Online Education Weekly Newsletter (Higher Education) Issue 3

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Editorial Letter

Let us first start with some good news — which could seem like a priceless diamond these days. Throughout last week, exactly two months after the Chinese Ministry of Education [postponed the start of the 2020 spring semester](), several Chinese provinces have announced the gradual opening of their university campuses. This is indeed a hopeful message, not only for China but to the whole world too that, *"victory is ensured when people in their strength; success is secured when people put their heads together"*.[1] Our deepest thoughts go out to our international community during these challenging times.

In this opening message, I hope to cite the Chinese proverb President Qiu mentioned during the recent [inauguration ceremony of the Tsinghua University's Vanke School of Public Health](), *"nothing, not even mountains and oceans, can separate people with shared goals and ideals"*.[2] And there was strongly felt by all the attendees during the online higher education webinar last week, as a few dozen leaders of universities from Asia and beyond gathered virtually to share and learn from the like-minded. And in paying it forward, we wish to share some of our key learnings and inspirations from the meetings to you, including from our special guest — ***the "Founder of MOOCs", Prof. George Siemens***, and hopefully this sharing will encourage us to continue to forge ahead with our pursuit of excellence in meeting the needs of changing times.

Together, we will advance the development of quality online education.

[1] 中华古训中：团结齐整胜一切，众擎易举成大事；
[2] 原话是：不论山海之隔

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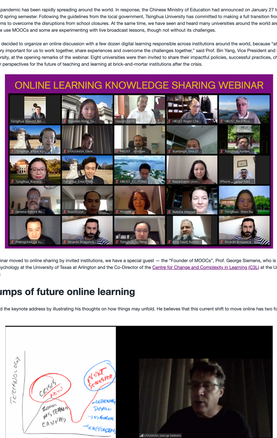
Webinar — Online Learning In Response to COVID-19

The COVID-19 pandemic has been rapidly spreading around the world. In response, the Chinese Ministry of Education had announced on January 27 to postpone the start of the 2020 spring semester. Following the guidelines from the local government, Tsinghua University has committed to making a full transition from traditional to online classrooms to overcome the disruptions from school closures. At the same time, we have seen and heard many universities around the world are following our footsteps, some use MOOCs and some are experimenting with live broadcast lessons, though not without its challenges.

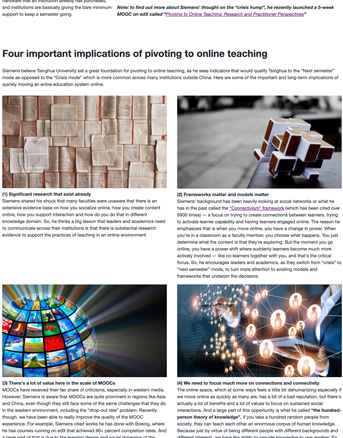
Thus, Tsinghua decided to organize an online discussion with a few dozen digital learning responsible across institutions around the world, because "at this critical moment, it's very important for us to work together, share experiences and overcome the challenges together," said Prof. Bin Yang, Vice President and Provost of Tsinghua University, at the opening remarks of the webinar. Eight universities were then invited to share their impactful policies, successful practices, challenges faced, and their perspectives for the future of teaching and learning at brick-and-mortar institutions after the crisis.



Before the webinar moved to online sharing by invited institutions, we have a special guest — the "Founder of MOOCs", Prof. George Siemens, who is currently a Professor of Psychology at the University of Texas at Arlington and the Co-Director of the Centre for Change and Complexity in Learning (C2L) at the University of South Australia

Two humps of future online learning

Siemens started the keynote address by illustrating his thoughts on how things may unfold. He believes that this current shift to move online has two folds or two humps.



(1) Crisis mode: where you have an entire country that needs to shift large parts of its educational system online. This current crisis is not well planned, reactive, passive and it is really about very urgent rapid change. Hence, there is a lot of focus on popular tools like Zoom, Ran Classroom, Microsoft Teams, Canvas, Blackboard etc. — software or hardware that an institution already has purchased, and institutions are basically giving the bare minimum support to keep a semester going.

