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Navigating the New Normal: A Primer for Designing Virtual Operations

More than 165 countries have reported cases of COVID-19, and global attempts to contain the pandemic have impacted the operations of schools around the world, with UNESCO estimates putting the number of affected learners, including those in pre-K and tertiary education, at more than 1.7 billion (see Figure 1).

While some schools have already designed and implemented virtual operating procedures, others have only just started to think about it. In this report, we lay out a primer for schools in the initial stages of defining their virtual operations. Through an analysis of established practices in online education as well as practices adopted by schools in regions that were first hit by the pandemic, including China and Hong Kong, a comprehensive analysis of remote learning methodologies is presented.

This guide is not only for investors, educators and key decision-makers at private and international K-12 schools, but also for those providing supplementary academic services, such as English language training, numeracy / literacy enrichment and tutoring, who can use it as a guide to virtual operations.

While it is still unclear how long the repercussions of the COVID-19 outbreak will impact operations, schools assessing their remote offerings and continuity plans will have to focus on four key functions: academic services, nonacademic activities, psychological support and communication with students and parents (see Figure 2).

Putting academics front and center (academic services)

Most likely, the academic year will have to be tweaked depending on the length of the shutdown imposed by the pandemic, causing some schools to use term breaks and holidays to make up lost time. Given the uncertainty, institutions around the world are already considering virtual or digital methods to deliver academic services. Use of technology in academics can be structured around four key elements:

1. Content delivery
2. Student discussions
3. Formative assessments
4. Summative assessments

Content delivery

There are two popular models for delivering content online: synchronous learning — in which classes are held in real time via livestreaming — and asynchronous learning, which tends to be centered on self-guided learning using teaching material packaged as prerecorded videos, or other formats, for consumption within a stipulated time.

Live classes provide an opportunity to have real-time engagement and conversation, although the class schedule is not flexible. The technique is more suitable for small class sizes and can facilitate better learning when preparatory reading materials are shared before class.

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Figure 1
Affected learners due to suspension of physical operations

Number of affected countries and learners by type of impact (April 2020)[1]
Percent (number of countries / students)

Nationwide closure of schools

Localized closure of schools
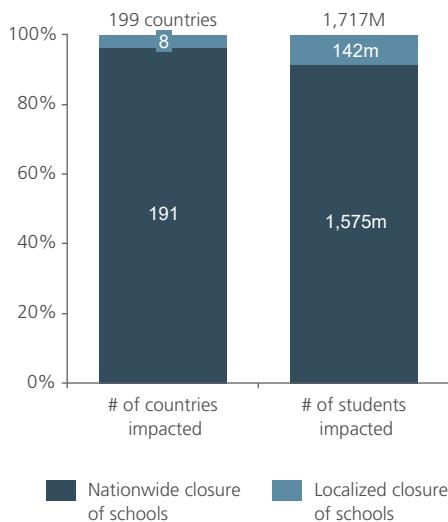
🇨🇳 **China**
In a bid to stem the spread of the virus, schools in China have been shut for weeks
"… In China, millions of students have been home from school since mid-February. Schools have been ordered to provide online lessons, and primary classes are reportedly broadcast on public television …"
The Guardian

