Online Education Weekly Newsletter (Higher Education) Issue 4

Knowledge is Power;
Knowledge shared is
POWER MULTIPLIED.

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Editorial Letter

We have received questions asking us *"How do you get university to share good practices for this newsletter?"*, *"What incentives are you giving them?"* and *"How do you convince people to do it?"*. I know that this is a challenge at some places, and at the beginning it is practical to have someone reach out and nudge them. But increasingly as we are trying to create a community, one that is mutually beneficial, as outlined in our mission at the opening letter, we realized institutions are mostly proud and motivated by wanting to reach out and instructors are some of the best students as they are very interested in learning more about this new way of teaching. As Prof. Nicholas Ohde, former Chancellor of UC Berkeley, said during our interview, *"the most exciting part about online is that I can continue and still be able to teach."*. So, if you think the most exciting thing in the world is teaching, and if you can "meet" a hundred a thousand new people who thinking teaching is cool also, then that's like a good day. So I guess that's the motivation.

Until then, we, academics and scholars, write paper, write books and go to conferences. Part of our career is to go out and meet people and explain things. And so here is a new way to do that and during this very special time. What we have done here, with this newsletter, is to give people the platform to do that. And as Prof. John Mitchell, former Vice Provost for Online Learning at Stanford University, shared during our interview, *"there is so much leaders in higher education can do, it is up to the faculty and the institution to commit their time and decide that it's important to them."*

This is as much about this newsletter as it is about creating an environment with faculty and students in your higher education institution right now as we have moved to online, so students can share among themselves practical advice for learning online and faculty can share among themselves successful practices about teaching online (of course, you can forward the good ones to us too, so we can share them with our peers) *"If you received a gift of great value, it is your obligation to share this gift many times over" - Chinese Proverbs.*

Send us good practices on online education

Yours,

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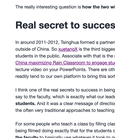
If you haven't already, remember to subscribe to receive weekly updates from us, and to be a part of this awesome higher education community for online learning!

Subscribe to get weekly updates!

As you can see in the content, this issue is going to be packed with interviews by experts around the world. First of all, thank you to all the interviewee who shared so many valuable insights, and also thank you to the following interviewers who organized and conducted them.



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Tsinghua professor shares his insights on Times Higher Education Podcast

Prof. Hamish Coates is a Tenured Professor and Director of Higher Education Division at Tsinghua University's Institute of Education and also Deputy Director of the Tsinghua University Global Research Centre for the Assessment of College and Student Development. Before, he was a Professor of Higher Education at the University of Melbourne, the Founding Director of Higher Education Research at the Australian Council for Educational Research (ACER), and the Program Director at the LH Martin Institute for Tertiary Leadership and Management.

Prof. Hamish Coates recently shared during a Times Higher Education Podcast about the next phase of online delivery and his thoughts on the future of assessments in higher education. Here are some of the highlights:

- We must differentiate this with "online learning"
- Real session success during crises
- *Introduction to XuetangX International Version*
- It's the perfect time to rethink assessments in higher education!
- Leading with resilience, excelling through crises
- We need university leaders to be in charge!

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, mostly centered in Shenzhen, Beijing and Zhejiang, but also the US. It's 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 dropout, 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 the third biggest EdTech 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 making curriculum, making sure that the teachings goes seamlessly; it's highly responsive and individually made. It has really great assessment tools 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.

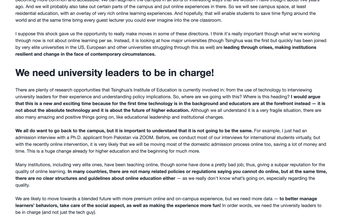
The really interesting question is **how the two will come together in the future?**

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 third 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 less than three years called the Rain Classroom (see how this university in China maximizes 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 to often very traditional approaches to teaching into very high tech approaches.

