

ONLINE EDUCATION WEEKLY NEWSLETTER: Special Issue on Tsinghua University's Online Education in the COVID-19 Response and Beyond

For more good practices on online education policy and teaching & learning, please see previous newsletter at <https://bit.ly/onlineedweekly>



“Great universities should proactively respond to the challenges and shoulder responsibilities to demonstrate their commitment to the society,” said Prof. QIU Yong, President of Tsinghua University.
“Universities serve as the lighthouse of human civilization inheriting knowledge and culture, as well as educating young talents. We share a common objective, which is to make the world a better place. At this critical moment, universities should play an essential role in promoting confidence, trust and unity among people, and collectively call for humanity to rise to its highest potential. Despite the uncertainties and challenges that lie ahead, there remains hope for a brighter future. Together, Stronger.”

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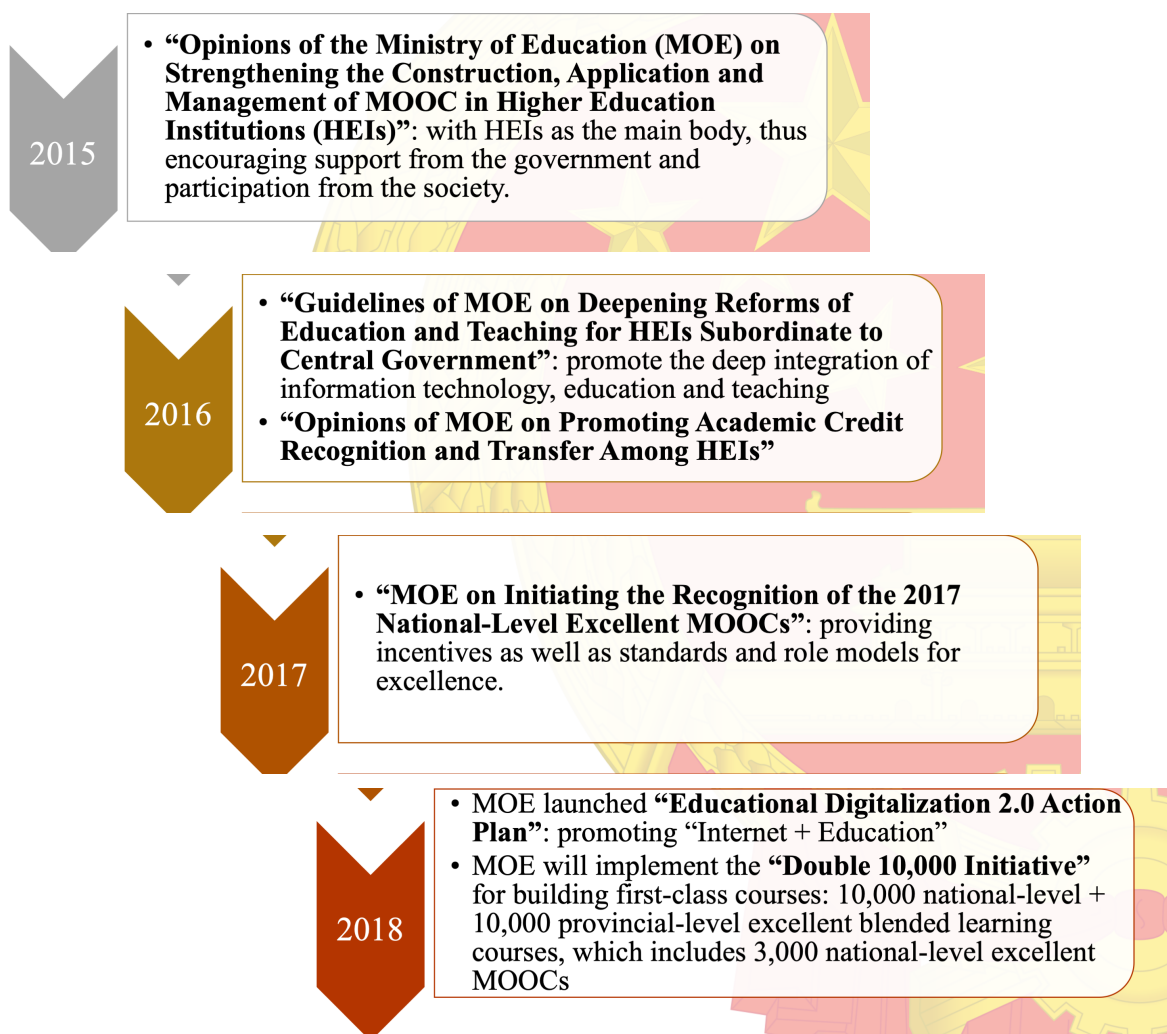
I. Policy Background

As many of our international friends have requested, this report would like to first present a brief overview for some of the important online education-related policy in China, in order to provide context and better evaluate the applicability of the shared practices from China, in this case, Tsinghua University. Therefore, this section will be divided into two parts: past policies on the development of MOOC in China; and recent policies by the Ministry of Education (MOE).

1. Policy review on the development of MOOC in China

The Ministry of Education (MOE) has released many policies to support and guide the development of MOOC in China since 2015. And by 2019, [“China has over 200 million people taking massive open online courses \(MOOC\), leading the world in both the number and the scale of application of such courses.”](#)

The timeline covers the major policies issued by the Chinese Ministry of Education, and should be able to provide some context and an overview. If there is a particular policy that you are interested in, please let us know and we shall expand on it. Otherwise, it is likely that we will cover at least one or two in future newsletters, as they are instrumental for the development of MOOC in China.



2. Recent policies by the MOE in response to the outbreak of COVID-19

Since late-January 2020, the MOE has released multiple policy statements, guidelines and notices directly asking educational institutions to take proper preventive and control measures against the COVID-19. Special considerations were given regarding returning back to the university campus, as the outbreak happened in the midst of the Spring Festival where 3 billion passenger-trips were made to travel home for the celebration.

Key dates: Public holiday for Chinese New Year: January 24 to 30; and most universities were due to start in late February 2020.

Jan 27

• MOE postpones start of 2020 spring semester

- “Schools to provide appropriate advice to students during the winter vacation to facilitate home study and give guidance on hygiene to avoid becoming infected.”
- “Students to be instructed not to return to their campus before the start of the semester without permission from their schools.”
- “Routinely track the movements of students and teachers.”

Jan 28

• MOE requests psychological support be provided to relieve novel coronavirus-related stress

- “The notice calls on local education authorities to regard psychological intervention as an important part of its preventive and control measures against the 2019-nCoV-related pneumonia and take actions quickly.”

Feb 4

• MOE issues instructions for deployment of Higher Education Institutions (HEI) online teaching.

- “Apply online learning and simulated experimental teaching resources to facilitate remote study. In response to the MOE’s call, by February 2 there are 22 online platforms in China providing 24,000 online HEI courses free of charge.”
- “Lecturers of the “National-Level Excellent MOOCs*” have been requested to set up model classes to help teachers improve their online teaching skills.” *This was one of the past policies mentioned previously, in 2017.

Feb 10

• MOE issues guidance for protection and support of teachers during COVID-19 outbreak.

- “Mass gatherings have been banned, including off-line teacher training.”
- “Incentives have been recommended for teachers who make direct and remarkable contributions to combat the virus.”
- “The guidance also warns schools that these measures should not lead to an increase in workload for teachers by requiring them to commence teaching ahead of schedule or outside established syllabi.”

Feb 28

• MOE Party leadership group issues notice for COVID-19 control and educational reforms.

- “As schools across the country had been requested to put all the classes online, they were now encouraged explore effective and innovative teaching methods and practices to make the best use of virtual learning.”
- “Schools should not be opened until the epidemic was largely under control and unless the safety of students and teachers could be fully guaranteed.”
- “HEIs were requested to track students’ whereabouts and health status, set aside quarantine facilities for returning students.”
- “Facilitate the smooth graduation of college graduates and their early employment.”

Mar 4

• MOE issues notice on supporting entry into the job market for university graduates

- “A nationwide “24/7-365” (around the clock, all year round) online recruitment service platform was launched.”
- “The notice required the expansion of enrollment in postgraduate programs.”
- “The notice requested targeted support to be provided to special groups, such as graduates from poverty-stricken families that were registered in the national poverty relief database, those with disabilities and those living in Hubei province, the epicenter of the COVID-19 outbreak.”

Mar 12

• MOE issues COVID-19 control and prevention guidance for schools

- “A series of guidance documents (in Chinese) on controlling and preventing Coronavirus Disease 2019 (COVID-19) have been jointly drafted to provide kindergartens, primary and middle schools and higher education institutions with targeted, scientifically grounded guidelines to help prevent and control the virus, and ensure the health of students and teachers.”



II. University Level Policy Deployment and Implementation

1. Key timeline:

January 23: Wuhan went into lockdown. On the same day, Tsinghua University established 11 (now, 13) epidemic prevention task forces.

January 29: “A letter from Tsinghua to all our faculty, students and staff” which outlined decisions such as students should not return to campus, reminded the community that strengthening protection starts from each of us, encouraged objectivity, hope and progress.

February 1: Tsinghua announced during a virtual meeting to faculty and staff regarding the teaching arrangement of spring semester through Rain Classroom.

February 3: More than 57,000 Tsinghua Students and Teachers joined the “First Lecture” through Rain Classroom; and more than 3 million viewers watched through live-streaming platforms.

February 5: in response to the sudden transition online, three Online Teaching Expert Groups (administration, quality assurance, technology assurance) and one Student Learning Assurance Working Group were formed.

February 16: final checklist for Day -1:

- Student liaison:** students are well informed and noticed about the necessary preparation.
- Textbook:** librarians have provided with printed or electronic copies for reference.
- Teaching platform:** inc. emergency plans.
- Teaching environment:** inc. equipment.
- Teaching content:** lesson plans and slides.
- TA arrangement.**
- Teaching status and spirit check.**

February 17: first day of teaching (fully online)

2. First week of 2020 Spring Semester

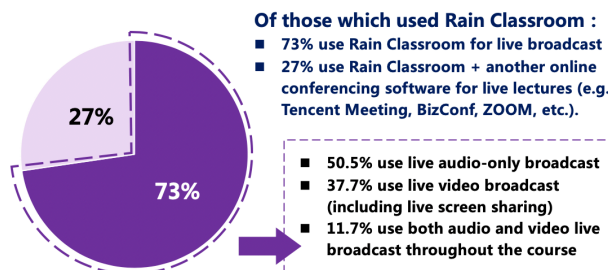


President QIU Yong inspecting online classes.

Results for the first teaching week:

- 4254 courses scheduled.
- 3519 courses (82.7%) started in week 1.
- 331 courses were postponed or suspended, mainly laboratory courses.
- 76% utilization of the recommended online teaching tools by the university: Rain Classroom (Daily Active Users = 17,000 students and teachers).
- 93.4% attendance in week 1.
- 47% of classes recorded full attendance.

Week 1 of Rain Classroom:



- 360,005 times students answered live quizzes.
- 172,554 times students sent out live on-screen comments during classes.
- 11,762 times students completed live task submissions by uploading images.



- 2,585 times students expressed “I don’t understand” on the lecture slides, such that lecturers can attend to it live.
- 134 times lecturers have used “bonus red packet” for rewarding students and creating a lively atmosphere.

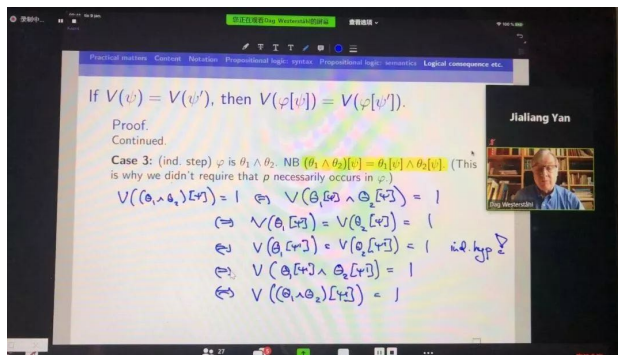
Feedbacks received during the first week

“At first, like many lecturers, I was not optimistic about using Rain Classroom, because I listened to several online classes and felt that I could only focus for 20 to 30 minutes, and would always get disconnected from the Internet. But after many productive conversations and exchanges on teaching, discussions with teaching assistants, I feel that the incredible efforts and preparation from the university, the department and the Rain Classroom team are finally paying off. Most teachers felt online teaching was beyond expectations and are very confident now after the first week of classes,” said Prof. ZHU Bangfan, also an academican of the Chinese Academy of Sciences, who started remote teaching at Sanya for the popular “Solid-State Physics” course.