🇫🇷 **France**
France shuts over 100 schools in areas hit by coronavirus
"… French officials have closed about 120 schools in areas that have reported the largest numbers of coronavirus infections, and more could be shuttered in the coming days, says the Education Minister."
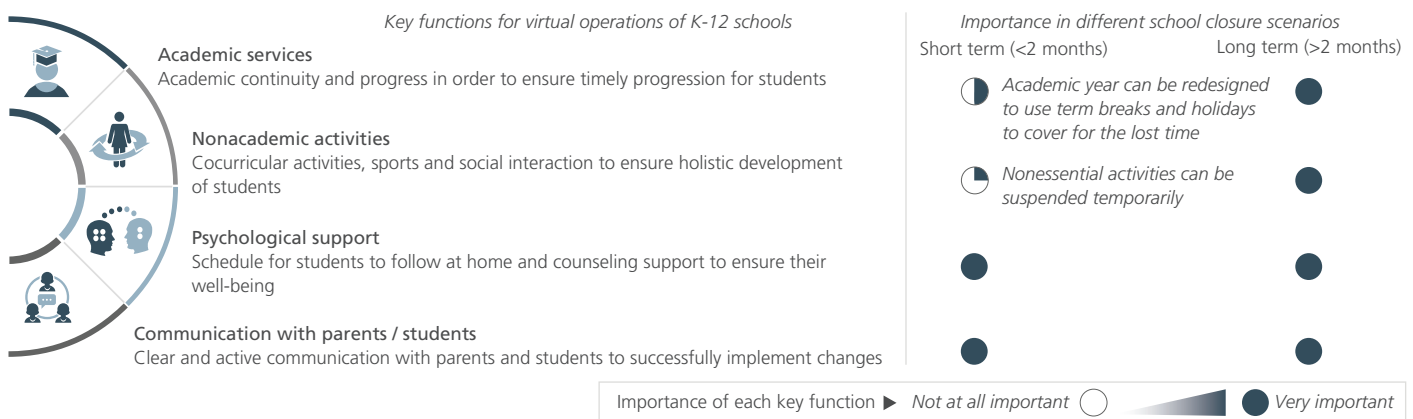*France 24*

🇮🇹 **Italy**
Italy's schools likely to remain closed beyond April 3: Education Minister
"… Schools and universities were closed on March 5. Schools would reopen only when there would be "certainty of absolute safety." The end of the school year would depend on how well online lessons would go in coming weeks …"
The Wall Street Journal

🇺🇸 **USA**
Coronavirus Closes School for Nearly 30 Million Children in US
"…The historic closings have taken place across 26 states and the District of Columbia, as well as in most of the nation's largest school districts, until April 20, affecting more than half of the nation's school enrolment…"
The Wall Street Journal

🇬🇧 **UK**
UK universities switching to online lectures and exams
"… The London School of Economics, King's College London, the University of Durham and video lectures and online seminars …"
The Guardian

Note: [1]Updated on April 16 2020. Number of students impacted also includes tertiary students;
Source: UNESCO; L.E.K. research & analysis

Figure 2
4 Key functions of virtual operations

Key functions for virtual operations of K-12 schools

Academic services
Academic continuity and progress in order to ensure timely progression for students

Nonacademic activities
Cocurricular activities, sports and social interaction to ensure holistic development of students

Psychological support
Schedule for students to follow at home and counseling support to ensure their well-being

Communication with parents / students
Clear and active communication with parents and students to successfully implement changes

Importance in different school closure scenarios

Short term (<2 months)   Long term (>2 months)

Academic year can be redesigned to use term breaks and holidays to cover for the lost time

Nonessential activities can be suspended temporarily

Importance of each key function ▶ *Not at all important* ○ ▬ ● *Very important*

Source: L.E.K. research and analysis

On the other hand, asynchronous learning provides for flexible class schedules that students can self-pace, thereby solving issues such as varying internet bandwidths. This style of teaching can prove more efficient in addressing large class sizes, as it circumvents multiple infrastructural and engagement issues. Breaking down asynchronous content modules is key and will help in offering flexibility to students while ensuring their attention is not diverted.

When tasked with the challenge of choosing a format for content delivery, institutions must take into consideration factors such as student engagement levels, class size, availability of technological infrastructure and the target audience before picking one learning methodology over another. Since both synchronous

and asynchronous learning have advantages and shortcomings, operators would benefit from leveraging the best of both formats based on the context and requirements of the module. Schools are already testing both systems.

> For example, the Shanghai American School in China and the Yokohama International School in Japan have adopted asynchronous learning models, while the New Oriental Academy in China is conducting live webcast lectures in the morning followed by independent learning in the afternoon.

Regardless of the teaching method, educators will need to collect regular student feedback to improve the learning experience and

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conduct frequent formative assessments to understand learners' reception of the content. Some schools have already conducted such assessments. The Springboard International Bilingual School used a feedback questionnaire to track students' satisfaction with virtual learning.