(2) "Next semester": one of the critical challenges that university leaders have right now is how do you address the needs of what's going on right now, while start preparing for what has to happen next semester? Since the current crisis is unlikely to be completely resolved within a few months, some experts estimate it may take 12 – 18 months. So as the current crisis is beginning to normalize, we need to start turning our attention to planned movement online by looking at things like a more systematic approach to learning design, focusing on online classroom engagement, and ways universities can support learners in scaffolding their learning online, etc.

Note: to find out more about Siemens' thought on the "crisis hump", he recently launched a 8-week MOOC on edX called "Pivoting to Online Teaching: Research and Practitioner Perspectives***"***

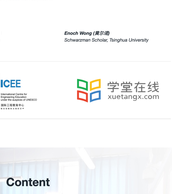
Four important implications of pivoting to online teaching

Siemens believe Tsinghua University set a great foundation for pivoting to online teaching, as he sees indicators that would qualify Tsinghua to the "Next semester" mode as opposed to the "Crisis mode" which is more common across many institutions outside China. Here are some of the important and long-term implications of quickly moving an entire education system online.

(1) Significant research that exist already
Siemens shared his shock that many faculties were unaware that there is an extensive evidence base on how you socialize online, how you create content online, how you support interaction and how do you do that in different knowledge domains. So, he thinks a big lesson that leaders and academics need to communicate across their institutions is that there is substantial research evidence to support the practices of learning in an online environment

(2) Frameworks matter and models matter
Siemens' background has been heavily looking at social networks or what he has in the past called the "Connectivism" framework (which has been cited over 6900 times) — a focus on trying to create connections between learners, trying to activate learner capability and having learners engaged online. The reason he emphasizes that is when you move online, you have a change in power. When you're in a classroom as a faculty member, you choose what happens. You just determine what the content is that they're exploring. But the moment you go online, you have a power shift where students become more important, more actively involved — like co-learners together with you, and that's the critical focus. So, he encourages leaders and academics, as they switch from "crisis" to "next semester" mode, to turn more attention to existing models and frameworks that underpin the decisions.

(3) There's a lot of value here in the scale of MOOCs
MOOCs have received their fair share of criticisms, especially in western media. However, Siemens is aware that MOOCs are quite prominent in regions like Asia and China, even though they still face some of the same challenges that they do in the western environment, including the "drop-out rate" problem. Recently though, we have been able to really improve the quality of the MOOC experience. For example, Siemens cited works he has done with Boeing, where he has courses running on edX that achieved 90+ percent completion rates. And a large part of that is due to the learning design and social dynamics of the learning process. So, he believes the scale of MOOCs is critical in this current environment, but scale alone isn't sufficient though.



(4) We need to focus much more on connections and connectivity
The online space, which at some ways feels a little bit dehumanizing especially if we move online as quickly as many are, has a bit of a bad reputation, but there's actually a lot of benefits and a lot of values to focus on sustained social interactions. And a large part of this opportunity is what he called **"the hundred-person theory of knowledge"**, if you take a hundred random people from society, they can teach other an enormous corpus of human knowledge. Because just by virtue of being different people with different backgrounds and different interests, we have the ability to provide knowledge to one another. So, what our teaching systems need to do is to move away from exclusively sharing what an expert knows, though obviously we need experts, but to move to an environment where our learning systems activate the latent knowledge capacity of the broader network, and where we bring in more effort from students in terms of content creation, artifact creation and even co-teaching.