“Rain Classroom may be able to provide opportunities for teaching reform. It is easier for teachers to understand whether students understand the lectures, and students have more opportunities to feedback ideas. Timely big data enables much better teaching and learning experience.”

“There is no boundary for learning. The more difficult the time, the more we should cherish the opportunity to learn,” said Prof. Dag Westerstahl, Professor of Theoretical Philosophy and Logic at Stockholm University and a member of the Royal Swedish Academy of Sciences.



Prof. Westerstahl overcame the seven-hour time difference teaching his first online course. “Online teaching is a challenge for me. The interaction with students and homework remarks will be conducted in different ways, but I’m very confident that the students and myself will do well conducting online learning.”



Prof. Mike Bisset from Tsinghua’s Department of Physics teaches online from his home in California, “There is a time difference of 16 hours. In order to not disturb students’ timetable schedule, I go online at 3 a.m. during teaching days. In addition to the valuable help from the teaching assistants from the Department and Rain Classroom, my son currently serves as my technical assistant. It has been a lot of fun and learned a lot in the last few weeks. Look forward to teach more online classes.”

3. Measures to Assure Teaching Quality During Epidemic

3.1 Laying a strong foundation

Developing training for online teaching

- Establish a three-level system for training: faculty, teaching assistants and students.
- 1,761 faculty completed the Rain Classroom online training organized by the university.
- More than 2,300 teaching assistants (technical TA, course TA and volunteers) completed the training.

Creating dedicated communication channels

- For encouraging exchanges after training, e.g., one messaging group with 100 technical TAs has on average more than 1,500 daily messages.
- For faculty to inquiry about teaching design and pedagogy.
- For students, e.g., we created a “student consultation hotline” service to review student learning problems and difficulties on a case-by-case basis for providing practical solutions.

Making a series of documents to help faculty members with online transition

- Developed technical guide for
 1. online teaching technology overview (in Chinese and English);
 2. producing lecture slides with multimedia;
 3. recording classes in classroom;
 4. using video conferencing in classes;
 5. using learning management system with online classes
- Provided a 15-item pre-class checklists and emergency plans.

- Provided 22 different solutions and good practices for online teaching.
- Updated “*Online Teaching Q&A*” 12 times and then consolidated into “*108 Frequently Asked Questions for Online Teaching and Learning.*”

Assure full access for hardware and software

- Reached out and made partnerships with Tencent Meeting, BizConf, and ZOOM (including created a dedicated Tsinghua server); and create dedicated support teams to support teaching in each platform.
- Prepare 36 campus classrooms for conducting live lectures.
- Upon understanding the demand for “screen sharing”, Tsinghua promptly developed and added the function for Rain Classroom.
- Centralized the procurement and distribution process for 1060 digital writing and drawing tablets for online teaching.
- Unlimited data plan for students and teachers on campus.

24-hour online teaching control center



- In full operation since January 28th with departments across the university.
- Pre-class testing for faculty.
- Tracing and monitoring states of every students (inc. travel, health, academic, etc.); and to provide special assistances for those disrupted by the COVID-19 outbreak.

3.2 Mobilizing all the schools to ensure smooth progress of teaching.

54 schools, departments and teaching units have set up related working groups

- Respective leadership, teaching and learning committee, academic committee, degree evaluation committee, student affairs team, etc. have all joined working group at the school-level since the beginning.
- Total numbers of staff involved exceed 500.

Ensure clear communication channels with messaging group with:

- All deans across the university.
- All heads of teaching and learning responsible from each school.
- All heads of academic affairs from each school.
- All teaching faculty across the university, to exchange ideas and share experience.
- Students for every course taught: for after-class discussion and for announcement.
- Each cohort per school.

3.3 Committed faculty took on additional responsibilities to strive for quality teaching.

- Provided online teaching and learning specialists and technical TAs to ensure each faculty: completed their online platform training, prepare multiple lesson plan and emergency scenario planning.
- Worked with each course TA to:
 - Proactively reach out and maintain communication with each student;
 - Collect feedback by creating messaging group with each student;
 - Adapt and improve lesson plans and contents, as well as course structure.

Creativity by a young Tsinghua professor from School of Software, Prof. Zheng Yang, went viral.

Top 10 “magical artifacts” for online teaching:



1. Core computer for online lectures (Rain Classroom + video conference). Use touch screen tablet with stylus — very convenient with the whiteboard function, suitable for math-related instructions to deduce formulas.
2. Play scheduled ringtone to begin and end class, to mimic university environment. Tsinghua's is *Carl Czerny, Op. 599, No. 60*.
3. Time in huge font to control class progress.
4. WiFi router, 802.11ac.
5. Back-up: 4G/5G CPE router. To deal with disconnection of home WiFi, next to the docking station and connects to ethernet.
6. Mobile phone (students' perspective), better understand things such as delay of slides.
7. Mobile phone (back-up), ready to switch to live-streaming (which uses less bandwidth than video conferencing).
8. Back-up: actual whiteboard.
9. Back-up: UPS power supply to deal with power failure.
10. One more mobile missing from photo (as its used to take this photo you see now): connects to Rain Classroom.



4. Without sports, there is no Tsinghua!

Sports and fitness is not only a great way to boost your immune system, it is also a long-standing tradition of Tsinghua — something that you cannot miss if you are on campus. The university leadership decided that it is essential to keep something constant – mandatory physical education classes — to get through these uncertain times, as well as to allow students to have a deeper understand of Tsinghua’s exceptional tradition for attaching importance to physical education with academic excellence.



Instructors about to begin Ping Pong class

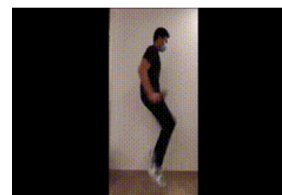
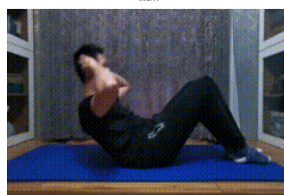
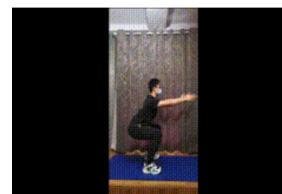
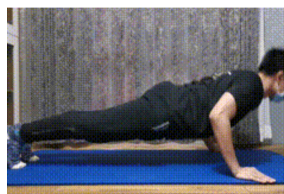
4.1 Overview of Week 1’s Physical Education

| | Total classes | Instructors involved | Students involved |
|----------|---------------|----------------------|-------------------|
| 2/17 Mon | 68 | 35 | 2,507 |
| 2/18 Tue | 87 | 42 | 2,476 |
| 2/19 Wed | 84 | 41 | 2,421 |
| 2/20 Thu | 35 | 21 | 1,307 |
| 2/21 Fri | 63 | 31 | 2,405 |
| total | 337 | 170 | 11,116 |

Under the supervision of instructors and with simple equipment at home (e.g., make strength training equipment by filling empty washing liquid bottle with water), students took physical education classes online and adhere to regular exercises routine, regardless of their venue. This is believed to better maintain physical and mental health, thus better prepared for their study and life after returning back to on-campus teaching.

4.2 Something change something never

- Require students to continue regular extracurricular exercises 2-3 times a week, about 30 minutes each. Freshmen and sophomores shall continue to check-in with their “long-distance running” requirements.
- The sports department launched two fun inter-class competitions: the “Cloud Fitness League” and the “Cloud Fitness Battle”. Thus, turning isolated individual exercises into a team activity.
- At the same time, the sports department hope to remind students the “battle” that some of our fellow students, researchers and faculty members are fighting in epicenters and hospitals across the country and the world.
- Utilize social media, the sports department regularly pushed out suggestion on exercises that students can complete at home, with demonstration videos.



4.3 Caught the attention of the [BBC](#):

During one of the segments, BBC covered some Tsinghua students taking the karate class online.



Coronavirus: China's classrooms without students

All schools and colleges in China have been closed for more than two weeks in the fight against coronavirus.

There are now signs that the coronavirus in China is being controlled, with new infection figures and numbers of deaths beginning to stabilise.

John Sudworth looks at the impact of China's efforts to deal with the virus across education - taking classes online - and some of its unexpected advantages.

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5. Study together in the cloud

5.2 “We-Young Class”

In order to encourage students to learn independently, Tsinghua selected 110 courses to form the first batch of “We-Young Class” series, e.g., “Writing and communication”, “Western modern philosophy”, “Corruption and political economy”, “Legal thinking”, etc. This plan maximizes the use of synchronous online learning already set up for enrolled students, without adding extra burden to teachers and affecting the learning progress of existing students.

“We-Young Class” series allow Tsinghua students to audit any of the selected classes, regardless of their degree requirement. Students are reminded of their younger self where learning is motivated by curiosity and not by scoring a high GPA, and when learning did not guarantee success as failures are valuable gifts to progress.

The series set a limitation of 500 students per course. At the end, it had 13,734 students decided to register to audit the 110 courses, with 18 courses having more than 300 auditors. And here are some feedbacks from faculty:

- “I taught this course for more than a decade and never had more than 30 students, now I am seeing over 100 students in the class.”
- “Teaching a larger class allows me to teach in ways I wasn't able to before, and receive a lot more valuable feedback.”
- “Interdisciplinary understand is key to scientific breakthrough. I am confident that this will result in progress in research.

Due the success, in the second batch has selected 30 additional demo courses; and request each school to recommend 1 demo course each. for undergraduates and postgraduates respectively.

5.2 “Clone Class”

Tsinghua has further opened up its courses to institutions heavily impacted by the pandemic. By the end of March 2020, the initiative has reached more than 3800 students across 6 universities:

- Huazhong University of Science and Technology (in Wuhan, Hubei)
- Wuhan University (in Wuhan, Hubei)
- Huazhong Agricultural University (in Wuhan, Hubei)
- Taiyuan University of Technology
- Xinjiang University
- Qinghai University



“We are very touched that Tsinghua has proactively reached out in early February offering to set up ‘Clone Classes’ and replicate their programming such that the two schools will be attending the same class together virtually,” said Prof. SHAO Xinyu, an academician at the Chinese Academy of Engineering and the Chancellor at Huazhong University of Science and Technology. “During February, the novel coronavirus disease already took away the life of 5 professors and infected additional 3 professors. Our Tongji Medical College’s 10 affiliated hospitals have the greatest number of university-affiliated staff and beds in China. We cannot be more grateful to Tsinghua’s timely assistance.”

6. Overcoming graduation challenges



6.1 Key challenges for graduation

- Tight timeline to review graduation theses
- Students who do not have the conditions to carry out scientific experiments and research remotely, which affects the progress of research and publication
- Theses involve confidential data that require special designated computer or simply unable to access and continue work remotely.
- The remote thesis defense process may be disturbed or unfair due to
 1. the venue environment and
 2. unstable internet or related equipment.
- Ensuring voting results is trusted and reliable — maintain anonymity yet be able to confirm submissions are by the panelists themselves.

6.2 Results for the first month

- During the first month of Spring Semester, 14 doctoral students and 10 master's students had finished their thesis defense online (unprecedented), among which 6 of them are international students.

6.3 Support graduation timeline as scheduled

- While respecting the wishes of the students as much as possible.
- All schools and departments should have individualized solution for each graduating student to follow the graduation process.
- Advisors should strengthen guidance provided to support completion of thesis.

6.4 Be flexible when dealing with graduates' academic programming and thesis

- Accept that it is not possible to proceed as normal, then immediately adjust assessment and evaluation means and clearly present solutions to students.
- Fix on the final deadline, while being flexible with the timeline of the entire process, including minor and major revisions.
- Relax regulation to allow electronic submission for thesis review.
- Streamlined administrative process to reduce 13 days for graduating students.
- Added an additional degree granting ceremony in August.
- For senior college students, deadline to resubmit thesis topic is extended.

6.5 Standardized process to ensure quality

- Graduates are allowed to proceed to online thesis defense upon approval by degree subcommittee of respective schools.
- Expectations of academic standard and process must be the same as offline.
- Ensure the process is legal by National Education Law, complied with university regulation, fair and opened.
- In order to ensure it is standardized for all Tsinghua graduates, the university has released an amended policy document for degree approval and thesis defense during the Spring Semester 2020.
- Recognize the quality of graduation thesis and scientific innovation, instead of persisting on publication quantity.
- Prefer offline meeting whenever possible, especially for panelist; all online meetings must be approved ahead of time.