For some people who teach a class of ten to fifty classroom blackboards with equations, that would involve standing in a lecture classroom on campus and being filmed doing exactly that for the students online. For others, it involves finding new IT equipment, and it has meant 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 of incredible development, 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 global users and will be launching its international edition in late April.

Check out the reasons why 50 million users and 20 top institutions, such as edX, Stanford, Open University (UK), etc., decided to rely on XuetangX for online learning with this 20-page intro presentation!

Download intro slides for XuetangX International Version

It's the perfect time to rethink assessments in higher education!

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, you know, most of the world's 20000 universities here, not just China and not just Tsinghua.

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 it'll 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 satisfy 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.** And it's too soon to tell. Most of these midterms have passed and people have either exercised the way they have done them or have done the same type of exams. But in about two months, the final exam season will come in, and people have to think about how to authenticate someone's learning in higher education.

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.**

Leading with resilience, excelling 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 universities which do the more sophisticated leading form of online learning at scale (mostly partnering with a professional service firm) **hire many, many support personnel**: such as counselors, careers advisors, psychologists, learning advisors and the like to try and help students work through their issues.

The initial interest for Tsinghua is just delivering on the promise of the semester and getting the students through this course of teaching. It goes for more or less, another eight or nine weeks plus assessment. 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 antiques 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 lecture 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 so. Instead, it is looking at how major universities (though Tsinghua was the first but quickly has been joined by very elite universities in the US, European and other universities struggling through this as well) are **leading through crises, making institutions resilient and change in the face of contemporary circumstances.**

We need university leaders to be in charge!

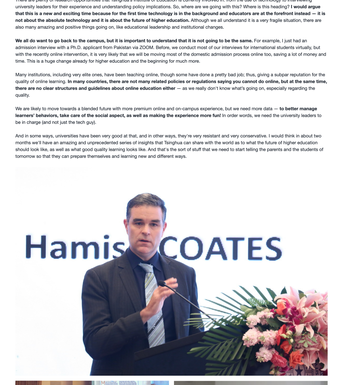
There are plenty of research opportunities that Tsinghua's Institute of Education is currently involved in from the use of technology to interviewing university leaders for their experience and understanding of policy implications. So, where are we going with this? Where is this heading? **I would argue 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.

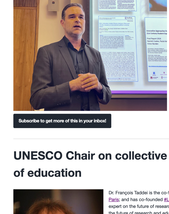
We all do want to go back to the campus, but it is important to understand that it is not going to be the same. For example, I just had an admission interview with a Ph.D. applicant from Pakistan on ZOOM. Before, we conduct most of our interviews for international students virtually, but with the recently online intervention, it is very likely that we will be moving most of the domestic admission process online too, saving a lot of money and time. This is a huge change already for higher education and the beginning for much more.

Many institutions, including very elite ones, have been learning 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 well-known elite 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 order 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.





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UNESCO Chair on collective intelligence and the future of education

Dr. François Taddei is the co-founder and director of the Center for Research and Interdisciplinary (CRI) in Paris, and has co-founded #LEARNINGLAB with Audrey Azoulay, UNESCO Director General. As an expert on the future of research and education, he participates in various working groups and reports on the future of research and education for the OECD (e.g., "Training creative and collaborative knowledge-builders") the EU, and the French government (e.g. "Un chair pour co-construire un société apprenante (A chair to build a learning society together)"). He holds the UNESCO Chair for "Sciences de l'Apprentissage Scientifique" at the Paris Descartes University. He has written several publications on education and learning, such as "Apprendre au XXIe siècle (Learning in the 21st century)" through publisher, Odile Jacob. He also recently launch his new MOOC entitled "Vers une société apprenante (Towards a learning planet)" on FUN-MOOC.

- Ten key questions to consider about learning analytics
- Education that will win when competing against machines

Two key questions to consider about learning analytics

I think in the post coronavirus era, online learning would be much easier to develop than before because governments, professors, parents, students and companies, everyone in society will understand that the future will be more digital than before. It has a lot of benefits, for example, easier global collaboration, as you cannot organize it without digital tools.