The host of the webinar, Enoch Wong (Schwarzman Scholar, Tsinghua University), also the editor of the Online Education Weekly Newsletter, took the opportunity to follow up with a question for Siemens: ***How do you envision the future of online education, and in what conditions do you think it would be realized?***

Four drivers behind the future of online education

(1) Social Dynamics
We live in an age where everyone participates. People expect to have a voice, citizens expect to be involved. And one of the difficult things that present a big opportunity for education is that networks enable collective voices and collective voices to enable a different architecture of knowledge and information exchange. So he believes the future of learning will be driven by social dynamics — the connective ties and the contribution component of large networks or network structures of learners.

(2) Ability to coalesce existing knowledge resources
Right now, as we have seen, a lot of faculty teach and create their own content. Now, if you're teaching statistics or psychology or computer science, a lot of the material that you're using is likely available online somewhere. And being able to find, use, and maximize open education resources and related resources are crucial, and can help to make the teaching process easier and learning more effective.

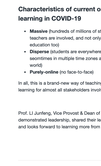
(3) Our investment in learning to learn online
Once we return back to the university environment, we won't go back to the "normal way" we teach and learn in the past. Regardless of how long it takes for COVID-19 to pass, the future is going to involve online learning in some way or another. Everyone now, from students to faculty, have engaged and invested in learning to learn at a distance. We have engaged and learned to engage in online videos, threaded discussions, and so on. All of those investments now create a completely different opportunity that we're not going to return back to the traditional learning environment. So Siemens predict that the future is at minimum blended and likely going to be a greater degree of online.

(4) Some shortcomings of the online environment
So, there was a group of people who were very convinced and motivated that everything was going to be online in the long run. This was the early stage of MOOCs. Some of you may have heard statements of people proclaiming that the future would be fully online and there would be ten universities left in the world. But now we know that places matter, physical spaces matters and relationships with people matter. We realized how important face to face interaction is. And Siemens thinks what we've seen right now, while it helps to really launch MOOCs and digital learning back into the spotlight, also affirmed for all of us that place matters and place is critical.

After Siemens' keynote address, invited institutions were invited to share their thoughts on the following:

- With the outbreak of COVID-19, what is the level of disruptions for educational and academic activities in your country?
- How is your university reacting to the current crisis? Do you have policies at the national or university level to guide the transition of teaching and learning from traditional classrooms to online?
- What are the challenges when switching to online teaching and learning? *(E.g. digital literacy of faculty and students, instruments and platforms, management, quality of online learning, online examinations, courses that cannot be shifted online, etc., intellectual properties, costs, etc.?)* And how do you plan to overcome those challenges?
- How likely will the crisis bring long-lasting changes to your online education policies?
- What are the main challenges for policy-making and management of future online/blended learning?

Watch out for this space, as we will be releasing their presentation slides in the upcoming days.



Summing up the webinar using 3 Cs

Many measures have been taken and preliminary results demonstrated that a large number of courses can be effectively moved online. To wrap up, Prof. YU Xinke, the group leader of Tsinghua's Online Education Expert Group which is a panel of experts who advise the university on the online learning transition, summarize the two-hour webinar wonderfully using three Cs:

Characteristics of current online learning in COVID-19

- **Massive** (hundreds of millions of students and teachers are involved, and not only higher education too)
- **Disperse** (students are everywhere, seamtimes in multiple time zones across the world)
- **Purely-online** (no face-to-face)

In all, this is a brand-new way of teaching and learning for almost all stakeholders involved.

Challenges we are facing

- Lack of ways to implement or replace real labs (see the next section)
- For some regions, lack access to internet connections and resources (textbooks and tools)
- Preparations for online classroom interaction are not enough, including emphasis, skill, and pedagogy
- In online, to propagate information is not hard, the hardest part is to evaluate or assess the quality of learning (e.g., mid-term and final especially for large classes)

Changes in the future of online learning:

- New policies to promote and facilitate online learning are needed (**administrative level**)
- New teaching and learning resources, situations, behaviors will emerge (**teacher-level**)
- The definitions of a class, classroom, and "normal" teaching may change (**education research level**)

Prof. LI Junfeng, Vice Provost & Dean of Undergraduate Academic Affairs Office at Tsinghua University, closed the meeting by thanking everyone who has demonstrated leadership, shared their learnings and inspired us during the time of crisis. He said this will be the first of many sharings Tsinghua hopes to organize, and looks forward to learning more from each other in future discussions.