7. Going forward

7.1 Continue on improving technical support

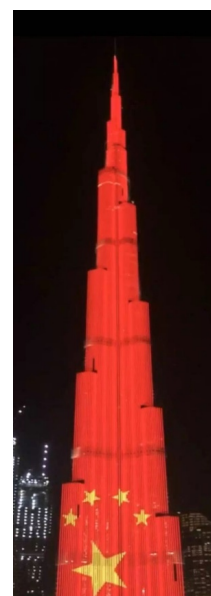
- In order to better serve students and faculty members who were not able to return back to Beijing, and provide stable connection during online classes, Rain Classroom has bought additional servers from Ali Cloud, Baidu Cloud, Tencent Cloud, and Amazon Web Service, etc.
- Continue to seek for feedback and promptly adjust the distribution of servers accordingly for better teaching and learning experience
- Since mid-February, additional servers have been installed overseas. Technical team has been testing overseas locations with higher concentrations of Tsinghua community: Hong Kong SAR, Macau SAR, Taiwan, United States, Japan, etc.
- Additional time is needed to run further test in parts of Europe and South East Asia.

7.2 Shifting focus to support Tsinghua community abroad

- Fortunately, no one from Tsinghua outside of mainland China has been infected
- Already established emergency working group for prevention and control of foreign epidemic, including
 - daily information gathering and data tracking group,
 - epidemic expert advisory group,
 - foreign language translation group,
 - public affairs group,
 - student coordination group,
 - foreign experts and scholars coordination group,
 - Hong Kong, Macau and Taiwan affairs group, etc.

- Sort out problems and potential risk, identify the key groups, and formulate the work plan.
- Keep in touch and update individual account record for each person aboard, at least once per day; report any abnormality.
- One consultant is assigned to every 200 internationals plus Hong Kong, Macau and Taiwan teachers and students. Every day, consultants help to coordinate and solve various difficulties such as visa application, academic affair, online classes, accommodation, returning to Beijing, etc.
- Since February, university leadership has actively reached out to overseas partner universities, governments, enterprises and international friends to share how China and Tsinghua has dealt with the outbreak, express hope and confidence in overcoming the pandemic, seek for support to ensure the personal safety and physical health of the Tsinghua community abroad.
- Passed on good wishes from Tsinghua's international friends to the community, including from
 - Ban Ki-moon (UN),
 - Getachew Engida (UNESCO),
 - Reem Al Hashimy (UAE),
 - Lawrence Bacow (Harvard),
 - Leo Rafael Reif (MIT),
 - Yuriko Koike (Tokyo), etc.

H.E. Reem Al Hashimy, UAE's Minister of State and Tsinghua alumnae, helped to organize and dress the Burj Khalifa in Chinese flag and a message "Wuhan jiayou" in solidarity with Wuhan over the COVID-19 outbreak. This friendly gesture kept the Tsinghua and Chinese community on great energy.





7.3 Actively update info on official channels and communicate in multimedia

In addition to this report, which is being sent out to our international friends, Tsinghua has been running communication campaigns across traditional and digital media channels, at home and abroad. In the modern era, we certainly don't lack communication, it has been harder than ever before to find trusted and reliable sources. For faculty and students, they often defer to official university channels, however, upon a quick search on some universities' website and social media, you may be surprised how outdated some of the information are. Here are highlights of what Tsinghua has done (at the university level), during the first month of the semester and will continue going forward also:

- **Tsinghua News:** 110 related news articles; of which 68 are original pieces (already exceeded the total number of original pieces in the last 6 months).
- **WeChat official account** (Facebook-like social media platform): 27 articles with 1.24 million views in total. In the first three days of teaching week, three consecutive articles have reached over 100,000 views each.
- **Weibo** (twitter-like social media platform): posted 172 times with 105 million views.
- **Live-streaming platforms (TikTok, Kuaishou, Bilibili):** live-streamed 45 times, accumulated viewership exceeded 80 million. And have posted 24 short videos too, which were being viewed over 160 million times and collected 3.3 million "likes".
- **Videos:** made 27 videos.
- **University intranet and social media:** pushed out 293 related post.

- **English media:** posted 94 related items on Tsinghua News (English), Facebook, Twitter, LinkedIn, Instagram, YouTube, and WeChat (English).

All these numbers exclude platforms and social media accounts from schools and departments, but Tsinghua hopes that this will role-model behaviors for schools and departments to follow suit.

Content of communication ranges from university leadership address, to sharing of good practices on online teaching and learning, to "virtual" student life activities.

7.4 Engaging Tsinghua community and the larger society on current issues

In addition to updating and communicating news through official channels, it is also important to engage the community and the society in meaningful ways, which Tsinghua shall continue going forward. Here are some highlights:

Chinese poetry

A Tsinghua professor from the School of Humanities wrote a Chinese poem (left) which were picked up by national media and then started a trend with other poets, students and scholars also participating in response (e.g., the poem on the right, by a former dean of Tsinghua's School of Humanities). The poems describe online education during the outbreak.

荷塘雨课堂

孙明君

序：庚子春，新冠肺炎肆虐，清华启用雨课堂授课。

设计翻新试播忙，
无边丝雨润池塘。
山川异域未妨学，
传道何曾隔异乡？

——作于2月18日

步明君兄《荷塘雨课堂》

原韵急和

悠斋主 巴君

抗疫开羹两袖忙，
滇池旧梦入荷塘。
山川异域同风月，
雨课知春沐万乡。

——作于2月18日

Experiences and thoughts sharing (with media)

95-year-old ZHANG Li is a professor of the Department of Electronic Engineering at Tsinghua University. He is the oldest professor in the school with over 70 years of teaching experience. Like many educators in China, Prof. Zhang has been working remotely. He started teaching online since February 20, with students from around the country who are enrolled in the course of Quantum Mechanics. His teaching was assisted by Prof. Hu, an assistant professor of the Department of Physics at Tsinghua, who recently received his Ph.D. from MIT.



This was later picked up by national media, during a section by [CGTN](#),

Prof. Zhang said, "The biggest challenge I may face, is that my age makes my thinking less agile than when I was young." Students in traditional classrooms usually do not dare to ask questions, while in online classrooms, most of the students are willing to ask questions, and teachers can answer them immediately. Moreover, they can easily communicate with each other to exchange different thoughts. "Students must dare to think, dare to ask questions," Zhang repeatedly emphasized. In his opinion, good thinking and daring to ask question are necessary qualities for scientists, especially for young researchers.

And then through another interview with [China Youth Daily](#), Prof. Zhang shared his insights on online education,

"It can be seen that during the epidemic period, various technical discussions about online teaching seem to have deviated from the focus. The key to online education is not 'online', but 'education'. Only by returning to the essence of education and doing what educators do best, can we better manage technology and impart knowledge through new form of media"

8. A promise kept for 23 years and will be renewed as long as Tsinghua exists

In 1997, Tsinghua University announced that "diligent and talented students should never drop out of school because of their family's financial difficulties", immediately after tuition reform happened which changed from public expenses to self-payment (700 USD annually in 2020). In 1998, multiple areas in China suffered from catastrophic floods. And in order to ensure the successful enrollment of the students affected by the disaster, Tsinghua University opened up a "green channel" for the first time, including picking up every student from the train station all the way to helping the new students to check in to their dormitories. Since then, Tsinghua University always prioritizes helping all admitted students to complete their enrollment procedures, before discussing with each individual whose families are in financial difficulties regarding adopting different ways to support them.



9. Frequently Asked Questions

To help you better digest everything that has been mentioned, we put together the seven most frequently asked questions and our answers.

9.1 Can you please describe Tsinghua's approach to online education and blended learning before the outbreak?

- Tsinghua launched *xuetangX* online education platform in 2013, which is currently the second largest MOOC platform with 49 million register users, over 2,000 MOOCs, servicing students from over 200 countries and regions.
- Tsinghua has so far launched 311 MOOCs, 110 of which are recognized as “National Selected Online Open Courses”. Tsinghua combines the traditional classroom education with online resources to enhance teacher-student interactions, as well as to transition to student-centered teaching model. So far, more than 2,300 courses have been taught in blended formats at Tsinghua University in the past seven years.



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9.2 What is the level of disruption for teaching and other academic activities in China due to the COVID-19 outbreak?

- China was the first country affected by the COVID-19 outbreak. China's Ministry of Education (MOE) announced on January 27 to postpone the start of the 2020 spring semester. MOE then published a series of policies, including *Instructions for Deployment of Higher Education Institutions (HEI), Online Teaching, Guidance for Protection and Support of Teachers during COVID-19* and so on, to encourage universities to transition from in-person to online classrooms. As of April 3, more than 950,000 teachers from 1,454 universities in China have been teaching 942,000 courses online, serving 1.18 billion students, according to the MOE.



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9.3 What policies or guidelines at the national and university level help to promote the transition of offline teaching and learning to online?

- Tsinghua held a General Affairs meeting on January 30, 2020 to discuss and decide on the teaching arrangement for the spring semester.
- On February 1, Tsinghua released the *Notice to Adjust the Teaching Schedule for the Spring Semester*. This notified the University community that:
 - New semester would start as scheduled;
 - Tsinghua students, faculty and staff were not to return to the campus until further notice,
 - All courses were to be taught online, with exceptions made for practical and experimental courses.
- Tsinghua established experts and working groups covering teaching guidance; online teaching technical support; online teaching quality assurance; and student learning assurance under the working group for epidemic prevention and control. These working groups facilitated the preparation work for online teaching and ensuring the delivery of high-quality teaching.
- On February 3, over 57,000 Tsinghua students, faculty, staff members and alumni representatives attended a special lecture on Tsinghua's epidemic prevention work and the arrangement of the spring semester through a live broadcast.
- On February 17, the spring semester courses began online as scheduled.

9.4 What were the challenges when switching to online teaching and learning? How did Tsinghua overcome those challenges?

- We are continually testing and perfecting solutions: Here are three key challenges:
- **First, how to enable over 2600 teachers to quickly master online teaching techniques and methods in a short time?**
 - Solution: We formed an online teaching guidance expert working group to guide and support the teachers. These experts provided online training to all teachers and responded to questions from them which focused on online teaching pedagogies. At the same time, we organized over 100 technical TAs and 400 volunteers to deal with technical issues from both teachers and students. Also, we developed technical guidelines, such as the *Teachers Technical Guidelines for Online Teaching, Guidelines for producing lecture slides with multimedia*. We also provided a *15-item pre-courses checklist and emergency plans, online teaching good case practices and Q&A for all teachers*.
- **Second, how to provide technical support for such a large-scale online teaching?**
 - Solution: We set up an online teaching technical support working group to provide technical support for teachers. In addition to coordinating feedbacks to *Rain Classroom* (Tsinghua's online education platform), this group also communicated directly with ZOOM, Tencent Meeting, BizConf and other related software companies in order to provide best technical service and advice for online teaching.

• **Third, how to assure quality for online teaching and learning?**

- Solution: We formed an online teaching quality assurance working group to ensure the teaching tasks are completed with the highest quality. The specialists from the quality assurance group and the leadership from all the schools and departments also regularly attend online classes themselves.
- Meanwhile, most of Tsinghua's courses are run by the platform *Rain Classroom*, Tsinghua's independently-designed online education platform. This platform could collect and analyze students' learning performance through build-in functions, such as in-class quizzes, questionnaires outside of class time, live on-screen comments and in-class photo submissions of tasks assigned. Unlike video conferencing applications, through this specially designed platform for online learning, our administrators can quickly obtain important data and analysis for all our courses, including the average attendance rate, the average daily active teachers and students online and so on, which greatly assists the evaluation of teaching and learning, as well as perfecting the overall experience.

9.5 How Tsinghua's online education respond to non-degree learners under COVID-19? What action will Tsinghua take for online lifelong learning after the crisis?

- On February 3, during the first university-wide special lecture, President QIU Yong mentioned that during this special period, Tsinghua will make all the MOOCs on *xuetangX* available to the whole society, free of cost.
- At the same time, Tsinghua joined the *Remote Access Program* and *Coursera for Campus* program, which were respectively launched by edX and Coursera. Since the virus outbreak, over 65,000 learners have joined in our MOOCs on edX and Coursera.
- *xuetangX* was launched by Tsinghua in 2013, has served over 35 million learners since the beginning of the epidemic until now (April 2020).
- Tsinghua's School of Continuing Education has organized four "Tsinghua lifelong learning cloud classroom" activities. More than 87,100 learners participated via live broadcast, thousands of whom are from Wuhan city and Hubei province (the initial epicenter of COVID-19).
- Following the crisis, we will continue to develop high quality online learning resources, promote the innovation of teaching methods, develop MOOCs, online certificate programs and blended learning courses to serve lifelong learners. So far, we have provided "Data Science" and "Public Management" online certificate programs, and are planning to launch more online certificate programs to satisfy more needs from learners from all walks of life.