There are other new possibilities, like learning analytics and the use of AI. I know that China builds many research institutes around this idea. So, I think that China has at least some dimensions of discerning analysis. For me, there are 2 questions in learning analytics.

(1) Do you want to optimize your brain from point A to point B, such that the path from point A to point B is very well defined?

This can be very easy if you are one of these sprays who want to optimize your brain to do exactly what is being asked for. Sometimes, it can be quite easy to stay by step. If that's your aim, I think digital tools can help you do this, because you can create a test to know if the speed of progression at every single step.

(2) Can we use and mobilize collective intelligence?

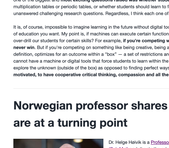
If you don't know where you want to go next, you have to find your path in the unknown. The unknown is much further than following a very well-defined path. Sometimes, discovering what you do is amazing, but it also could be very difficult to find your way and knowing whether you're moving in the right direction is impossible. So, the question is how can we learn differently today by combining the knowledge of others? For instance, if you want to go from Beijing to Shenzhen, you have access to all kind of digital tools and have all kind of information. However, it's much more done that exact trip because other people have. You go by high-speed train, plane, car, or a combination of transportations; you can even go for walk (if you really have the stamina).

So, my solution is to build a "GPS of knowledge" (or knowledge navigation) to allow learners to map their position in knowledge space based on their lifelong learning journey that includes formal and informal learning experiences. Today, we can identify relevant (interdisciplinary) collaboration possibilities, practical opportunities, contents, peers and mentors, that can help them move forward. At the moment, we don't have those tools yet, but we are trying to build a prototype. 2 years ago, it was just a dream. It was just a dream. But then, we started to have very talented people who have the potential to implement the vision. We are taking experts from all different disciplines from biology to computer science, and trying to create a knowledge map. Some of them don't work perfectly, but they are learning very fast. At the same time, there are labs alright on, and behavioral sciences, school problems, etc.

The idea is that we are trying to build this "GPS of knowledge" and basing it on AI that can also read all of Wikipedia entries. So far, it reads French, English, and Spanish (and maybe Chinese next). For example, you can give a speech, then the AI will analyze and locate the text you may want to further reference in Wikipedia. This is a much more open system with sound, and the actions they want to achieve in sector. And every lecture can be computed as a distance to another vector, so that any text can be compared. And you can compute the distance between this text and that text. And you can compute the distance between the text I've read and the text I want to read. In other words, **combining both collective intelligence and artificial intelligence, we are able to progress towards a "learning society" in the 21st century**.

Education that will win when competing against machines

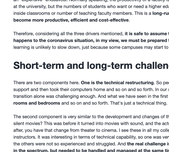
There are MOOC that I like very much, as much as I get frustrated into French. Actually, it is the only MOOC that I followed and finished. It's a MOOC by Richard Ernster, Professor of Education Emeritus at the Harvard Graduate School of Education, called Leaders of Learning. I strongly recommend this MOOC if you haven't heard of it yet.



It covers both classical education and digital education, and asked some very important questions about the future of learning: e.g., whether learners' learning should be decided by themselves or someone else, whether learners should be learning through both competition and cooperation. And for me, one of the biggest and **most exciting questions raised was whether students want to learn something for which the answer is known?** Like multiplication tables or periodic tables, or whether students should learn to face unknown challenges like the climates, the COVID-19 outbreak or any unanswered challenging research questions. Regardless, I think each one of these questions will inevitably lead to an online future respectively.