Enabling an effective network of remote learning requires three main tools or software solutions:

- **A file-sharing and storage system.** While institutions can use cloud-based file-sharing services like Dropbox, most international schools have already adopted learning management systems, which can also be used for other functions including communication, livestreaming and assessments.

- **A livestreaming system.** This tool is particularly relevant to synchronous learning mechanisms. If schools already have a learning management system, they can opt for additional features offered by platforms such as Blackboard, Canvas and Seesaw. Schools are also using applications such as Zoom and Skype. Take the Shanghai American School, which is using Seesaw for pre-K through grade five classes and Schoology for grades six through 12. The New Oriental Academy is using Roombox for live webcast sessions.

- **Interactive content and presentation tools.** There are a number of educational resources that can be used to deliver high-quality content through online channels. Educators can opt to self-curate, create content themselves or even use selected digital courseware offered by large publishers such as HMH, McGraw-Hill Education and Cengage and ed-tech companies like Edmentum.

Notwithstanding the chosen delivery method, educators must ensure they are not overwhelming students with an excess of content, but instead are focusing on customizing the course material to the required learning outcomes (see Figure 3).
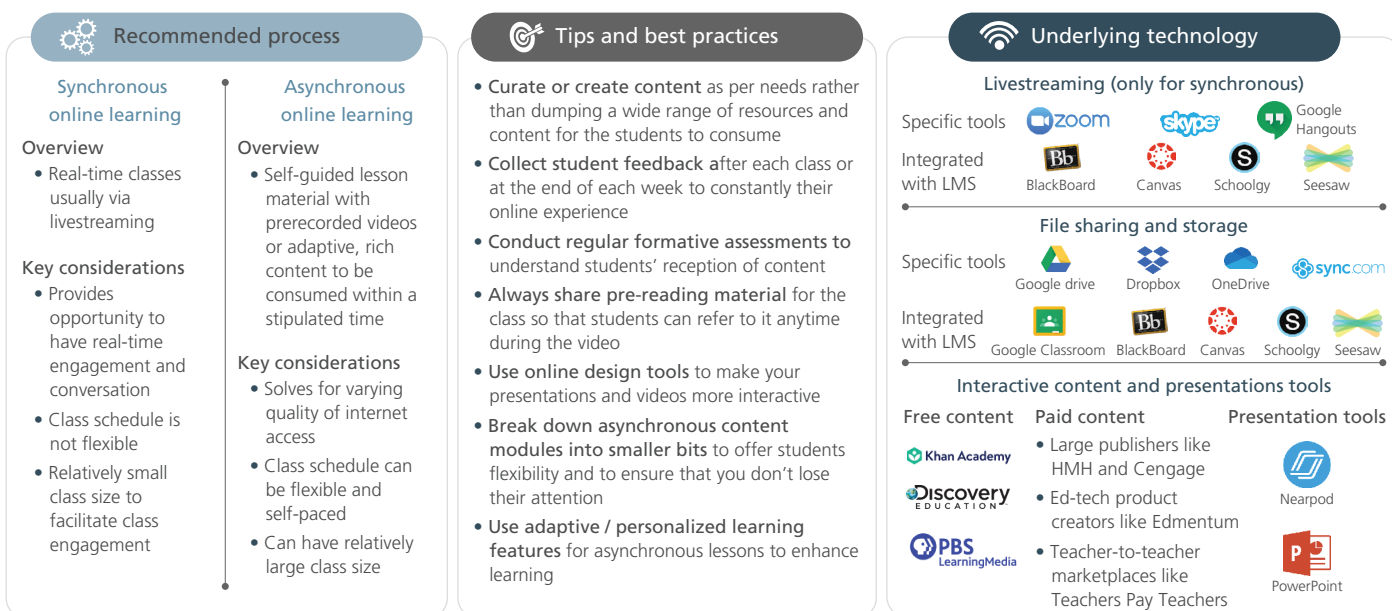
Student discussions

Traditional classroom education involves more than just content delivery. Student-to-student and student-to-teacher interactions are an integral part of school education. Schools that are dealing with long-term closure will need a plan to replicate such interaction online. There are two common ways to promote student interaction: Schools can schedule regular face-to-face interaction or they can facilitate dialogue through online discussion groups.