9.6 How might the crisis bring long-term or permanent changes to Tsinghua's online and in-person education environment?

- Residential education is expected to embrace more online elements, including blended learning, online real-time interactive teaching and learning. The advantages of combining online and offline are endless and is expected to bring into full play.
- More and more innovation of educational applications and educational technologies are expected to emerge, such as AR, VR, virtual labs and so on.
- Teachers and students will be more adaptable to online teaching and learning.

9.7 What are the main challenges for policy-making for future education?

- For policy-making, we need to consider the rapid development of educational technology and the changes of students' learning behavior in the future. Everyone now from students to faculty have engaged in distance learning. They have engaged in online video, threaded discussion boards and so on. All of those factors now created a completely different opportunity such that we are unlikely to return back to the same traditional classroom learning environment. So we need to think about how to combine traditional learning with online learning in the future.



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III. Good Practices from Schools and Departments

For the following section we have selected a three case studies to highlight what are a residential college, school and department are doing in addition to the policy at the university level.

1. Schwarzman College: online teaching with 139 students across 19 time zones.
2. School of Public Policy and Management: putting students before course content.
3. Department of Electronic Engineering: managing large courses.

1. Schwarzman College: online teaching with 139 students across 19 time zones.

**this case study is a condensed version; the full case study will be released at the Online Education Newsletter at <https://bit.ly/onlineeedweekly>*

This following case study will mainly focus on how a college/ school effectively managing a large body of international students across multiple time zones during this unexpected transition to online. This report will present the key timeline and milestones, alongside feedbacks and lessons learned from stakeholders as well as recommendations for administrators at higher education institutions.



1.1 Relevant background:

Schwarzman Scholars Program, one of the world’s most prestigious graduate fellowships, located at Schwarzman College at Tsinghua University in Beijing. The program’s curriculum, which awards Scholars a Master’s degree in Global Affairs, was crafted and is delivered by talented academic leaders from some of the world’s most prestigious universities, including Harvard, Yale, Princeton, Stanford, Oxford, and Tsinghua. The [Class of 2020](#) is comprised of 139 students from 38 countries and 119 universities, with 40% originating

from the United States and 20% from China (including Hong Kong, Macau and Taiwan).

At the College, the 2020 Spring Semester is comprised of a 7-week Module 3 (Feb 17 - Apr 10) and a shorter 5-week Module 4 (Apr 20 – May 22).

MAJOR TIMELINE & MILESTONES

1.2 Initial priorities: which platforms?

“While always prioritizing health and safety, our efforts have focused on keeping our Scholars connected and engaged with the program. We mobilized quickly when news of the coronavirus broke and provided a flight home or to a safe place for every Scholar who sought it. We then worked quickly to adapt a synchronous learning experience in a classroom to an online curriculum. Faculty have been extremely cooperative and flexible. Our fourth cohort has quickly adapted to attending classes and participating in co-curricular programming virtually,” added Amy Stursberg, Executive Director of Schwarzman College.

The College decided on “Blackboard as the hub + ZOOM for delivery” as the online learning platforms solution. These were the principle we followed; we must choose a platform that:

- (1) can effectively enable “teacher-student”, “student-teacher” and “student-student” communications during class;

(2) is internationally recognized and accessible but also operates smoothly in China — though a large proportion of the teaching faculty is based in US and Europe, but the core support team is based in China.

(3) user-friendly and incurred minimum training cost (especially timewise), such that it can be easily and clearly explained virtually with training manuals and webinars.

1.3 From “learning to walk” to “learning to run”

Once the platform solution has been decided, the next stage was divided into two parts.

(1) Learning to walk.

Since ZOOM was primarily used as a video conferencing tools back then, and there weren't many cases of using it as an online teaching platform. In order to accelerate the learning for the support team, we arranged many test-runs of the platforms among the staff. Fortunately, we had staff who were located across the US — which enabled the team to simulate scenarios and test solutions for the international College students and faculty.

Additionally, all involved staff had daily review meetings, at least for the first month or so, where findings and lessons were shared with each other

(2) Learning to run.

The team then explored around with advanced functions that would create a more interactive online classroom, such as: screen-sharing, recording, ZOOM conference versus webinar, roles of host versus co-host, polling, Q&A, breakout rooms, etc.

At the same time, the team were also taking notes and planning FAQs and training manuals for faculty and students. Throughout this process, the team found the following “rules” very important:

- Try not make any assumptions. During the testing sessions, they were mostly led by non-

technicians and staff who have no prior experience with the platform.

- There are “no stupid questions.”
- Everyone is a student before they become teachers.

“It is particularly important for administrators, decision makers and policy makers, at least at the college or school level, to participate in this learning process as much as possible and learn together with the team. Although it could be tedious and time consuming, but it’s crucial for making informed decision, especially during a crisis. It was the best use of my time,” said **June Qian, Associate Dean for Academic Affairs at Schwarzman College.**

1.4 From (the actual) crawling to walking to running

Now, after the internal learning phrase, it came the actual execution, which is separated into two parts:

(1) From (the actual) crawling to walking

Because of faculty, teaching assistants and students were spread across 19 different time zones, several identical training series were launched for the “US”, “Europe/Africa”, “China” groups (though participants are free to join whichever is most convenient for them), together with a survey to understand their geographical movement during February, March and April. As soon as the survey results came in, the Academic Office worked around the clock to reschedule all the classes in Module 3 with the following principles and priorities:

- It must be a normal working hour for the faculty member.
- It should not be during sleeping hours (12AM – 6AM) for Beijing time, where most of the support staff are based.
- 70% + of the registered students should be able to attend the class live. Upon consulting many

institutions, including our pedagogical partner who also proposed asynchronous teaching, but the College decided not to, because the Program values the cohort experience more.

In addition to the faculty group training, the College would arrange specialized training and test-run with the whole teaching team (faculty + teaching assistants + technical assistants) for each individual course.

“I am so proud of the resilience and creativity that the Schwarzman Scholars community has demonstrated while adapting to evolving circumstances related to COVID-19. Our fourth cohort will graduate as planned, building a once-in-a-lifetime network with each other, faculty, thought leaders, and alumni. In fact, when the current class matriculates in June, Schwarzman Scholars will reach an important milestone: over 500 alumni worldwide!” added Steve Schwarzman, founder of Schwarzman College



(2) From (the actual) walking to running

Delaying the start of teaching for the module was not a negotiable item. However, the College made some adjustments in the schedule to do this in two phases: first, for courses which are taught by faculty who are in China already would start teaching online in week one; second, for courses which are taught by faculty located outside of China would start two weeks later, in the third teaching week.

1.5 From sprinting to marathon

Going forward, Prof Nicholas Dirks, former Chancellor at UC Berkeley and lecturer for Module 4’s *“Leading in Higher Education”*, had a suggestion for future courses, as he prepares to teach his first online class, *“for discussion section after lectures, we can try grouping students by their time zones, with TAs adjusting their schedule to help facilitate discussion.”* This way, it uses a hybrid approach: synchronous lecture and asynchronous discussion.

“Testing, testing, testing,” as Enoch Wong, an alumnus and TA for mandatory core courses at the College), emphasized the importance of setting up:

- make-up quiz for asynchronous learners,
- practice test before the actual course exam (especially if it is timed),
- backup portal for submitting assignments.

These “tests” and preparations are particularly important when managing learners from multiple time zones, because it is highly likely that working hours don’t overlap between you and students.

1.6 Extraordinary times call for extraordinary teams

(1) “Executive Committee in crisis mode”

The primary objectives of this team were:

- ensure all members are informed and aligned;
- deliberate and make strategic decisions;
- to share useful resources and personal networks

(2) “SWAT-team-like special task force”

A cross-functional implementation team with representatives from faculty (teaching), Academic Office (administrative), IT Office (information system; e.g. Blackboard), audio-visual team (learning platform; e.g. ZOOM), online learning specialist (instructional design), TAs (feedback from students). And this team works because:

- It helps speed up problem discovery

- The project-based team is temporary and was created for a special purpose to problem-solve
- Each team member has clear responsibility (outlined in brackets) and the team collectively offers a diverse perspective.
- Since everyone had different responsibilities and different supervisor, the team is less formal and more fun (counter the stressful challenges faced).

(3) “Technical and operational quality assurance team”

“This is definitely one of the most significant differences between teaching experience at Schwarzman classes and other Tsinghua classes. We must go above and beyond to ensure first-class academic programming quality for our fabulous world-renowned faculty and talented scholars,” said Joan Kaufman, Director for Academics, Schwarzman Scholars.

Each of the online course taught during the Spring Semester was allocated its own QA (quality assurance) team which comprised of

- a staff from Academic Office,
- a technical assistant from the Audio-Visual and event technology team (AV team),
- all teaching assistants (depends on class size),
- and a captain (a staff member who do not have any active functional responsibility during the crisis, and his or her sole responsibility is to lead the QA team by facilitate communication, observe online classes and participate during the daily Special Task Force meeting).

The QA team is an extension of the structured QA process prior to the start of the course (i.e. group and individualized training, planning, test-run, etc.), and it’s mission and purpose is to ensure the smooth running of online classes by joining every live classes and be ready to respond directly if a technical or

operational problem arise (by acting as back-up for the course TA).

“If the last few months have taught us anything, it is that we are all far more interconnected than we ever realized. Global challenges require global solutions and leaders who are well-informed and well-equipped enough to develop them. With a front row seat to global crisis leadership and practical opportunities to construct interdisciplinary solutions, Schwarzman Scholars graduates will be better positioned to help foster worldwide understanding than ever before,” said Steve Schwarzman, founder of Schwarzman College.

1.7 Final thoughts from the College Dean



Prof. XUE Lan, Dean of Schwarzman College

“When I began my tenure as the Dean, I wanted the College to be a pioneer in education innovation in order to fulfil its core mission of cultivating global leaders. COVID-19 is a crisis that forced us to adapt and change and move to an entirely new innovative model of global connection and learning. The transition requires cooperative spirit of faculty members, adaptability of students, hard work and coordination of college staff across the Pacific. We are inspired by the overwhelming support from our colleagues and friends, as well as Tsinghua's tradition to fulfil its core mission of teaching and learning in spite of challenges and difficulties, such as the example shown through the National Southwestern Associated University in the suburb of Kunming City during WWII.”



2. School of Public Policy and Management: putting students before course content

2.1 Overview

The School of Public Policy and Management decided to primarily use Rain Classroom and Tencent Meeting to deliver online courses during Spring Semester. 330 students and faculty members attended the first class of the new semester online.

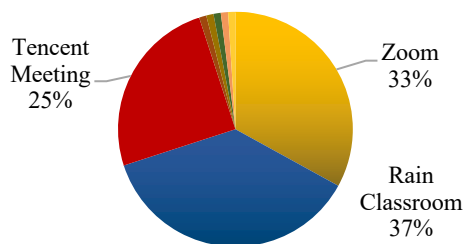


There are currently 45 teachers from the schools at the Tsinghua campus. Their favorite features from online teaching are distributing courseware for pre-study (sometime that we rarely do in on-campus teaching) and submitting reading notes, as this can ensure students can prepare ahead of time and enter into a learning state when class start online.

Breakdown of the 55 courses offered

- MPA: 20 courses
- Second undergraduate degree: 10 courses
- English Master: 9 courses
- PhD: 7 courses
- EMPA: 4 courses
- Research Master: 3 courses
- Other taught master program: 2 courses

Proportion of Teaching Platform Used



Others include: QQ, live-streaming platform, MOOC, bizConf, Tencent Classroom.

2.2 Teacher-Student Interaction

Instructors at the school have tried many creative ways to enrich teacher-student interaction:

- Organized model international conference and conducted voting exercises
- used quizzes to help students solidify important knowledge points per sessions
- arranged top students who submitted excellent assignments to share their learning
- crowdsourced topics to discussion from student input to increase ownership
- students would present critical view on reading materials at the beginning of class – for better class preparation and to listen to diverse points of view

2.3 The case of “China National Conditions and Development”, by Prof. HU Angang

On the basis of successful online teaching of the first session, Prof. Hu continued to use the model “Tencent + Rain Classroom + Recording”, that is,

- Tencent Meeting as the main one (students with computer immersive listening),
- Rain Classroom as a supplement (the students use their mobile phones to participate in the pre-course questions, in-course questions posting and interactive on-screen live comments),
- screen recording for students to play back to assist learning.