It is, of course, impossible to imagine learning in the future without digital tools. However, how to use the available digital tools will depend on what sort of education you want. My point is, if machines can execute certain functions as good or even better than humans, we are in trouble. We continue to continue over-drill our students for certain skills! For example, **if you're competing with machines on memorizations, or on simple calculations, you will never win**. But if you're competing on something they being unable to, they have to be able to think out of the box, you might win, at least for now. Because AI, by definition, optimizes for an outcome within a "box" — a set of restrictions and models. However, if you need students to think outside of the box, you cannot have a machine or digital tools that have not been programed to think outside the box. So, we need to be able to think at a very different infrastructure to explore the unknown (outside of the box) as opposed to finding perfect ways to explore within the box. **This means we must allow students to be motivated, to have cooperative critical thinking, compassion and all the 21st-century skills.**

Norwegian professor shares convincing reasons why we are at a turning point



Dr. Helge Hveik is a Professor in digital documentation and e-learning at Oslo Metropolitan University (OsloMet) and directs its research group on Learning Technologies (LATIKA) ("Learning And Teaching IN a digital world") which conducts national and international R&D projects like MOOCAHUSET and LATIKA SCHOOLS. He is also a researcher at Norwegian University of Science and Technology, and holds positions at Chinese universities in Beijing and Hakou.

- Three real driving forces behind going online
- Short-term and long-term challenges faced by universities

Three real driving forces behind going online

The short and simple answer is yes, everybody is now doing online. And what people considered to be ten years of normal development is now compressed into ten days, so if we have the normal conditions, we would have reached this current level in ten years instead. Nowadays, there are one very obvious driver plus two more not-so-obvious ones behind this online learning movement. One is, of course, the closedown of university campuses, so everybody has to go online.

Secondly, the closedown and social distancing has made the situation very difficult for a number of businesses. They have got a big stimulus package from the government. A lot of money is being poured into this way through businesses paying. We restaurants in Oslo or hospitality companies, so on and so forth. And the national unions, both employers and labor unions came together and said, **"we have to use this time for education and learning."**

There are also people who are out of work, but they are not fired. **They get money from the government, and we need them to do something that's useful.** Though that has not come so far yet, but they have started to turn up, as one of the online courses that was made on my platform (https://moocahuset.online) has triled the number of participants in just one week. And the course is about cardiopulmonary physiology, of course, there are many people who want to learn more about heart and lung now, so suddenly MOOCs have sky-rocketed in a very short period of time.

Therefore, in addition to the normal school and university students who need online learning from one day to the next, there are also an **increasing demand from people in the workforce that need a completely different education**, so suddenly that becomes the second wave of online learning takes off.

In order to understand the long-term consequences and the third driver, you have to take both of these into account. Over the last decades, many companies have got more machinery and have gone more digital, so that the productivity per worker goes up, but higher education has largely remained an "expensive" endeavour. Normally speaking, the productivity of a university has not been that much improved by digitalization. It has been substantial at the university, but the numbers of students who want or need a higher education in today's society have been out-numbering the number of seats in class classrooms or number of teaching faculty members. This is **a long-running challenge and underlying pressure on the educational system to become more productive, efficient and cost-effective.**

Therefore, considering all the three drivers mentioned, **it is safe to assume that we are at a turning point here, for online learning. Whatever happens to the coronavirus situation, in my view, we will never go back to the status quo ante for the foreseeable future**. And as argued, online learning is unlikely to slow down, just because some companies may start to reopen again in the fall.

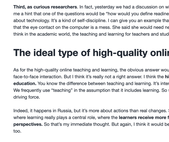
Short-term and long-term challenges faced by universities

There are two components here. **One is the technical restructuring.** So people, in a day or two, had to be organized, got their computers from IT support and then took their computers home and so on and so forth. In our university, there are about five thousand instructors, so this initial and linear transition alone was challenging enough. And what I see now is that phase is over. The first phase is that **suddenly we are at home in people's kitchens and living rooms and bedrooms** and so on and so forth. That's just a technical thing.