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However, one question was keep coming up during the webinar, so for the remaining parts of this issue, we will tackle one of the most commonly asked questions:

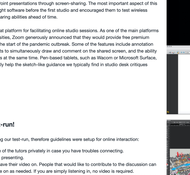
How to carry out lab-related teaching and activities online?

Here we will share three approaches from three different universities:

1. 5 Pro tips for design studio teaching from a top architecture school in China
2. Blending online-"offline" as one solution for virtual lab sessions
3. Replace on-site training using virtual simulation technology

5 pro tips for design studio teaching from a top architecture school in China

(the full article was originally published here)



The following tips aim to provide practical action steps schools and students around the world can take based on the experience with the online design studio teaching in one of the Master programs at Tsinghua University's School of Architecture since February.

The course in focus is a 16-week long design studio that is broken up in two parts, an 8-week urban design component, and a 8-week green-building design task based on the output of the first 8 weeks. Consisting of a group of 17 students based in 15 countries on 6 continents, and 4 tutors based in Beijing, our studio set out to investigate the spatial impact of technology and changing lifestyles in the modern city in the heart of Beijing.

(1) Prepare more than you need

Since students are now no longer able to conduct any site visits, we were forced to find alternative methods in order to help the class understand all site conditions.

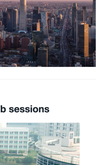
Dr. Ying Long, one of the course instructors, took the lead in preparing comprehensive site-material to compensate for lack of physical experience of the site. He explained, to "better understand the design site and its surrounding areas, we gathered and shared site-data on a much larger scale than our actual intervention area, extending to an area about 2 x 3km, an area around 16 times larger than our design site. We compiled three main data sources including very high resolution satellite images spanning various years, street view images collected from Baidu map, and urban big/open spatial data from my Beijing City Lab research group."

This data was made available in different forms, such as offline maps, ShapeFiles, and data visualization layers to facilitate different levels of analysis. We also provided a 3D base map in Sketchup. In addition, relevant in-depth case-studies were collected with academic articles made available through a dedicated university hosted "Tsinghua Cloud" server.

(2) Choose the right platform for you

We maintained a typical schedule of two studio critiques per week for 3 hours each. Using Zoom as our online classroom, students present PowerPoint presentations through screen-sharing. The most important aspect of this was to ensure all students had the right software before the first studio and encouraged them to test wireless connection strengths and content sharing abilities ahead of time.

For us, Zoom has proven to be a great platform for facilitating online studio sessions. As one of the main platforms used by Chinese schools and universities, Zoom generously announced that they would provide free premium membership to all Chinese users at the start of the pandemic's outbreak in China. Zoom's breakout room functions allowing various participants to simultaneously draw and comment on the shared screen, and the ability for multiple students to share screens at the same time, are fantastic assets, as Wacom or Microsoft surfaces, for example, are rare and expensive pieces of equipment that only help the sketch-like guidance we typically find in studio desk critiques sessions.



(3) Do not wing it, do test-run!

We did notice some challenges during our test-run, therefore guidelines were setup for online interaction:

- Arrive on time, and contact one of the tutors privately in case you have troubles connecting.
- Mute your mic when you're not presenting.
- Tutors and presenters always have their mics on. People that would like to contribute to the discussion can turn their video and microphone on as needed. If you are simply listening in, no video is required.
- Alternating group member to present on behalf of the group each class. After the presentation everyone can participate in the discussion.

(4) Send summary after class

Normally students can share notes and discuss tutors' sketch instructions right after class, but via an online platform, we found that this was more difficult. Therefore, to facilitate group discussion among students and to avoid misunderstanding, the design tutors would send a summary of combined comments and sketches in our group at WeChat (messaging app), immediately after our online session. These comments are available on our web-server as well, so students would always be able to reference them.