In order to improve the effectiveness of teaching and strive to exceed the limitations of online teaching, the course divides 180 students into 22 groups according to the outline content, breaking the boundaries between various disciplines and sharing the happiness of cooperation.

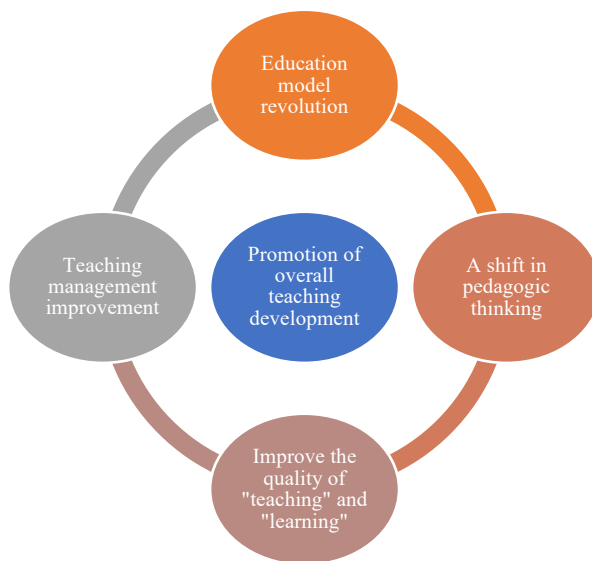
Prof. Hu recognized that due to the situation of China then, and that the course is called “China National Conditions and Development”, it is impossible to avoid the current affairs. Therefore, Prof. Hu decided to take time out from each lecture and listen to students’ sharing and input. Ultimately, with the diverse class of students located in 20 provinces across the country, they were all eager to share specific measures from their hometown, accumulating valuable lessons and “Chinese solutions”. This serves the course well as “China's National Situation and Development” aims to systematically teach students the basic knowledge of contemporary China and develop ability to conduct independent research and collective cooperative research, based on China's basic national situation and future development through the four main learning methods “network-based + data-based + experience + sharing”.



2.4 Reflections on Online Teaching and Learning

Online teaching in Tsinghua University is unprecedented and has a profound impact on education and teaching. Through our transformation of pedagogical thinking, transition from traditional classroom to online classroom in a short period of time, the development and standard of teaching in our institution has been elevated.

The quality of “teaching” and “learning” are mutually enhanced: teachers explore new ways of teaching and learning through online teaching, rearranging the content of curriculum and organizing a variety of interactions. Students participate in learning through new ways of teaching and have more experience of acquiring knowledge.

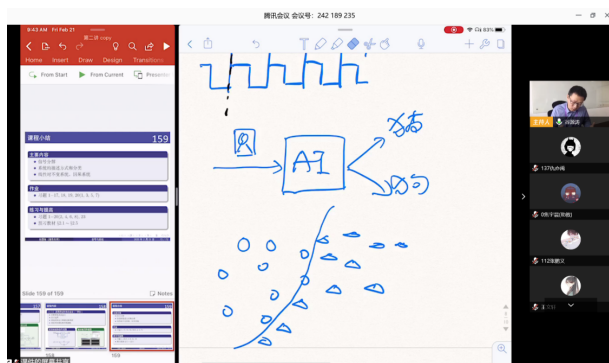


3. Department of Electronic Engineering: managing large courses

As a result from detailed statistical analyses and working group meetings, the department issued “Teaching Schedule for Spring Semester, 2019-2020”, “A Letter to the Graduate Research Supervisors”, “A Letter to the Graduate Students” and so on, in order to help guide some of the special arrangement.

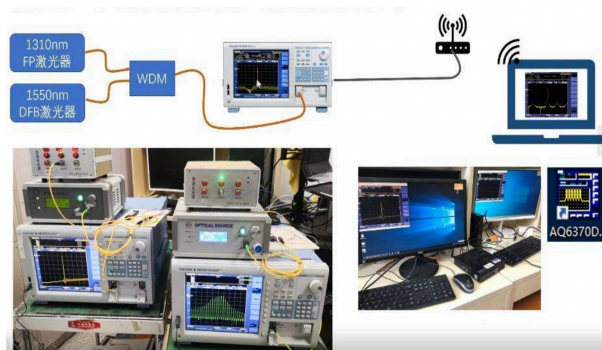
3.1 Overview for teaching and learning

Electronic Engineering is one of the largest departments and has 101 classes for the spring semester, with more than 6,000 students and nearly 90 faculty involved. In the first week of school, the department started teaching online for 92 of their classes, with more than 1,000 students online per day. Among them, three of the courses have at least 200-300 students enrolled and attended online. Most of the instructors use “Rain Classroom (76.09%) + Tencent Meeting (61.96%) or ZOOM (32.61%)”, and sometimes use Kuaishou (live-streaming app) and WeChat group (messaging app) as backup options.



The instructor annotating on online whiteboard

Considering courses for undergraduates include many experimental classes of different types, the department experimented on how to do experiment and finally reached a combination of viable methods: “pocket-size instrument + online simulation” and “learning management system + Rain Classroom + WeChat group”.



The Experimental Teaching Center’s suggestion on how to conduct online experiments

Some teachers also tried new teaching modes such as having tests between classes and live quizzes during class, as this motivates students to maintain their attention online and perform better during class interactions and discussions.



Quiz during “Basic Experiment of Physical Electronics”

3.2 Teaching management and assurance

Messaging group and summarized report

In order to facilitate timely communication, a WeChat group of more than 100 teachers related to the curriculum and various joint working groups were established. All teaching faculty have to participate in the Rain Classroom training, and the WeChat group helped the faculty to share experience and lessons, as well as to feedback problems. At the end of the class, each faculty was also asked to summarize the online teaching experience, how they felt, and possible problems with the set up. Largely due to the curiosity and passion in learning new things, the department received 100% feedback rate from faculty, and the

department also manage to reach out to students also for feedbacks. This enables timely fixes and improvement from Rain Classroom (a platform developed by Tsinghua) on the teaching and learning experience, such as playing jam in videos, multi-platform collaboration and teacher-student interactive tools.

Maximizing Teaching Assistants for improving teaching quality

In order to further increase quality assurance for online teaching, the department has increased the number assigned TAs to ensure that the ratio of student-TAs in compulsory core courses is not greater than 40:1. Additionally, the department developed several plans to strengthen the role of TAs in online teaching. E.g., some classes will have the TA lead small section to do review past classes lessons, complete problem set and for Q&A lessons — which were not as common in electronic engineering department.

At the same time, lead faculty and TAs prepared a variety of plans in advance to ensure the smooth implementation of the course. E.g., in order to prepare the course *Digital Image Processing*, Prof. WANG Guijin specially prepared two laptops: the main one (for recording live broadcast) and the spare one (for WeChat interaction and communication), with different wireless networks (Wi-Fi and 4G/5G data plan).



Wang Yu's course *Digital Logic and Processor Foundation* integrates multiple platforms and had several emergency scenario plans prepared

Upon feedbacks, the most popular set up is the combination of Tencent Meeting (for sharing screen) and Rain Classroom (for audio live broadcast) for its convenience of interaction. This combination allows in-class interruptions for questions, makes full use of the chatroom, and promotes the interaction with student through bullet comments and homework. The TA can communicate with the students in WeChat groups and avoid boredom from staring at the screen.



Set up that encourage in-class interactions: screening-sharing and chatroom.

IV. Good Practices of Online Teaching and Learning

At this section we hope to share three cases from engineering, natural science, and social science:

1. Real-time Interaction in Class with a Big Size (take ‘Principle of Circuits’ as an example).
2. Teaching Physics with MOOCs and Live Class.
3. How to carry out highly interactive and challenging small-scale class online (take ‘Advanced Quantitative Educational Research Methods’ as an example).

1. Real-time Interaction in Class with a Big Size (take ‘Principle of Circuits’ as an example)

1.1 Introduction to the Course and the Teaching Group

Principle of Circuits is the first core engineering compulsory course for undergraduate students of electrical majors. For its rich content and wide range, departments, teachers and students all attached great importance to it. In the spring semester of 2020, there are 494 students learning this course in Tsinghua University. The teaching group of five teachers have designed three kinds of models for this course and provide six classes to meet students’ requirements. One class for model A is a flipped class of 24 people based on in-class discussion; four classes for model B are the blended class of 445 people based on lecture; one class for model C is a class of 25 combining MOOC and exercise class discussion. Students can choose a class voluntarily. In order to ensure the basic teaching quality, the six classes use the same test paper of midterm and final exams.

1.2 Overall Situation of Teaching Online

Consensus on Teaching Ideas

With the aim of high-quality performance under online learning, the teaching group come up with four strategies:

- (1) Performance as the principle – we have to pay close attention to students’ learning performance.

- (2) Data as the method – students can use the data to analyze their learning condition and make adjustment.
- (3) Interaction as the internality – the purpose of interaction is collecting data instead of chatting.
- (4) Live broadcast as the externality – only in a live class can we achieve synchronous interaction, data collecting, real-time adjustment and ensure the high-quality performance.

Preparations for Teaching Devices

There are three levels of requirements of teaching devices in the course:

- (1) Reliable schemes to ensure the delivery of information.
- (2) Feedback systems to monitor students’ learning performance, so as to adjust the teaching content and schedule in time.
- (3) Knowledge crowdfunding tools to stimulate students’ interest and promote the collective knowledge re-creation of teachers and students.

Specifically, the five teachers of the group all choose “Rain Classroom” as the feedback system, which can collect and analyze students’ learning performance by its time-limited exercises, questionnaires, bullet comments and submission. However, in terms of



information delivery, different teachers have different strategies. Some choose “Rain Classroom” and some prefer Tencent Meeting.

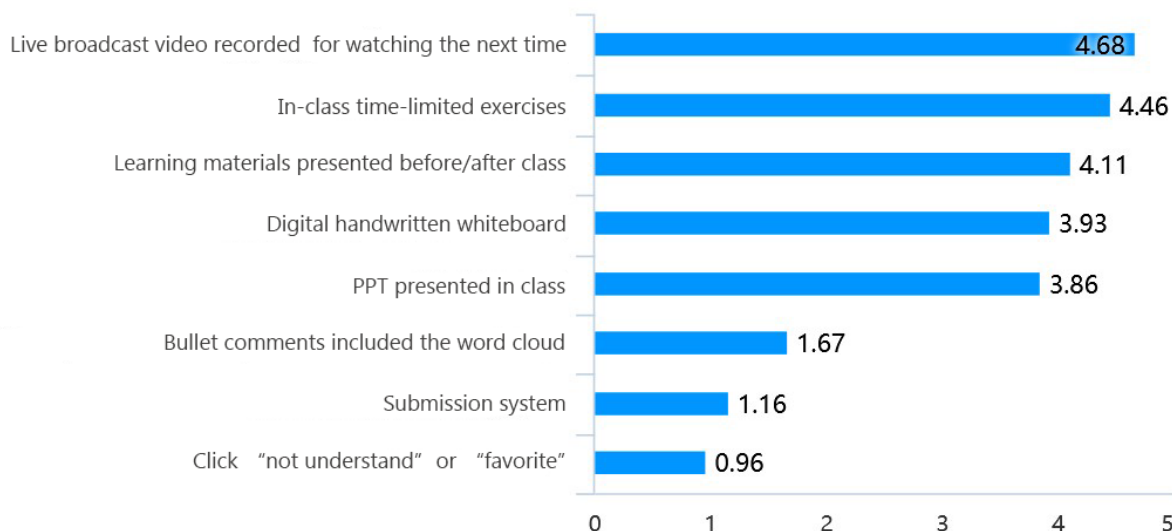
Adjustment of Pedagogy

- (1) Cut down the length of class from the original 45 minutes per class into 20-30 minutes in order to ensure the quality.
- (2) Design various and abundant interactive activities to attract students’ attention. Consider the network latency and give students more time to finish the task.
- (3) Reduce the in-class content by arranging after-class self-study and ensuring the quality of after-class studies.