The second component is very similar to the development and changes of the movie industry, which changes every 10 to 15 years. Have you had of silent movies? This was before it turned into movies with sound, and the actors they used to be retrained in order to "talk in the movies". And then years after, you have that change from theater to cinema. I see these in all my colleagues. I recently had an online session with three very qualified, but older, instructors. It was interesting in terms of technical capability, so one was very professional and got a little bored when I talk about certain issues, while the others were not so experienced and struggled. **And the real challenge is having many faculty members who can be categorized very differently by the spectrum, but needed to be handled and managed at the same time.** So this is more about the multimedia experiences and ability to project your energy through the camera which is different and difficult for most instructors. There are two potential solutions here: you can eliminate distractions such as setting up a virtual background so students don't look directly into a messy kitchen; alternatively, you can train instructors to change their behavior so that it works online.

The long-term challenge is, of course, the content and delivery. That is the interesting part and what I have spent most of my time working on for a number of years. **When instructors are developing online courses, they need to think about what exactly are the core concepts in their subject. And with very students in traditional classroom and needs a lot of treatment and engagement.** In particular the following three elements: pedagogical approaches to course design, institutional strategies for developing online programs, and course development processes, including presentation, interaction, social interaction, analysis (which said PISA, the title of a MOOC that I teaches on http://moocahuset.online)

Russian professor is excited by new areas for research



Prof. Iseik Proumin is the Head of Institute of Education at HSE University (National Research University Higher School of Economics), and is responsible for monitoring operations of Strategic Development Programme and structural divisions of Institute of Education. His research interests are in digital and learning analytics. He was previously the Leading Expert at Education at World Bank (Moscow Branch), Advisor to Vice-President of Skolkovo Foundation. He also holds editorships in many influential journals and publications, such as the Deputy Editor-in-chief, Voprosy obrazovaniya (Educational Studies Moscow).

- Roles of faculty with the budding rise of MOOC and blended learning
- The deal now of high-quality online teaching and learning
- Learning don't just happen formally, inside a classroom

Roles of faculty with the (sudden) rise of MOOC and blended learning

There are three different roles of faculty as I understand and observe. **One of that is the use of these resources, as users**. They have the challenge to master the technological tools. It is a big job. I think we have to appreciate that. But also, **second, as content developers**: there is a small group of teachers that were willing to develop the new courses and to record them for Russian national platform or for international platforms.

Third, as curious researchers. In fact, yesterday we had a discussion on what could be the research agenda around this operation and you just gave me a first that one of the question would be "how would you define readiness for online learning". I don't know the answer. Again, I think it's not only about technology. It's a kind of self-discipline. I can give you an example that we discussed yesterday among my colleagues. One of the professors said that the eye contact on the computer is not the same as it was before and she would need new ways to manage discussions in class. And that's very important. So I think in the academic world, the teaching and learning for teachers and students will very much depend on our ability to choose and use the right tools.

The ideal type of high-quality online teaching and learning

As for the high-quality online teaching and learning, the obvious answer would be that it can provide the same quality or intensity of human interaction as face-to-face interaction. But I think it's really not a right answer. I think **the high-quality online learning would help us to indeed have learner-focused education.** You know the difference between teaching and learning. It's interesting that in the Russian language the word for "learning" is under one use. We frequently use "teaching" in the assumption that it includes learning. So we don't pay sufficient attention to the process where student is the main driving force.

Indeed, it happens in Russia, but it's more about actions then real changes. So I would say that the high-quality online education would be an education where learning really plays a central role, where the **learners receive more feedback, not just from professor, but also through different tools and perspectives.** So that's my immediate thought. But again, I think it would be a good subject for further research and there could be global collaborations too.

Learning don't just happen formally, inside a classroom

Obviously, we will have a hybrid approach and combining online with offline. Now with this great mess, we observe what we are losing. This online arrangement is not soul-to-soul interaction, but people are social animals and we need in-person interactions. And **for young people, universities are the place for interactions.**

We observe now when we shift to fully online education, we also shift the focus to information learning as the essentials, i.e. the transmission of key knowledge. When we are all physically together in a classroom or on the campus, **we don't just learn through formal lectures, because we learn from all the minors interactions with each other too**. Again, it's a hypothesis that should go and test. But one thing most faculty felt is that online teaching is a good way to transfer knowledge. So this part will progress far more and more online. But the part of group projects, discussions or socialization will stay on campus with universities. And we'll just have to learn how to do it better.