(5) Small group discussion is more important than ever

Besides all these practical preparations above, we found the biggest challenge for our students to be the lack of a physical studio environment. Kathrina Huang, based in New Zealand mentioned how through *"the lack of information and physical presence, we may tend to lose our drive and be less productive, and it creates a sense of isolation"*. Tsunnian Lee, based in Malaysia, agreed that, *"without the physical meeting and normally intensive studio discussion, we tend to lose drive, become lazy, and eventually underperform, no matter how good we are"*.

We had aimed to tackle this by having our students work in small groups of 4-5 students, in relatively similar time zones so that interaction would be easy and consistent. In addition, we guided students to find their own methods of online teamwork, through Google Docs for Powerpoint presentation work, and Dropbox file sharing. We also encouraged students to schedule video-based discussions outside of studio-hours.

Thomas Mattegaard, a student based in Denmark explains how *"in the beginning, it was a little chaotic and our group work was actually more like 5 of us putting our individual work in one file last minute before presentation time. But as we developed our skills regarding planning, organization and communication, I think we have turned the situation around, into a good learning experience. We are almost able to work a 24/7 work cycle, due to being in 3 different time zones, when we need to make a deadline."*

"Not less, nor worse, just different"

Modern technology has allowed us to explore a new interactive way of teaching a design studio. It has required both students and professors to communicate and discuss more visually than orally and it has also given us the ability to quickly pull up references, use online resources, and live annotate on the same drawing simultaneously.

Prof. Xiaodong Li, the program director, often cites the aim of our Master of Architecture program to enable students to see architecture with a holistic perspective, integrating space, program, technology, the environment, culture and lifestyle of the users. Architecture not just as a career, but as a lifestyle." In that sense, designers should be continuously evolving our ways of working and expect to maintain a degree of difficult knowledge points;

(2) to host Q&A sessions as well as group discussions.

Blending online-"offline" as one solution for virtual lab sessions

Upon comparing different solutions offered by different online platforms, Prof. Caixia Li *(lead lecturer for the "Histology and Embryology" course at the Guangzhou University of Chinese Medicine's School of Basic Medical Science)* decided to use a combination of **"Micro-lessons" + "Rain Classroom" + "Virtual Simulation Laboratory"** as the online teaching solution. Prof. Li hopes to integrate classroom teaching with online teaching resources for better teaching outcomes and to stimulate students' enthusiasm and promptness in learning.

Prof. Li's "Histology and Embryology" course is divided into two types: (1) theory lectures; and (2) lab sessions. Since the transition to teaching full online – this is how she dealt with the classes:

For theory lectures, Prof. Li decided to release what-she-called "Micro-lessons" either before or after live-broadcast sessions as previewing or supporting materials, which are a series of pre-recorded short videos (8-10 minute). With "Micro-lessons", she found she has more control and confidence about the teaching outcome, particularly for a live demonstration. And students found "Micro-lessons" more enjoyable and their content digestible.

Complimenting "Micro-lessons", Prof. Li also uses "Rain Classroom" for two core purposes: (1) to host live-broadcast sessions to highlight key-important and difficult knowledge points; (2) to host Q&A sessions as well as group discussions.

For lab sessions, Prof. Li defer to an external platform (http://www.mengxo.com/) in Chinese) to host "Virtual Simulation Laboratory" sessions. For a morphology course, students' ability to identify specimens under the microscope is an important goal of this course. With the help of the online platform, this type of hybrid teaching solution can let the students practice recognizing films without limitation of time and location, as well as distraction-free from other fellow students. Prof. Li also would send out screen recording with voice-over to students in order to better explain what they are seeing on the platform. Additionally, this type of "Virtual Simulation Laboratory" platform also allows instructors to let students for feeding feedbacks on students' learning progress and outcome.