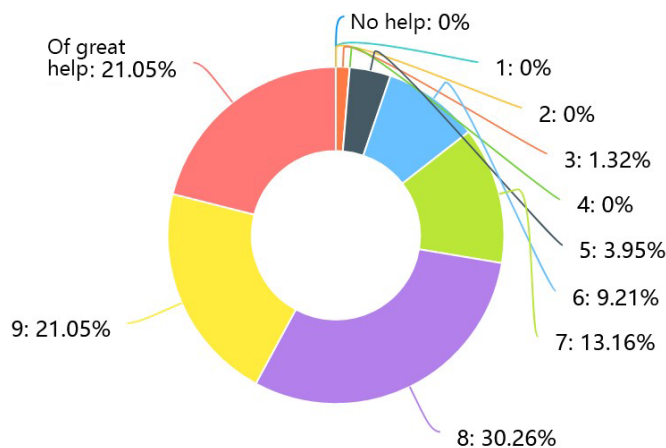
1.3 Evaluation of Online Learning

A questionnaire was released on 4 p.m. on March 9, 2020 in WeChat. Everyone could only answer once and was prohibited to forward it. Up to 11 p.m. on March 9, 2020, 113 out of 133 feedbacks were received. The analysis of the questionnaire was showed as follows:

- (1) Which functions of “Rain Classroom” are the most helpful? (Please selected limited items by sequencing.)



- (2) Are the functions of “Rain Classroom” helpful in learning Principles of Circuits? (Please choose the degree: 0 represents “no help”; 10 represents “of great help”).



2. Teaching Physics with MOOCs and Live Class

Facing the challenges brought by COVID-19, the *College Physics* course takes full advantages of the corresponding MOOCs they developed previously and the live class to try to provide students with a nearly same learning experience as in traditional classroom. The MOOCs has been running for six years, and the number of people who have enrolled has reached more than 100,000 in *College Physics 1* and 60,000 in *College Physics 2*. Meanwhile, the MOOC-based flipped classroom also has five years of practical experience at Tsinghua University. At this particular moment, the combination of online live class and MOOCs was chosen for teaching in the first half of the semester.

2.1 The combined learning mode of online live class and MOOC

1. Students' self-study before or after class: study the *College Physics MOOCs* (National Excellent MOOCs in China) of Tsinghua University on their own.
2. In class, teachers do not have to repeat what MOOCs has taught.
 - Summarize the main content, emphasize the key points, and supplement some contents;
 - Interact through quizzes, explain the concepts, methods and contents according to students' answers.
3. After class, students do their homework and review, and teachers provide the Q&A session.

2.2 Summary of teaching practice

On one hand, students' self-study of MOOC could improve their self-regulated learning ability and help them develop the habit of self-conscious learning and the ability of self-management. On the other hand, students can watch the video at their own

pace, and repeat it if they don't understand, which is superior to class lectures. However, for most students, it is often impossible to learn college physics or to master the concepts and content of physics on their own only through MOOCs or textbooks. Therefore, the live class is also needed.

In a live lecture, it is inefficient for a teacher to repeat what has been taught. Therefore, teachers are usually good at summarizing the main content, emphasizing the key points and supplementing the content; and it doesn't take much time. Usually, 1/3 of the class time is enough. What about the other 2/3? Give the students a test. The function of Rain Classroom is relatively strong. No matter the objective or subjective questions, teachers can always see the students' answers, and immediately find the problems that students may encounter while learning, and then explain the concepts, methods, or supplement the explanation. This is the key part of this learning model in which teachers spend more time. The classroom quizzes are carefully designed by teachers to stimulate students' thinking and reflect on their understanding of concepts. In addition, the test results should reveal students' difficulties in the learning process, and even their wrong understanding of some concepts, as well as the teachers' timely understanding of students' grasp of concepts and methods. Students can also interact with each other by using Dan Mu (online short comments) or submitting questions. Each class (two credit hours) should design roughly 5 test questions or so.

2.3 Online Q&A

Students' work is submitted in the Web Learning platform of Tsinghua University, which is really easy to do so. Compared with having the Q&A



session in an office, Zoom Video Conference is more convenient as more students have used it already.

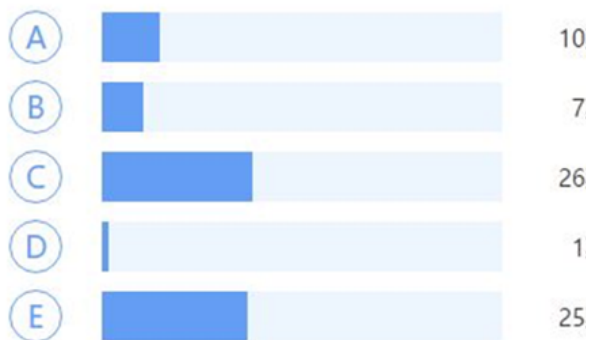
2.4 Course survey

The learning mode combining MOOCs learned by students themselves has been practiced for half a semester. Then what is the effect? Let's talk about the feeling of the teacher first: very hard, but I feel it much helpful for students' learning. What do students think? The following are the answers (6 of them did not submit):

Polling:

At present, the *College Physics* course adopts a new learning mode different from the traditional one. Students learn MOOCs on their own before or after class, while the teacher summarizes the concept and methods based on students' self-study, supplements some contents and examples, and explains the concepts and methods according to students' answers in the quizzes. What's your view on this mode or what's your feeling?

- A. I like this new learning mode.
- B. I still prefer teaching in a traditional way.
- C. Both the traditional and new modes are acceptable, which could facilitate our learning of college physics.
- D. I still cannot get used to this new learning mode.
- E. I think the new learning mode is good, but with heavy study burden.



When we consider the learning model, the teacher first chooses the efficient model. It is generally believed that the student-centered learning model should be more efficient and beneficial. But will students like it better? According to the results of the survey above, about 1/3 of the students chose C and E. And the choice E is especially thought-provoking.

2.5 MOOC-based Flipped classroom

I also have a *College Physics SPOC*, which has not changed much in the distance class. The original group discussion in class among students is replaced by the group discussion in Zoom, which is not much different except for the influence of network conditions.

3. How to carry out highly interactive and challenging small-scale class online (take ‘Advanced Quantitative Educational Research Methods’ as an example)

3.1 The original set up

Advanced Quantitative Educational Research Methods is a postgraduate course based on highly interactive and challenging small-scale class, which adopted teaching methods such as blended learning, collaborative learning and articulation previously. Considering its level of difficulty as an advanced postgraduate course and unevenness of students’ mathematical foundation, conventional teaching methods cannot guarantee that every student meeting teaching objective. The application of blended learning enables students as the center of learning while teachers as coaches, in which the aptitude-related individualized development of students is realized through group collaborative learning. Students are required to take turns teaching a topic to the whole class in the form of study groups, which aims to stimulate students’ learning motivation. During two weeks’ preparation, teacher shall have times of discussion with students, providing strong scaffolding, helping the students to construct knowledge through articulation, and comprehensively cultivating the students’ abilities in academic expression, collaborative learning, reflection and metacognition. After lecturing, teachers would lead to review key knowledge by means of computer-based workshop. This kind of blended learning mode with high interaction and challenge has achieved commendable effect, being affirmed by students ever.

3.2 Transition to online teaching

Due to limitation and specialty of online teaching, a fully interactive online teaching mode was re-designed to resolve restriction listed below:

- Students are incapable of getting adequate support from peers.
- Interactive quality of online teaching may descend.
- Class knowledge capacity decreases as the increase of time cost of communication.
- Unknown of student’s focusing level on class.

The following eight improvements (and their respective reasons and goals) were made base on the situation above:

1. Changing students’ lectures to teacher’s lectures.
 - Too high of communication cost.
2. Increasing of preparation work before class.
 - Put basic simple knowledge into self-study before class to reduce content during class.
3. All study groups are required to carry out collaborative learning at least two days before the class, teacher and teaching assistants will participate to the discussion if necessary.
 - Guarantee the effect of extracurricular learning, and provide students with academic support;
 - Teachers has a general briefing of students’ prior knowledge before class;
 - Cultivate students’ collaborative learning ability.
4. Students are required to ask after class.
 - Urging students to review and reflect on what learned.

5. TA summarized students' questions, and the study group are required to answer the questions.

- Equivalent to small-scale group lectures, giving students the opportunity to express themselves.
- Students may find that they have not real grasp or different thinking aspects by listening to the questions and answers of classmates.
- Cultivate students' collaborative learning.
- Test students' learning outcomes.

6. Setting 3-5 on-class questions through Rain Classroom.

- Stay interactive and motivate students to participate.

7. Having quiz based on last week's content.

- Urging students to review what had learned.

8. Online Office Hour.

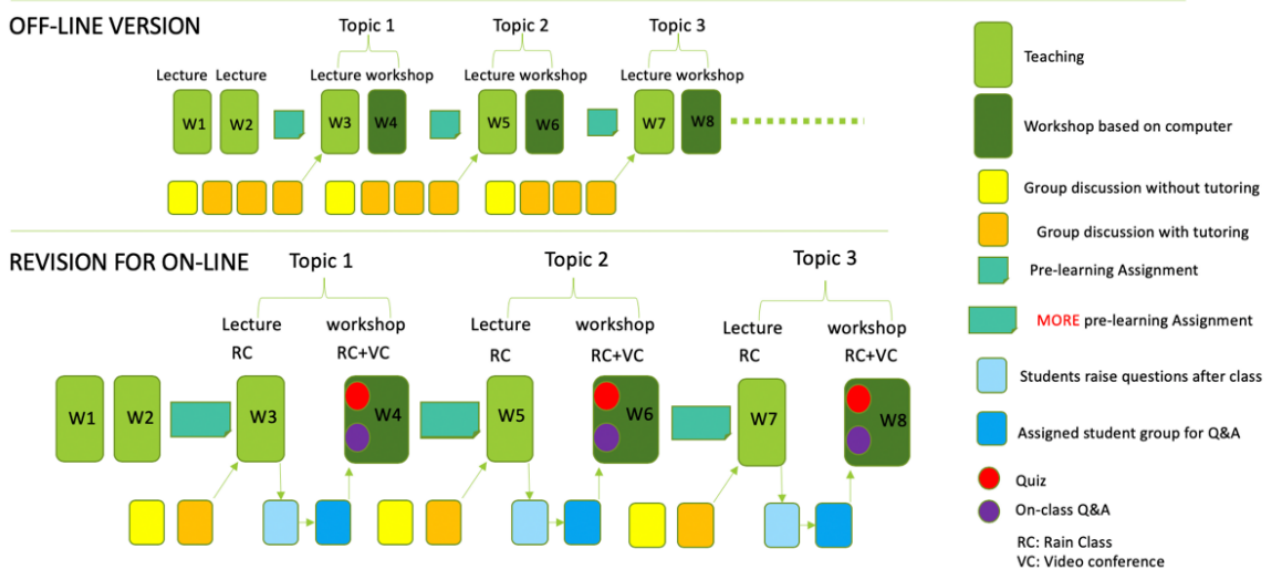
- Individualized tutoring.

3.3 Conclusion

Overall, the online teaching plan has achieved appreciating outcomes and the revision of teaching mode was relatively successful. Three main suppositions can be listed for teachers:

1. Ask students about their learning experience and suggestions, and reasonable suggestions should be adopted immediately, and the teaching methods and details shall be dynamically adjusted;
2. Focus on organizing students' extracurricular learning activities, and give students as much academic guidance and psychological support as possible after class;
3. Consciously design and assure peer support between students.

REVISION FOR ON-LINE CLASS



V: Thoughts from Tsinghua Community

The following section will include selected sharing from the Tsinghua community (including the president, provost, leader of the online education expert group, and director of higher education division) on how the university has successfully responded to the COVID-19 outbreak and the shift online.

1. Time for universities to show their commitment to society (QIU Yong).
2. Tsinghua University's digital revolution (YANG Bin).
3. Three stages of online teaching (YU Xinjie).
4. Asian universities moved online quickly, now what? (Hamish Coates).

1. Time for universities to show their commitment to society (QIU Yong)

(This article appeared on [University World News on 04 April 2020](#); and the author, QIU Yong, is the president of Tsinghua University).

As COVID-19 continues to spread around the world, an increasing number of countries and cities are in lockdown, more and more people are in isolation and observing social distancing. The outbreak of COVID-19 reminds us that we share a global community. It reminds us that we are living in a very uncertain world. Facing the pandemic, no one can manage alone or stand aloof.

COVID-19 has caused worldwide disruption, particularly in all levels of education. According to UNESCO's statistics dated 26 March, more than 165 countries have implemented nationwide school closures, impacting 87% of the world's total enrolled learners. Many universities have closed campuses and moved courses online. This indeed is unprecedented in history.