Former Vice-Provost who started Stanford Online talks online education

John Mitchell is a professor of computer science at Stanford University. He created Stanford's first mass online learning program in 2012, and remains engaged as the first Vice Provost for Online Learning (which later became Vice Provost for Teaching and Learning). Prof. Mitchell's first research project in online learning started in 2005, when he and six undergraduate students built Stanford Courseware, an innovative platform that expanded to support interactive video and discussion. Courseware served as the foundation for Intel Play Network classroom experiments at Stanford and helped inspire the first massive open online courses (MOOCs) from Stanford.

The following interview hopes to draw out insights from Mitchell and his unique perspective as both a university administrator and a tech-savvy faculty during this interesting time.

- The key failures and lessons from MOOC
- Interesting advantages when engineering schools move online
- Making mistakes in virtual labs turn out is actually more difficult
- Unexpected realization about the residential experience
- Stanford Online's secret that led to millions of learners
- How data-driven learning analytics helps to improve the teaching and learning?
- A 10-minute change that makes a huge difference (wasted/ineffectiveness of experiment with Stanford)
- Online education after the pandemic

The key failures and lessons from MOOC

It is a very complicated situation for MOOC, because it turned out that it is much easier for faculty to change their ideas on how to teach, as opposed to the platform and the technology to support that teaching. So it's unfortunate with the MOOC movement that we started with only one particular model. **Recorded video + some questions + some problems and quizzes. This is one model where we started and that's still largely where most MOOCs are now.** So it is fair to say that we haven't seen much revolution. This is like we used to read a book, and now it is being read to you, i.e. an audio book. I am very optimistic but also critical when looking back.

Many of us who are involved in the early phase in 2012 would like to have quality education at scale. We did achieve the latter, i.e. "at scale", as millions have enrolled in Stanford Online courses, and many million on MOOC platforms elsewhere. So we certainly got scale and reached many people. Our thoughts were that let's do the scale first and try to add the quality afterwards — this turned out to be much more difficult. **If I were to do it again, I would try the other way around.**

This is one thing I'm hoping it may happen from this pandemic, where we are all trying different things at the time because we have to. **We might come back to a year and say look:**

- What have we learnt?
- What have been successful for instructors?
- What have been successful for students?
- **How can we take what we called successful learning to more students?**

However, one thing we did realize in our university, through different kind of activities and range of approaches, is that **our teachers are still considered primary, for their personality and embodiment of intellectual thoughts**. For example, even if a course is developed by many people over time, students would still say "oh, I took this course from Prof. Mitchell." Students still considered that a human being behind that makes the field interesting, exciting and useful.

Where I was Vice-Provost, I funded experiments with virtual lab, and some groups developed this more extensively than others. But there is one model that seems to be more successful. When you have the physical facility, virtual lab is a very good way to practice beforehand, because you only have time and resources to go into the lab to do something complicated. But if you haven't practiced beforehand, it is very difficult. So you can use virtual lab as practice and a great way to start with the topic. **This is very valuable and good ways for students to struggle with questions, and try things and experiment.**

A great example: **Carl Wieman**, who is now a professor of education, engineering and physics at Stanford, founded the nonprofit project called PhET Interactive Simulations in 2002 while he was on the faculty at the University of Colorado. The project is a very good series. It teaches scientific concepts through animated, game-like environments that encourage students to explore cause-and-effect relationships as scientists would. Initially focused on physics, PhET (short for Physics Education Technology) now offers more than 140 simulations on topics in fields including chemistry, biology, Earth science and mathematics.

