Global Impact of Open Educational Resources and Massive Open Online Courses on Higher Education and its Future: An Interview with Prof. Curtis Bonk

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Citation: Yan Li & Muhua Zhang (2015). Global Impact of Open Educational Resources and Massive Online Open Course (MOOC) Movement on Higher Education and its Future: Interview with Prof. Curtis Bonk. *Open Education Research*, *21*(5), 4-13.

Abstract (Chinese): http://openedu.shtvu.edu.cn/frontsite/series_details.asp?id=1769;

Article (Chinese): http://openedu.shtvu.edu.cn/upload/qikanfile/201509281654002945.pdf

Article (English): http://publicationshare.com/pdfs/Bonk--Yan_Li_China_Journal.pdf

Abstract: To better understand the impact of Open Educational Resources (OER) and Massive Open Online Courses (MOOCs) on current and future higher education globally, we interviewed Prof. Curtis Bonk, who is an internationally well-known professor working at the Department of Instructional Systems Technology, Indiana University. He has received the CyberStar Award from the Indiana Information Technology Association, the Most Outstanding Achievement Award from the US Distance Learning Association, and the Most Innovative Teaching in a Distance Education Program Award from the State of Indiana. Prof. Bonk has presented over 1,400 talks and workshops around the world on emerging technologies, blended learning, online motivation, e-learning pedagogy, and future technology trends, to K- 12, higher education, corporate, government, military, and other audiences. Prof. Bonk has written more than 300 articles and books on topics such as online learning, massive multiplayer online gaming, wikis, blogging, open source software, collaborative technologies, synchronous and asynchronous computer conferencing, and the future of online and blended learning. His books include *The Handbook of Blended Learning Environments: Global Perspectives, Local Designs* (2006), *Empowering Online Learning: 100 + Activities for Reading, Reflecting, Displaying, and Doing* (2008), *The World Is Open: How Web Technology Is Revolutionizing Education* (2009), *Adding Some TEC-VARIETY: 100 + Activities for Motivating and Retaining Learners Online* (2014), and *MOOCs and Open Education around the World* (2015). Among them, *The World Is Open: How Web Technology Is Revolutionizing Education* (2009) is the most popular and has been translated into many languages for readers around the world.

In this interview, Prof. Bonk recalled his experience with OER and MOOCs. Also he elaborated his thoughts about the impact of OER and MOOCs on higher education in both developed and developing countries, especially about opportunities and challenges OER and MOOCs are bringing about for traditional classroom practices and undergraduate / graduate program management, faculty professional development, as well as for e-learning and e-management related policy decision-making issues. At the end of the interview, Prof. Bonk pointed out several hot spots in worldwide OER and MOOCs-related studies and put forward some suggestions for Chinese universities and Chinese faculty members.

Key words:open educational resources (OER); Massive Open Online Courses (MOOCs); higher education; open education

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Journal: Open Education Research, *21*(5), 4-13 (Chinese)
Publication Date: September 2015

1. In general, what's the impact of OER and MOOC movement on higher education in both developed countries and developing countries?

When questions like this one are asked, I think it is always useful to do thought experiments. You might ask yourself, "What if OER and MOOCs had existed two or three hundred years ago or even a full millennium before." Certainly, we would know more about quality, impact, assessment, and other possibilities. Without a doubt, people would feel more comfortable today with this form of instruction. Accessing OER and massive open online courses (i.e., MOOCs) would be part of what it would mean to be human, or at least be considered an educated person.

We could extend that experiment and ask ourselves what if MOOCs and OER existed prior to schools and ideas about schooling including higher education. We would likely be questioning formal education since it could not handle the number of learners that a MOOC could. People would be spoiled by access to seemingly limitless education which we now refer to as OER and MOOCs. They would likely begin to wonder what the advantages would be of a small classroom with a face-to-face instructor who relied on one or two highly expensive books and her often quite boring lecture notes. At the same time, many of them would get excited about some aspects of it (e.g., the sense of immediacy in getting answers to one's questions, the emotionally-laden smile from the instructor, the camaraderie with fellow students in the course, the requisite bathroom breaks, etc.). But they would most certainly be hesitant about this new form of educational delivery. The red flags would be at the ready.

Now run that same thought experiment in terms of what actually exists today and then think back to a time in which we did not have MOOCs and OER. It was not so long ago. Of course, we had massive numbers of people learning from a single radio broadcast or television program a few short decades ago. Such programs or shows could be replayed or rebroadcast to still other learners. Of course, there often was additional prepackaged content for learners to read or listen to that was connected to those shows. However, such content was not free and open. It came at a price. Worse, one typically could not meet any peers or potential learning colleagues simultaneously attempting to learn that same content.

Still, these forms of educational delivery were highly impactful. I, for one, would not be here responding to your questions without my previous access to television courses and correspondence courses. Instead, I might still be an accountant working for a company; those alternative forms of educational delivery changed my life since they enabled me to take enough psychology courses to qualify for graduate school in educational psychology at the University of Wisconsin. My life changed

in many important ways. And so it is with many people accessing MOOCs and OER today. Their lives are changing. I was impacted at the individual level and I hope it has resulted in new ways for me to impact others.

Clearly, for many individuals, MOOCs and OER offer hope. There is newfound hope to advance in one's profession or to find a new one. Hope to find a new hobby or professional interest. Hope to be more respected by one's colleagues or family. Hope to take on additional levels of leadership in a professional organization.