Schools that are adopting asynchronous learning should consider some face-to-face discussions, offering individual or small-group tutorials to increase student engagement and help resolve any doubts students might have. The Shanghai American School and the Yokohama International School are pairing asynchronous learning with live video discussions and tutorials. These interactions with teachers can be requested by students and can be used to clarify conceptual doubts, discuss assignments or share feedback.

These "direct" discussions or video-based interactions generally require more planning and coordination. They are more suitable for small groups of students and can be made more effective with the help of "ask me anything"-style surveys that can be conducted beforehand to gather questions from students.

Online discussion groups or message boards also need a degree of teacher moderation, although they allow large groups of

Figure 3
Content delivery through synchronous and asynchronous learning

Recommended process		**Tips and best practices**	**Underlying technology**
Synchronous online learning	**Asynchronous online learning**	• **Curate or create content** as per needs rather than dumping a wide range of resources and content for the students to consume	**Livestreaming (only for synchronous)**

Source: L.E.K. research & analysis

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students to interact contemporaneously. Online messaging groups and discussion boards are particularly useful for more frequent interactions with a large audience. One such platform, Brainly.com, is a testament to the success of peer-to-peer discussion portals. The website receives about 150 million unique visitors per month, is spread across 35 countries and has more than 50 million certified answers across a range of topics.

> The American International School of Guangzhou is using Seesaw for discussions in pre-K through grade five and Microsoft Teams or WeChat for higher grades. Similarly, the Shanghai American School uses WeChat for upper grades and the Yokohama International School uses Google Groups or Hangouts for student discussions.

In addition to learning management systems, Facebook, Google Groups, WeChat, WhatsApp and other social media platforms can be used to create discussion groups, though school administrations will have to comply with regional laws regulating social media use by children. Most social media platforms allow children ages 13 and up, and videoconferencing software such as Zoom, Skype or Google Hangouts is particularly useful for face-to-face interactions.

Setting clear guidelines about the frequency and mode of engagement can help students navigate these interactive tools while also keeping discussions and online threads targeted to a specific topic. Rewarding class participation in discussion boards or live video sessions by making it a component of the final grade and basing exam questions on classroom discussions or some form of gamification, such as by creating a leadership board, can serve as motivation for students to actively participate. Brainly uses a leadership board and a virtual reward system to boost student engagement and participation (see Figure 4).

Assessments

Formative assessments

Given that online learning is a departure from the physical classroom setup and arguably offers lower student engagement, it is important that schools and educators closely track students' comprehension, learning needs and academic progress, and make any changes necessary to improve learning outcomes. This means formative assessments will have to be conducted more frequently than in traditional classrooms.
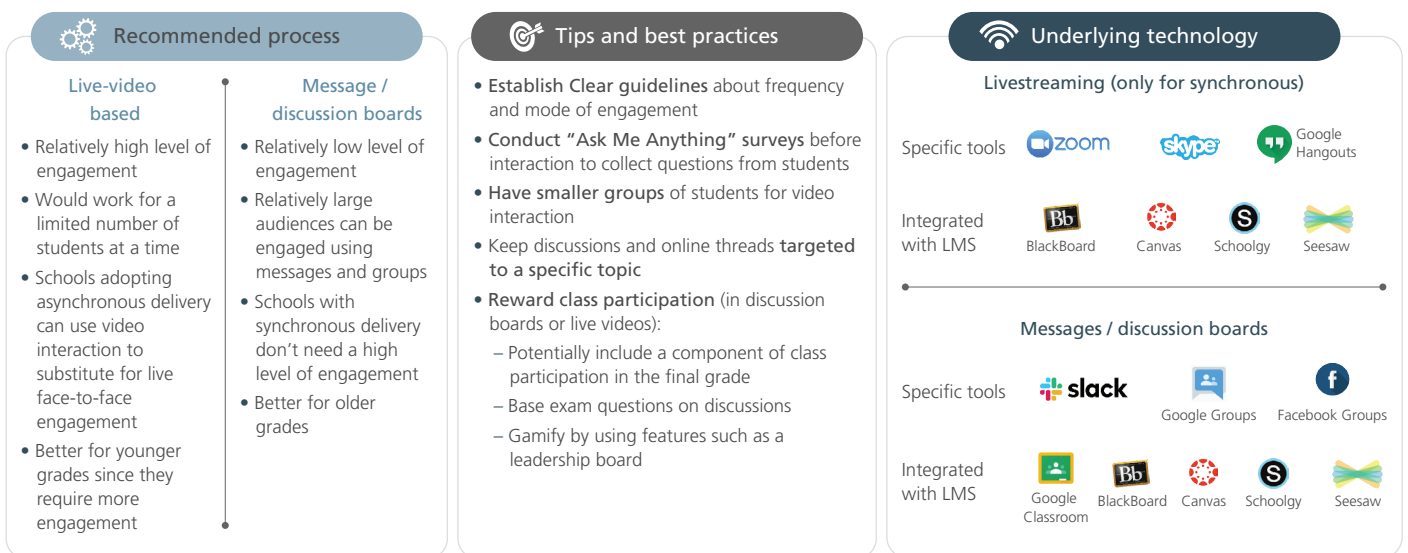
Teachers can structure these assessments as short quizzes, polls and practice questions used before, during or after an online lecture or learning module. Evaluation of these assessments, which will have to be crafted as web-friendly offerings, should be at least partly automated to minimize work for teachers.