Login page

Virtual lab - histology & Embryology

Virtual lab - Pathology

Basic virtual lab setup

Virtual simulation of experiment on the morphology of bacteria

Nucleic acid extraction and PCR method

Replace on-site training using virtual simulation technology

Unfortunately, during the practice of social distancing, students can't go on-site and fulfill their social practice requirements (e.g. internship, practical exercises) or communicate face-to-face with faculty members. In response, Tianjin Polytechnic University's School of Mechanical Engineering took advantage of their experienced and talented faculty members and built a virtual reality according to the onsite conditions for students of architectural environment and energy engineering.

In the past, site visits to equipment stations were an important element of on-site teaching, which helps students to establish crucial perceptual awareness of the working environment. However, ever since the Ministry announced the postponement of the spring semester, faculty members have been working to prepare to implement virtual training in order to avoid postpone learning also. For example, the university laboratory used virtual reality-based design (CAD) drawings and Building Information Modeling (BIM) software, like Revit, to carry out 1:1 3D modeling of the buildings and professional equipment inside the three equipment stations of the training centers at the universities. And for convenience, the virtual spaces and environments have been made such that they can be easily accessible on both mobile devices and computers.

Not only such student can easily visit the whole heating and cooling system in the equipment station, but also were able to observe in detail how each equipment and pipelines are connected to each other in the machine room, and from any angles of desire to, all inside the virtual reality environment on their own computer or mobile phones.

These were all achieved without stepping a foot outside their own homes, considering some of the things students saw won't even be possible during ordinary times (off-limits areas). And in return, this fun immersive virtual experience greatly improves students' interest to learn and explore more about the subject matters — some students started to jump and hop around the virtual environment, while some students roamed around to discover and annotate the name, function and working principle of each device. Most importantly, this virtual environment enables instructors to effectively identify whether the students have completed the assigned tasks independently and mastered relevant knowledge points through the progress saved and submitted individually.

In the teaching process, instructors would record the important knowledge points of the course and how to get around the virtual environment, and upload the screen recordings to an online platform. And then through live-broadcast sessions, slides presentation, roaming animations, Rain online simulations and other teaching resources, instructors will explain the equipment components and functional principles of the heating and cooling system in an easy-to-understand and lively manner. Therefore, it is unsurprising that these real-time interactions, though not in real person, have led to great teaching and learning results.

Messages for the community

Call for contribution for future newsletter
One of our aims is to create a community where we can learn from each other. If you have any input, feedback, questions, or success stories that you would like to share, we want to hear from you at office@mpe.edu.cn.

Can you think of someone who may find this newsletter useful?
Click the button below and send him or her an email. The content of the email has been pre-written for you already. What are you writing for?

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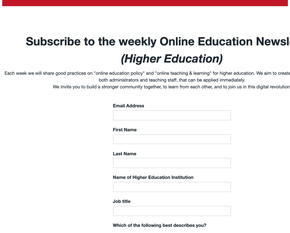
Next week spotlight: Ensure inclusive and equitable quality education

UNESCO Director-General Audrey Azoulay said earlier last month that "*while temporary school closures as a result of health and other crises are not new unfortunately, the global scale and speed of the current educational disruption is unparalleled and, if prolonged, could threaten the right to education*", and of course this will also impact the progress towards achieving The UN Sustainable Development Goal 4 — *Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.*

Next week, we will look at how two newly launched initiatives (namely, "iClone courses" and "iWeYoung courses") at one top university in China has helped to ensure access to quality educational resources, including with universities at Wuhan — the initial epicenter of the COVID-19 outbreak.



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Each week we will share good practices on "online education policy" and "online teaching & learning" for higher education. We aim to create useable knowledge, for both administrators and teaching staff, that can be applied immediately.

We invite you to build a stronger community together, to learn from each other, and to join us in this digital revolution!

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Job title

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- ◯ Student
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- ☐ Online Teaching (pedagogy)
- ☐ Online teaching platforms or tools
- ☐ Others

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