One more thing about virtual lab that I learnt: during the first phase, virtual lab needs to develop an environment that produce the right behavior when the students do the experiment correctly. For example, if you want to measure heat capacity, you need to measure how two solutions together at the right temperature and when stir at the right amount. However, what is very difficult to get right is to make the simulation do the right thing when students do the experiment incorrectly. There are only one or a very small number of ways to do it right, but there are many, many ways to do it the wrong thing. What people found for the **challenge of building a virtual lab was simulating failure correctly and that seems to be complicated.**

Unexpected realization about the residential experience

The world is not simple, so we're going to learn some interesting things about a very complex set of issues. One thing that's very clear is for a place like residential university, like Stanford and others is people want to be with people. **The college is built for social life.**

Some students come from a place where they live comfortably, someone makes their meals for them, they don't have a lot of things they have to do on a day-to-day basis. They can read a book or think about things and have a lot of free time and luxury. Some other students come from environments very, very different than that. Life is difficult. Their family is very poor, they have to work to support their family, they have many ways to do this and that. **And when they come to college and they live in the same place, then their day and their time is very similar. So when you send people back, it's**

amplifies inequality. So I think people are going to come away from this period saying, you know, now we understand better why it's really important to have this residential experience. It gives everyone a chance to start with, the same way of thinking, regardless of their economic background and what their family is like, and so it gives people chances; and it helps people who come from privileged places understand the rest of the world. It helps people who come from difficult circumstances learn how to navigate, you know, many good things about it. And so I think we are seeing how students respond differently to being sent home. You know, this is becoming very personal for everybody. So that's a learning in the opposite direction.

It's a learning that says we now know a little bit more about what's important in the residential experience. But also, we're going to learn that there are things we can do online and works better too. So if we are in trouble and don't have enough classrooms, "Oh, never mind. We'll do some of the courses online." I think we'll also have that, too.

Stanford Online's secret that led to millions of learners

I think what's behind the faculty-driven online learning initiative is part of the open culture of computer science. We have the concept of open source software. So if I'm going to build some piece of software can I get my friends to look at it and improve it. And so I think that's what we are seeing here students. It works better. We had a history that opening things up and talking to more people helps us. And so it's partly generous and it's partly we'll like advice and feedback and so. So people are not really making money on this. **It's more of an intellectual idea that says if I can interact with more people, if I explain my ideas to more people, they will give me more feedback back. It's a good idea.**

There's another little bit which I can describe in a way that sounds sort of egotistical, but it's really also generous in a way. I mean, I'll take my hat. I've worked on computer security and ways to secure Internet communications. And what I think is cool about that is that I have to be people to protect their Internet communication, I would just like to tell everybody about idea. **One is I think it's a better idea. But two, the reason I thought about it was to help people. And there, through feedback and discussions, this will also help to advance our intellectual field.**

There were some very wonderful examples in other fields. Things like modern poetry became a very popular topic. **The way things that were written feel like poetry, storytelling, writing, these are also very amenable to distance in online studies** because the students will write things and then they circulate them to other people. So there have been some very wonderful, very successful things in the humanities around writing courses. There have been of text based areas have been very successful thing online.

Also, some things are going to know **people in online and also very much about publishing their ideas** and people ideas of how to treat patients. I think over this period from 2012 till now, there's been a lot of experimentation by people in different fields, mostly asking, will this work for me? Will I be connected to more people?

Let me give you one more example. A person I worked with here who is a wonderful person Elaine Treharne who is interested in medieval manuscripts, Writings from hundreds or thousand years ago. And online computer science, it is not a huge field. The interest in medieval manuscripts is not a very big field, the people who are interested in that are spread out all over the world. So she's, you know, she's, she's, she's

Email Address

First Name

Last Name

Name of Higher Education Institution

Job title

Which of the following best describes you?

- University administrator/ leadership
- University teaching staff
- University researcher
- Student
- Others

You are interested in ...

- Online Education Policy (national-level)
- Online Education Policy (city-level)
- Online Education Policy (university-level)
- Online Teaching (pedagogy)
- Online Teaching (platforms or tools)
- None

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