Some schools have already put these surveys to good use. The Shanghai American School has planned formative assessments for students in grades six through 12 in the form of polls and written assignments, while the Canadian International School of India conducts small quizzes through an online tool called ManageBac.

Based on the results derived from formative assessments, teachers should provide any intervention necessary by revisiting topics or concepts that have not been well understood. The New Oriental Academy in China encourages teachers to use these assessments to personalize independent learning components based on the individual student's learning needs.
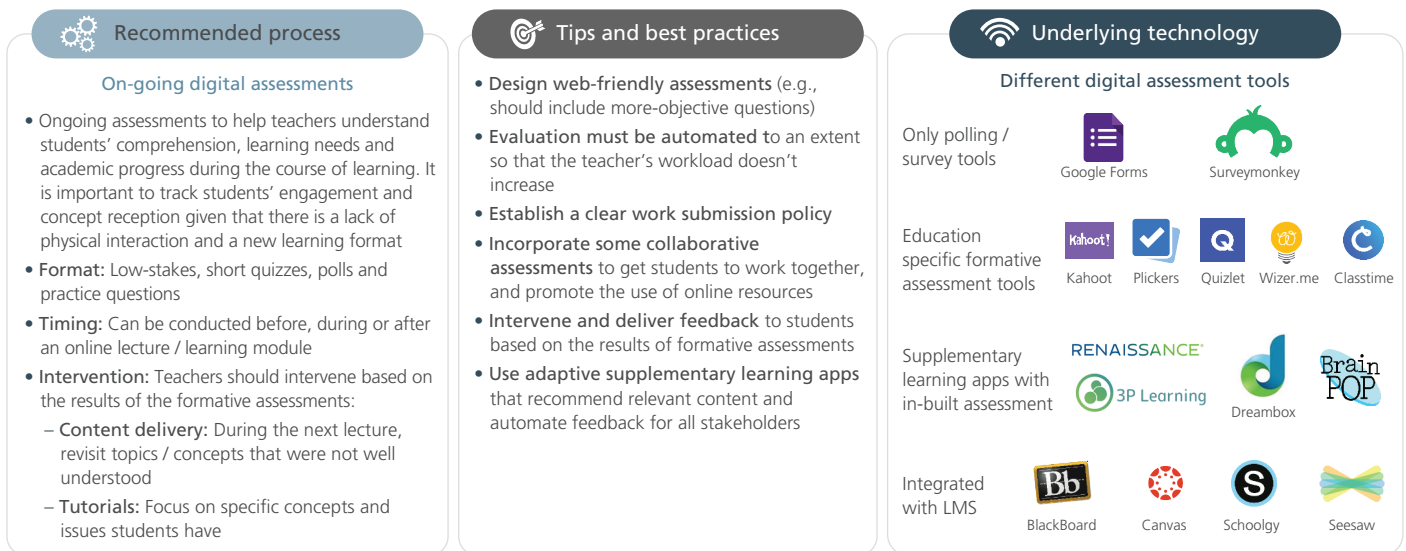
Educators can use learning apps that automate parts of the process by recommending relevant supplementary content and providing feedback. Polling apps such as Google Forms or SurveyMonkey can come in handy, but there are also assessment tools that cater to the education sector. Among them are Kahoot, Quizlet and Classtime.