Since the establishment of the University of Bologna in 1088, universities have served as the physical and spiritual shelter for intellectuals. Some individual universities have temporarily closed, but never on such a large scale. The pandemic is a great challenge for us all. All nations, universities and

individuals ought to address the pandemic as a community.

1.1 What is a university?

China was the first country to succumb to the COVID-19 outbreak and the first to announce local and national school closures. After deliberate consideration, on 30 January, Tsinghua University decided to start the spring semester courses online – on time and on schedule.

On 3 February, more than 57,000 Tsinghua students, faculty, staff members and alumni representatives attended a special lecture on Tsinghua's epidemic prevention work and the arrangement of the spring semester via a live broadcast, attracting an audience of over three million.

Within two weeks, more than 2,600 faculty members attended training activities, with technical assistance from over 2,000 volunteers. Many Tsinghua faculty members had no experience or very limited exposure to online education before. They demonstrated strong commitment to the new mode of

teaching. On 17 February, 3,923 courses began online as scheduled.

Deeply moved by the active response and sense of responsibility demonstrated by our faculty and students, a question emerged in my mind: What is a university?

This is a classical question raised by John Henry Newman in 1852. The ancient designation of university is *Studium Generale* or School of Universal Learning. This description implies professors and students from all parts coming together to study.

In this regard, universities create and assimilate knowledge from generation to generation; universities educate young people, empower them with knowledge and a sense of responsibility. These commitments made by universities help to sustain our culture and civilisation.

As we face this unprecedented global challenge, it is time to reflect on what makes a university great. Great universities should proactively respond to the challenges and shoulder their responsibilities at such times to demonstrate their commitment to society.

The essence of education is to empower the lives of students, with a prerequisite of ensuring their health and well-being.

Universities should make the safety and health of students, faculty and staff their top priority. After the outbreak of COVID-19, we took immediate action to make a campus safety plan in accordance with our emergency response framework.

On 23 January, the city of Wuhan went into lockdown. On the same day, Tsinghua University established 13 epidemic prevention task forces. We managed to maintain contact with every single

student, faculty and member of staff in the Tsinghua community. No one was left behind.

The university's hospital initiated emergency plans and set up fever clinics. Campus security levels were reinforced by applying strict restrictions on visitors and vehicles. Buildings were disinfected multiple times a day. We closely monitored the health of all students, faculty and staff. Quarantine facilities on campus for returning students and faculty were set up. Special assistance was also offered to students studying abroad and international students on campus.

1.2 The shift online

Another thing we prioritised was the idea that teaching and learning should not be undermined under any circumstances.

University education is neither spontaneous nor sporadic. Rather, it is a well-designed systematic programme carried out with comprehensive planning. Online teaching and learning are not supplementary for our education. We try our best to ensure that online courses have the same quality as in-person ones.

As of 17 February, Tsinghua commenced teaching all courses via the Rain Classroom and other platforms. The Rain Classroom is Tsinghua's independently designed online learning platform, offering real-time interaction between teachers and students as well as an evaluation of teaching.

Teachers can use the Rain Classroom to create a courseware preview and check students' status before class. Through the Rain Classroom, slides can be synchronised with WeChat – a popular messaging and social media app. Students take quizzes during the class and send their feedback and questions anonymously via the on-screen comments section.

Through our observations on the Rain Classroom, we noticed that compared to in-person classes, interactions between faculty and students have considerably improved online and students' satisfaction with their courses has also been enhanced.

Professor William Rosoff from the School of Law of Tsinghua University delivered his online class from Indonesia. He noted that the system exceeded his expectations. "Remote teaching may lead to more student participation since students may be less shy speaking online than in the classroom," Professor Rosoff said.

Extensive experiences and insights have been gained from our online education practices. For example, in-class interaction is very important not only for in-person classes, but also for online teaching and learning. The concept of community means a lot – faculty and students gather for knowledge sharing with a sense of collective identity and integrity.

Online teaching and learning with real-time interaction are the continuation of community building of universities. Though physical distance does exist, quality education can still be sustained and the university community reinforced.

Due to the unexpected outbreak, many students were not able to return to Beijing and had to spend extended periods of time at home. Limited ICT infrastructure presented immense obstacles for students in remote areas. Meanwhile, classes conducted over various time zones created challenges for international students who sometimes had to log in at midnight.

"Overall, it was a very good experience. There are students from all over the world and we could communicate clearly. Considering the very challenging times we are passing through, this seems

to be a very good solution," said Ana Paula Perrone Kasznar, a first-year graduate student from the Global Environmental Leadership Program, taking online courses from her hometown in Brazil.

In addition to online courses, we are also delivering innovative modes of thesis defence. By 22 March, 42 graduate students had finished their thesis defence online. Among them were 26 doctoral students and 16 masters students. Seven of the 42 students are international students from Canada, South Korea, Pakistan and the United States.

1.3 Epidemic prevention

Drawing on traditional strengths in academic research and innovation, universities can also play an essential role in epidemic prevention efforts.

Modern universities are characterised by academic research and innovation and have made indispensable contributions to the well-being of humankind. Based on its traditional strength in science and technology, Tsinghua swiftly initiated COVID-19 research projects.

Substantial progress has been made in basic medical research, vaccine research, fast testing kits as well as intelligent epidemic prevention systems and equipment. On 2 March, President Xi Jinping visited Tsinghua to inspect the School of Medicine's research projects on COVID-19. During his visit, President Xi emphasised that "science and technology are the most powerful weapon in humanity's battle against diseases".

Professor Cheng Jing's research group from the School of Medicine successfully developed the Respiratory Virus Nucleic Acid Detection Kit (Isothermal Amplification on Disk Chip), the first in the world to detect six types of respiratory virus

simultaneously, providing patients with a quick and accurate diagnosis.

Soon after the approval from the National Medical Products Administration, the detection kits were donated to Hubei province and the government of Georgia in Europe.

Once the genome sequence of COVID-19 became available, the research group led by Professor Zhang Linqi from the School of Medicine initiated vaccine strategies to block the ‘key and lock’ interaction and to identify potent neutralising antibodies from infected and convalescent patients.

Professor Zhang and Professor Wang Xinquan from the School of Life Sciences successfully identified the structural relationship between virus and cell, as well as the precise target for vaccine design and development. Professor Zhang and his group have also isolated several potent human-neutralising monoclonal antibodies from recovered patients, providing candidates for antibody-based prophylactic and therapeutic interventions against COVID-19.

Professor Dong Jiahong from the School of Clinical Medicine led a task force that combines medical and new-generation information technology, which has developed a whole raft of intelligent epidemic prevention systems and equipment.

The task force has developed an infection self-assessment system for residents; a community intelligent epidemic prevention system which automatically reports the self-assessment result to the community centre terminal; an intelligent outpatient pre-screening and triage system; an artificial intelligence monitoring system for the rehabilitation population in the isolation area and artificial intelligence equipment, such as isolation ward robots and throat-swab robots for nucleic acid detection.

1.4 Social responsibility

Universities also need to demonstrate the aspiration of education by taking on social responsibilities at this time.

In May 2019, the Global Alliance of Universities on Climate (GAUC) was officially established at Tsinghua University, with 12 universities from nine countries as founding members. The GAUC charter states that “in response to global challenges presented by climate change, world-leading universities shoulder an extremely important role”.

Similarly, we believe that universities can also make indispensable contributions in the fight against COVID-19. Over the past two months, we have maintained close contact with other university leaders and global partners, exchanging best practice and providing mutual support. Meanwhile, we have been proactively taking on a wide array of social responsibilities.

Since the outbreak of COVID-19, Tsinghua has opened a series of online resources to the public, including more than 1,900 MOOCs (massive open online courses) on the XuetangX, China’s first and largest MOOC platform initiated by Tsinghua.

Meanwhile, Tsinghua has created ‘clone class’ courses to share online education resources with universities in Wuhan and other remote areas, including courses in English communication, engineering drawing and solid state physics, among other disciplines. The clone classes feature two identical classes, one in Tsinghua and the other in the sister school, with exactly the same course content, materials and assignments, taught by the same Tsinghua professor.

From 16 to 20 March, Tsinghua launched a large-scale online career fair with 126 universities in Hubei, inviting 621 employers to join the fair.

In addition, more than two million epidemic prevention items have been donated to Hubei province and other regions through the Tsinghua University Education Foundation.

Tsinghua alumni have also been proactively participating in epidemic prevention efforts. More than 180 alumni enterprises and 45 alumni associations donated over CNY810 million (US\$114 million) and 130 batches of epidemic prevention items.

Enterprises affiliated to Tsinghua University have also made unique contributions to hospitals in Wuhan, donating masks and air cleaning equipment and providing network and security equipment to two makeshift hospitals.

In late January, a team of medical workers from Beijing Tsinghua Changgung Hospital, some of whom had clinical experience of SARS, accepted the call to join the front line in Wuhan to treat COVID-19 patients. Thousands of Tsinghua volunteers organised a diverse range of activities to support epidemic prevention efforts, such as providing free tutoring to children of medical workers on the front line, donating blood and conducting volunteer work in local communities.

Tsinghua's Department of Psychology launched the COVID-19 Psychological First Aid programme, providing professional training and guidance for volunteers and one-on-one counselling.

1.5 The lighthouse of human civilization

Infectious diseases know no boundaries and certainly have no nationality. In the face of this common challenge for humanity, we should unite instead of divide; we should be collaborative instead of combative. If we remain confident in ourselves and each other, the virus should not be feared.

Universities serve as the lighthouse of human civilisation inheriting knowledge and culture, as well as educating young talent. We share a common objective, which is to make the world a better place.

At this critical moment, universities should play an essential role in promoting confidence, trust and unity among people and collectively call for humanity to rise to its highest potential. Despite the uncertainties and challenges that lie ahead, there remains hope for a brighter future. **Together, stronger.**



QIU Yong, the president of Tsinghua University

2. Tsinghua University's digital revolution (YANG Bin)

(This article appeared on [Times Higher Education on 12 March 2020](#); and the author, YANG Bin, is the Vice President and Provost of Tsinghua University)

The sudden outbreak of Covid-19 came at a particularly challenging time. Students in China were due to commence the spring semester around 17 February, but, under nationwide measures to control the spread of the virus, those not already on campuses were instructed to delay their return.

On 3 February, I chaired a special [university-wide briefing](#) to outline new semester arrangements at [Tsinghua University](#). Live streamed to 50,000 students, faculty, staff and alumni, the briefing included lectures by the university president and chairperson and evoked previous arduous periods that Tsinghua has endured. The university's determination to continue come what may is perhaps best encapsulated by the insistence of Mei Yiqi, one of Tsinghua's most influential presidents, on delivering basic education and research in the face of persistent civil war and foreign invasion in the 1930s and 1940s.

Hence, although all campus-based classes have been suspended, except for some laboratory and practical course components, [teaching for all courses has continued via online platforms](#). Extraordinary efforts were made to prepare faculty and students for the digital switch, and a total of 4,254 Tsinghua courses, taught by 2,681 faculty members to more than 25,000 students, are now being successfully delivered this way.

Even courses in creative arts and physical education have been conducted online. Physical education instructors use online tools to monitor students' exercise and to instruct them on health and fitness. In addition, to ensure the holistic well-being

of all students and staff during this uncertain and anxious period, mental health courses have been made available, and additional resources have gone into counselling services.



[Many students and teachers have been excited by the move to remote learning](#). Faculty have supported each other during the implementation period, sharing their discoveries and tips as they navigate the online teaching systems. And observing colleagues' online courses has become a convenient and worthwhile way to promote faculty development.

Meanwhile, the new online teaching model has encouraged those students who are typically shy about speaking in public and prefer to contribute in written form, so participation and engagement level are also expected to improve.

Tsinghua has been able to lead the way in China's online transition because we had already made decisive moves into online teaching, in an effort to facilitate the learning of post-millennial students.

In 2016, for instance, we launched the Rain Classroom teaching platform, which is the most advanced and effective online teaching platform in China and currently has more than 19 million users,

the second highest in the world. Online classes consist of three 30-minute sessions: a duration deemed more suitable than longer lectures for the pace of online learning. Students are encouraged to submit questions during live interaction with their teacher, which the software can collect and classify. Time is allocated for instructors to answer the queries and further discussion is arranged in each section of the course. Rain Classroom also facilitates course assessments and the setting and evaluation of both standard homework and extracurricular learning tasks.

