovations and promote active collaboration and mutual trust are most beneficial.

2. Engagement and support from both academic and non-academic leaders are equally important in ensuring quality learning outcomes from students' participation in online and other supporting learning experiences provided by the school under the New Normal. Participation in joint-school student-centered innovation projects that involve multiple school leadership roles will foster school-wide collaboration.

3. Senior leaders need to support middle-level managers in solving actual problems encountered in the process of innovation. This can be achieved by ensuring that they have a realistic understanding of the actual T&L practices within their schools (including online T&L), strengthening communication and consensus building across senior and middle-level leaders.

Organized by

Learning and Assessment for DIGITAL CITIZENSHIP

Supported by

賽馬會STEM自主學習計劃
Jockey Club Self-directed learning in STEM Programme

Learning and Assessment for Digital Citizenship Project, which is funded by the Research Grants Council of the Hong Kong Special Administrative Region, China, under its Theme-based Research Scheme [Project No. T44-707/16-N] and jointly conducted by researchers from The University of Hong Kong and The Hong Kong University of Science and Technology.

Hong Kong: Faculty of Education, The University of Hong Kong, 2021.

Copies of this publication can be obtained from:
https://www.ecitizen.hk/360/
dcitizen@hku.hk

Research Team

Advisor
Prof. Catherine KK CHAN

Project Coordinator and Principal Investigator
Prof. Nancy LAW

Co-Principal Investigator
Dr. TAN Cheng Yong

Co-Investigators
Dr. LAN Min
Dr. PAN Qianqian

In conjunction with research assistants in the *Learning and Assessment for Digital Citizenship Project*

Supporting Organizations