Figure 4
Ensuring smooth student discussions

Recommended process

Live-video based	Message / discussion boards
• Relatively high level of engagement	• Relatively low level of engagement
• Would work for a limited number of students at a time	• Relatively large audiences can be engaged using messages and groups
• Schools adopting asynchronous delivery can use video interaction to substitute for live face-to-face engagement	• Schools with synchronous delivery don't need a high level of engagement
• Better for younger grades since they require more engagement	• Better for older grades

Tips and best practices

- Establish Clear guidelines about frequency and mode of engagement
- Conduct "Ask Me Anything" surveys before interaction to collect questions from students
- Have smaller groups of students for video interaction
- Keep discussions and online threads targeted to a specific topic
- Reward class participation (in discussion boards or live videos):
  – Potentially include a component of class participation in the final grade
  – Base exam questions on discussions
  – Gamify by using features such as a leadership board

Underlying technology

Livestreaming (only for synchronous)

Specific tools	zoom	skype	Google Hangouts
Integrated with LMS	BlackBoard	Canvas	Schoolgy / Seesaw

Messages / discussion boards

Specific tools	slack	Google Groups	Facebook Groups
Integrated with LMS	Google Classroom	BlackBoard	Canvas / Schoolgy / Seesaw

Source: L.E.K. research & analysis

Figure 5
Ensuring smooth assessment processes

Recommended process	Tips and best practices	Underlying technology
On-going digital assessments	• **Design web-friendly assessments** (e.g., should include more-objective questions)	**Different digital assessment tools**

Source: L.E.K. research & Analysis

And then there are supplementary learning apps that come with built-in assessments, such as Renaissance, 3P Learning, BrainPop and Dreambox (see Figure 5).

> The Springboard International Bilingual School has deployed data-driven teaching by using BrainPop, while Trinity School in the U.S. has been using Mathletics (by 3P Learning) for both supplementary content and assessments.

Summative assessments

Mid- and end-of-year assessments remain as important as ever for evaluating students' performance from a progression perspective. While educators can use assessment functionalities built into their learning management systems to conduct online exams, the key concern is ensuring that no unethical behavior is demonstrated. Unethical behavior during digital exams can be kept in check using proctoring, plagiarism detection software and parental supervision.

While plagiarism detection software such as Turnitin and Dupli can be used for essays, reports and thesis papers, online proctoring tools such as ProctorU, Examity and Proctortrack can be used for virtual invigilation. Online proctoring locks down browser access while also providing facial recognition and ID authentication, livestreaming, and a recording feature that can be reviewed after the exam. Schools can conduct practice exams beforehand to make sure students have adequate IT support before moving testing online (see Figure 6).

Most schools have pushed summative exams to a later date, but educators should also consider innovative exam designs such as open-book tests and reducing the gravitas of final exams by adding essays, projects and thesis papers.