But digital education isn't only for registered students. Tsinghua has also decided to release all 1,600 of its Moocs free of charge, and we will open more than 2,000 Rain classes to the public, too. We will also set up "clone classes" so that teachers and students from other schools can share Tsinghua's courses simultaneously. Several universities and local educational institutions, including secondary schools, have contacted Tsinghua in the hope of obtaining support.

Like many universities with medical schools, Tsinghua faculty have been assigned to research and develop medical responses to the coronavirus, and medical personnel from our affiliated hospitals have been dispatched to Hubei province, the centre of the epidemic, to assist in the treatment of patients.

In all these ways, Tsinghua is living up to its commitment to the academic community, and to society more broadly.

Once the immediate period of virus prevention is over, conventional classes will return in some capacity. However, the impact of the online switch will endure. Students and teachers will have collectively experienced a new benchmark of contemporary education: a more interactive, real-

time and innovation-oriented learning experience. I am confident that teachers will embrace the digital switch, and even seek further opportunities to develop online and blended education models.

Some will still be resistant to change. In particular, some teachers still have concerns about using Rain Classroom and are reluctant to change their existing methodologies. But I know a professor in her sixties who had never used the online tool before the training sessions. She was understandably very resistant at first, but, after realising that her unique teaching style will not be compromised, she now supports Rain Classroom's adoption.

In this unforeseen and unpredictable landscape, technology has offered credible solutions to an unprecedented problem. The online tools and upgrades to existing technologies that have been pushed to the forefront of university teaching will emerge as epoch-making platforms in China. They may well establish new global standards, too, and new norms for online and blended education.



YANG Bin, the Vice President and Provost of Tsinghua University

3. Three stages of online teaching (YU Xinjie)

(This article appears in the [first issue of Online Education Newsletter](#) on 23 March 2020; and the author, YU Xinjie, is the group leader of the Online Education Expert Group that was created in response to the school closure at Tsinghua University).

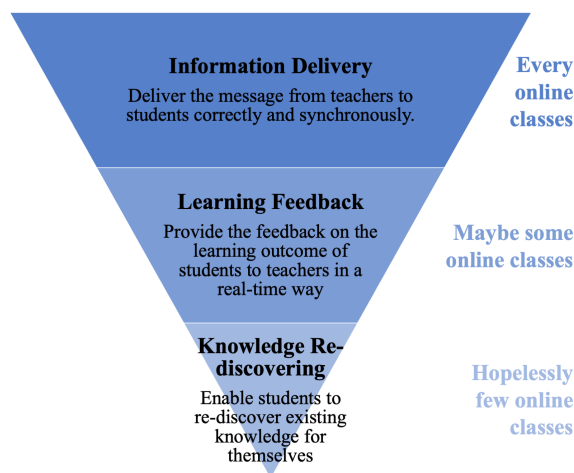
Prof. YU Xinjie has been a Professor of the Department of Electrical Engineering at Tsinghua University since 2001, and he also teaches two classes on edX called, “New Course Mode in e-Era” and “Principles of Electric Circuits”. Prof. Yu was named one of the recipients of the inaugural “Tsinghua New Century Teaching Achievement Award”.

In a recent sharing, he argues that **if you are a good teacher in a traditional classroom you will still be a good teacher online, and if you are a bad teacher in a traditional classroom you will still be a bad teacher offline**. Simply put, online teaching puts your teaching skills under the microscope, thus magnifying your flaws and making it much more difficult to hide them, even some of the most charismatic lecturers cannot escape.

After having taught both offline for two decades and then online too in recent years, he observed that there are three stages of online teaching and suggested teachers must not be lazy and include all the stages when teaching online.

While teachers online frequently use information delivery tools (e.g., live-streaming platforms, network conference applications and specially-designed teaching tools such as Rain Classroom) to deliver their message and sometimes would get responses from students with learning feedbacks tools (in the forms of audio, text, learners’ data), but very rarely would teachers truly engage

Three Stages of Online Teaching By Xinjie Yu, Tsinghua University



their students online and shift from teaching to learning. Prof. Yu believes that online technology has gone a long way since he started teaching 20 years ago, and there really shouldn't be any excuses. There is now real-time analytics from in-class quiz results, breakout rooms feature to allow smaller group discussion, or function to let teachers annotate just like using a physical blackboard or whiteboard (and possibly more too).

To sum up, using a Chinese proverb[1] by Xunzi: “*tell me and I forget, teach me and I remember, involve me and I learn.*”

[1] 不闻不若闻之，闻之不若见之，见之不若知之，知之不若行之。This Chinese proverb appears in Chapter 11 of “*The Teaching of the Ru*” (Ruixiao).

4. Asian universities moved online quickly, now what? (Hamish Coates)

(This is a portion of the [Times Higher Education Podcast on 8 April 2020](#); Hamish Coates is a Tenured Professor and Director of Higher Education Division at Tsinghua University's Institute of Education).

4.1 We must differentiate this with “online learning”

And for now, I suppose, coming on six or seven weeks, we've been delivering what I would refer to as **emergency online learning**. We have to be pretty careful not to just say we are doing online learning, because I dearly hope we do reopen the campus at some point and we go back to having campus-based education. And secondly, the sort of online learning that we're doing now is **not the same as the premium, really sophisticated forms of online learning** that many universities have been working on for some decades.

The way that the online education business has flourished in recent years is that it has become incredibly sophisticated. There's a whole ecosystem of EdTech firms is essentially billions of dollars of business and venture capital. And they have started to come up with some really super sophisticated way for doing education, you know, **reconfiguring curriculum; allowing people to learn across different sorts of platforms; working through language barriers; having real current feedback based on how learners are interacting with the technology; having “teachers” interacting with learners to ensure that people are doing really well; teams and psychologists to support students and make sure that they're not at risk of dropping out; and all sorts of additional experiences.**

We see this through the commercial platforms, but we also see it through a number of nonprofit platforms as well. And of course several of those are associated with universities and in China many are

associated with Tsinghua. While we haven't done a lot of formal online learning within the university programs itself, at the end of the street, we do have one of the biggest MOOC in the world — xuetangX. And it's an enormous number of faculty who develop online learning platforms and teacher online. And we have a large number of SPOC that we also used to teach internally in an online teaching platform — the Rain Classroom.

SPOC (Small Private Open Course) is essentially where faculty will use their own course or their own MOOC or another MOOC. And they will use that within the classroom, on the campus. We have a situation where sophisticated online learning involves teams of people who are education engineers reading curriculum, making sure that the teachings gone seamlessly. It's highly responsive and individually made. It has really great assessment. And with emergency online learning, I think we also have a situation where people are basically doing what it takes to do the teaching and provide students with an ongoing education experience using the whole range of platforms.

The really interesting question is **how the two will come together in the future?**

4.2 Real secret to success during crises

In around 2011-2012, Tsinghua formed a partnership with edX, and provided a gateway and a platform for offering global MOOCs inside China, but also outside of China. So [xuetangX](#) is the one of the biggest MOOC provider in the world by volume, and it provides materials to universities across the

world and students in the public. Associate with that is the new platform developed in the last three years called the Rain Classroom ([see how this university in China maximizing Rain Classroom to engage students](#)), which basically integrates WeChat (social messaging app) and PowerPoint. So you can show a lecture video on your PowerPoints. There are other platforms, but Rain Classroom is developed within Tsinghua. So we have a situation where we could readily tend to our own platform to bring this sort of emergency online learning solutions to our students.

I think one of the real secrets to success in being able to turn a very top campus-based institution to a top online provider in two weeks, is to basically say to the faculty, which is exactly what our leader said to us, **go ahead and do what you can and use what it takes to get the job done for our students**. And it was a clear message of direction and clear support from the leadership and the support networks the university to help faculty convert the often very traditional approaches to teaching into very high-tech approaches. I think it was that **trust and confidence in the faculty** to basically use whatever it took to get the job done that helped made it happen.



After 6 years, xuetangX has grown to be one of the largest MOOC and online learning platforms in the world, and it decided to extend its services to more global users and has recently launched its international version on April 20, 2020.

4.3 Perfect time to rethink assessments

So most assessment in higher education is still happening the same way happened 100 years ago. It has been incredibly slow and difficult to reform. And I'm talking about most of the world's 20000 universities here, not just China and not just Tsinghua. For example, I am currently looking at the building of the University of Melbourne where I took a lot of my undergraduate and graduate assessments. And I know if it would be open for examinations in two months' time, students would be going in there and sitting at small desks and regurgitating stuff they crimped into their head over the preceding week. **That's not the best way to test knowledge. That's not the best way to safely say someone is a competent, professional or expert.**

So, again, what we've seen is that this has forced people to **rethink how they can understand what the students are learning**. Simply assigning grades, particularly when you're teaching cohorts of students who are amongst the most talented in the world is a rather strange thing. There are some elite universities in the US that have as their educational motto, "do no harm". The idea being you can get super-smart people and just expose them to a wealth of opportunities. And **regardless of whether you give them an exam or not, they are still largely going to go on to contribute and changing the world**. So I'm not sure that unless it's a gateway piece of assessment, it's really so high stakes for the student or so high stakes for the institution.

What we do know is that **assessment is providing good feedback** to people that help inform their learning — **this is what makes assessment real**.

4.4 Leading with resilience through crises

You know, we've seen an institution which was already enormously resilient, even pre-crisis. And I suppose it's partly because of the faculty and the leadership who have **instilled a culture, pride, and commitment for learning to our students**. On top of that, since the crisis, **an enormous amount of data and personnel are involved** in making sure that the students mentally are coping with the studies; and this is happening through faculty level support as well.

The initial interest for Tsinghua is just delivering on the promise of the semester and getting the students through this course of teaching. In about two months, Tsinghua will be wrapping up its academic year. Then, it's the **"what's next?"** And I think a really prudent move was made by leadership early on to say we have a huge natural experiment before our eyes. And unless we studied this, we can't make the best improvements through our own university or contribute to future thinking about where higher education is going.

Now, if anyone can find the magic formula that somehow blends campus and mobile phones and computers and airplanes to somehow come up with the perfect higher education cocktail, they will be able to solve a riddle that people have been studying for about the last 40 years. I suspect there is no one solution, but **what we will look to do is to find ways to augment the campus**. I'm aware that things like augmented reality and virtual reality are becoming more common and accessible. We can augment the campus in all sorts of interesting ways that we wouldn't have thought about five years ago. And we will probably also take out certain parts of the campus and put online experiences in there. So we will see campus space, at least residential education, with an overlay of very rich online learning experiences. And

hopefully, that will enable students to save time flying around the world and at the same time bring every guest lecturer you could ever imagine into the one classroom.

I suppose this shock gave us the opportunity to really make moves in some of these directions. I think it's really important though what we're working through now is not about online learning per se. Instead, it is looking at how major universities are **leading through crises, making institutions resilient and change in the face of contemporary circumstances**.

4.5 University leaders need to be in charge!

There are plenty of research opportunities that Tsinghua's Institute of Education is currently involved in: from the use of technology to interviewing university leaders for their experience and understanding policy implications. So, where are we going with this? Where is this heading? **I would argue that this is a new and exciting time because for the first-time technology is in the background and educators are at the forefront instead — it is not about the absolute technology and it is about the future of higher education**. Although we all understand it is a very fragile situation, there are also many amazing and positive things going on, like educational leadership and institutional changes.

Many institutions, including very elite ones, have been teaching online, though some have done a pretty bad job; thus, giving a subpar reputation for the quality of online learning. **In many countries, there are not many related policies or regulations saying you cannot do online, but at the same time, there are no clear structures and guidelines about online**



education either — as we really don't know what's going on, especially regarding the quality.

We are likely to move towards a blended future with more premium online and on-campus experience, but we need more data — **to better manage learners' behaviors, take care of the social aspect, as well as making the experience more fun!** In other words, we need the university leaders to be in charge (and not just the tech guy).

And in some ways, universities have been very good at that, and in other ways, they're very resistant and very conservative. I would think in about two months we'll have an amazing and unprecedented series of insights that Tsinghua can share with the world as to what the future of higher education should look like, as well as what good quality learning looks like. And that's the sort of stuff that we need to start telling the parents and the students of tomorrow so that they can prepare themselves and learning new and different ways.



“所谓大学者，
非谓有大楼之谓也，
有大师之谓也。”

—— 梅贻琦就职演讲
(1931年12月2日)

MEI Yiqi, also known as Tsinghua “president-forever”, said during the inauguration ceremony of his presidency at Tsinghua in 1932, “**what makes a good university is not the number of buildings it can have, but the number of great scholars, professors, and masters.**”

**this is a near-direct translated version of what President Mei said back in 1931, interpretation of original text may vary.*



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