Some schools have yet to move exams online as a result of the coronavirus crisis, some have not been closed long enough to do so and others have postponed exams. Exam boards in the U.K. are reportedly drawing up plans to delay General Certificates of Secondary Education and Advanced Levels examinations amid the outbreak.
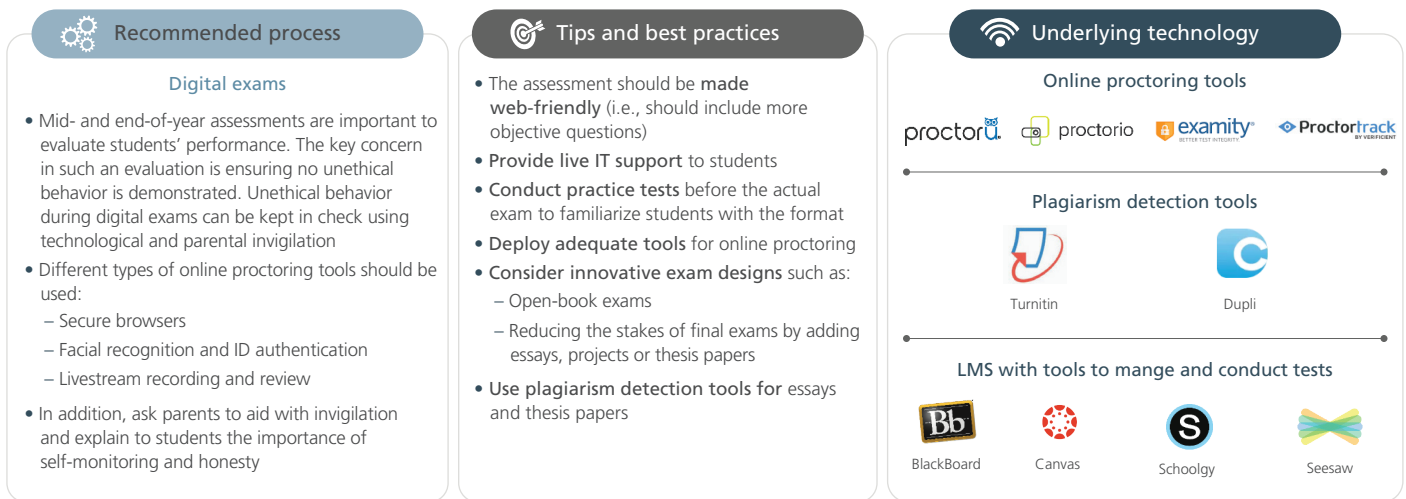
> The Shanghai American School is conducting summative assessments for students in grades 11 and 12 through e-portfolios, quizzes and written assignments. Remote exams using online proctoring have been put to use successfully before — since 2014, public schools in California have been conducting common core assessments online.

Communication is key (with parents and students)

As schools around the globe transition to online learning, communication with students and parents will become ever more important. First, schools will have to provide details on closures and any other major updates. The best way to do that is by preparing a brief message to students and parents that outlines the details of the closure, including plans to transition to virtual operations.

Schools should also share a learning plan for each grade that clearly highlights the online schedule and provides details on all learning activities and assessments, online tools needed for specific learning activities or interactions, and the responsibilities of all concerned parties — students, teachers, parents and administration. It is ideal for schools to deliver these learning plans one week ahead of time, to ensure advance planning and proper implementation for all stakeholders.

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Figure 6
Conducting fair summative assessments

Recommended process

Digital exams

- Mid- and end-of-year assessments are important to evaluate students' performance. The key concern in such an evaluation is ensuring no unethical behavior is demonstrated. Unethical behavior during digital exams can be kept in check using technological and parental invigilation
- Different types of online proctoring tools should be used:
  – Secure browsers
  – Facial recognition and ID authentication
  – Livestream recording and review
- In addition, ask parents to aid with invigilation and explain to students the importance of self-monitoring and honesty

Tips and best practices

- The assessment should be **made web-friendly** (i.e., should include more objective questions)
- **Provide live IT support** to students
- **Conduct practice tests** before the actual exam to familiarize students with the format
- **Deploy adequate tools** for online proctoring
- **Consider innovative exam designs** such as:
  – Open-book exams
  – Reducing the stakes of final exams by adding essays, projects or thesis papers
- **Use plagiarism detection tools for** essays and thesis papers

Underlying technology

Online proctoring tools

proctorU proctorio examity Proctortrack

Plagiarism detection tools

Turnitin   Dupli

LMS with tools to mange and conduct tests

BlackBoard   Canvas   Schoolgy   Seesaw

Source: L.E.K. research & analysis

Students and parents must be clearly informed about the key channels of communication. This will ensure proper discussion on daily / weekly timetables, deliverables and performance updates between teachers, parents and students.

There are dedicated communication tools, such as Remind, Classdojo and Parentsquare that are designed for K-12 schools. The Canadian International School of India uses Bloomz, a dedicated communication app.

In addition to these tools, learning management systems can be used for academic activities and performance-related communication. The Shanghai American School uses Schoology for academic communication. Some schools, including the Canadian International School of Beijing and the House of Knowledge in China, have organized virtual open houses with parents using WeChat and Facebook. These events can help manage parents' expectations and communicate parents' responsibilities during distance learning.

Ensuring mental well-being (psychological support)

School closures and social distancing can cause students anxiety, especially when there is uncertainty about when schools will reopen. In addition, parents working from home may not have time to attend to their children around the clock. Even if the schools expect to remain shut for only a brief period, they will have to provide some academic and nonacademic activities for students to help plan their days and keep them occupied.

Northshore, a public school in the U.S., has created sample learning plans for each grade using online resources including Khan Academy and Explore NASA.

Schools will have to be proactive in developing strategies that can be deployed in the absence of physical interaction among students.

Schools such as the Shanghai American School and the Yokohama International School have been proactive in developing video and written content with strategies to cope with isolation at home. Both of these schools regularly share blog-type resources with parents and students and also offer students one-on-one sessions with school counselors.

Schools should consider prepping blog-type offerings that provide resources regarding anxiety, isolation, health and well-being particular to grade levels. School counselors can also draft a weekly wellness communication to students, while offering individualized sessions for students seeking help.

Dedicated mental wellness applications such as Headspace and Smiling Mind can also be used to bolster the school's offerings. Schools that lack full-time counselors can subscribe to online counseling services such as BetterHelp and Break Through to give students access to professional counselors.

Going beyond academics (nonacademic activities)

Nonacademic development activities will also have to be provided, especially if schools remain shut for a long duration, to ensure a holistic schooling experience for students. Moreover, cocurricular activities and sports might help raise student morale. A comprehensive learning plan should include a variety of cocurricular activities, sports and social interactions that can be replicated in a virtual environment.

While some cocurricular activities, such as debating, are easy to replicate online, schools will have to be innovative to provide other opportunities. Recorded or live video sessions are one way of conducting physical education classes. The Canadian International School of Beijing organized a virtual sports day, with students and teachers participating through a live video feed.

A number of other activities are going online. The House of Knowledge in China organized an online origami class, while Colburn School in the U.S. conducts music, dance and arts classes via live video stream, with students expected to perform live at the end of the term.

Schools across the world are also accessing virtual museum tours through Google Arts and Culture to replicate class outings. Google's virtual tour platform currently has 34,000 museums and thousands of pieces of art.

These cocurricular activities and physical education classes should be evenly spaced out, with students given clear instructions on what is expected of them during the sessions. Video content and written instructions will play a key role in these activities, with classes designed such that students are given components that they can do alone or under their parents' supervision. For physical education classes, the activity will have to be easy to replicate at home. For higher grades, teachers could ask students to work on digital projects including coding and web design, while ensuring students can get necessary technical assistance from the school.

Concluding remarks

The COVID-19 outbreak's resounding implications for pedagogical operations will have to be contained with equal vigor to combat significant gaps in learning and maintain continuity. Provision of virtual operations will be the crux of this effort, but these operations must be carefully planned and effectively managed. Taking into consideration current best practices and using information gained from stakeholder feedback as benchmarks, schools should deploy detailed operating procedures. Given that there is no dearth of technological products and services in the space, schools should carefully sift through their options before deciding on a particular format. Different tools can be used in different contexts, as each platform can add value in a unique way to a specific activity or function. Furthermore, the onus of looking after the mental well-being of students is also on the school. While academic continuity is important, schools need to think about virtual operations more holistically and keep in mind the nonacademic activities that counterbalance the effects of social distancing. In order to navigate through these new realities, schools should formulate a comprehensive communication plan that ensures all stakeholders are aligned on all fronts.

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