Not convinced? My research team and I have documented hundreds of people using OpenCourseWare (OCW) from MIT and various OER who have experienced a life change. Many had taken a risk by enrolling in one or more of the first official MOOCs. Some had taken an online course in calculus or statistics to get ready for graduate school decades after their initial undergraduate degree. We also discovered people who moved up in the workplace as a result of OCW and OER. Others had found dissertation topics, started a business, participated in online communities, and learned better ways of parenting their children. As one person stated:

> "My life has changed in a big way. I used these new skills to create a small business that supplements my income. I couldn't use this income solely to support myself, but it does pay some bills."

One student in a doctoral program needed MOOCs, OCW, and OER to give her confidence that she was learning the latest information in the field. As she argued below, it also changed her life.

> "Without the opportunity to learn informally, my options within my doctoral program would be limited to the ideas and experience of the three instructors in my program track. I would be graduating with a firm grasp of 20 year old dated ideas!"

Another found gaps in the research and unique ideas for his dissertation. He said that this was momentous for his life. "I plan to focus my Ph.D. research on alternative forms of learning (informal DIY) and credit (like open badges) and the changes higher ed and employers will have to make to accept these forms of credit." So, in effect, he will be researching the vary form of educational delivery that was changing his life.

Sometimes self-efficacy as a learner is impacted in a positive direction. One person we surveyed, for instance, felt more self-confident in his abilities as a learner as a result of using MIT OCW. As he stated, "It gave me confidence that my intelligence is valued by the best of universities." He could handle extremely difficult content that many thought only those admitted to MIT could learn.

Still another survey participant mentioned the issue of confidence. In effect, free and open course content can provide the foundation or base knowledge needed to succeed in a university or renew old learning foundations. As he said, "I have been out of graduate school for many years and have had this intellectual hole for a while now which these courses are starting to fill for me." OER and OCW helped him feel more self-assured that he could succeed in his return visit to college.

Speaking to educational possibilities of open educational content, one informal online learner stated,

> "Easy access to the Internet changed my life drastically. I quickly discovered Japanese manga (comics) and anime (animated TV shows). I spent the next three years absorbing Japanese culture and language voraciously...I got interested enough that I did 1 1/2 years of Japanese as an online correspondence course."

Impact of open educational content can be measured in many ways. As with the above quotes, impact can at the individual level. However, it can also be felt at organizational or institutional level and perhaps even across an entire state, province, country, or region of the world. One person indicated that OCW and OER offer the possibility to not just change individuals but society as a whole: "It has also motivated me to become a selfless human being; if all of us spend some time and share our knowledge then one day everyone will be educated."

As noted earlier, what these quotes signal is that for individuals, there is a sense of hope and optimism. Hope to get some respect from one's spouse or family. Hope to start a new business. And hope to continue to learn and to grow long past any mandatory retirement age limits or expectations. As we enjoy the benefits of modern medicine and live longer and healthier lives, the need for educational opportunities will evolve and perhaps become just as meaningful at age 80 or 90 as it was when we were 10 or 20.

The quotes above represent just a few cases. As indicated, for some, the opportunities extend outward to helping fellow human beings or organizations. One of the people we surveyed stated the following:

> "Yes, indeed, on a personal level, I developed self-respect for my own self; I started realizing the potential I had and I found out that I can make an impact in the society with the knowledge I gained."

The appreciation of different cultures and societies around the world is also a potential result, as revealed in the following quote:

> "It introduced me to cultural diversity, which is almost non-existent where I live. I think that this exposure to other cultures is one of the main reasons that I find racism absurd. It also interested me in many new activities…"

I have been keenly interested in the topic of perspective taking and social cognition with technology for nearly three decades. If alternative forms of educational delivery can enhance our abilities to take the perspective of humans in other parts of the world as well as those from the same region but with different life experiences or backgrounds, then certainly there is much that we should currently be researching and talking about then just the common issues of course quality and retention rates. Today, with tools like Skype, Adobe Connect, wikis, and various forms of social media, we seem to be reaching new possibilities in using distance technology to foster global appreciation and understanding. Tomorrow, we will be extending far beyond them; some of it, naturally, will be in the developed portions of the world, but much it will occur in developing countries like China.

For developed countries, there is much experimentation, risk, and leadership today. As often exhibited in the news media and in recent research, much is occurring at MIT, Harvard, Stanford University, Duke University, the University of Edinburgh, the University of Pennsylvania, Columbia University, Athabasca University (Canada), Massey University (New Zealand), and the Open University in the UK. There are many new MOOC courses and initiatives being offered each week. This will not subside anytime soon.

At the same time, much is underway in developing parts of the world. For instance, innovative programs in countries such as Rwanda and India are repackaging open course content into entire programs that their students can study. This reuse of content toward a degree program is among the key goals of politicians and educators everywhere. They long to see the impact of such free and open

content on the people of their country or locale. It is the million dollar question that is being asked repeatedly—"Can such resources change access to education? Can they transform or reform education? Can OER or MOOCs change people's lives?" Finally, after nearly 15 years of discussions and debates about OCW and OER, we are witnessing the use of such content in new ways.

New vendors are offering much to consider. They repackage educational materials. Those enhanced instructional materials find their way into fully online and blended learning courses. Some might be developed for massive open online courses (referred to as MOOCs). The instructors can use them *how* they wish and *when* they chose. Or they might just occasionally or casually refer to them and allow their students to decide if, when, where, and how to use them. Much choice. Much freedom to learn. Much optimism about the pedagogical possibilities and decisions that can perhaps lead to the improvement of course and program quality in this new age of information abundance. There is also more skepticism. Educators, politicians, administrators, etc., want to see it make a difference in ways that serve specific educational and political ends.

In the developing part of the world, there is much more optimism about access. Yes, simple access to these open educational courses (especially those in higher education) brings with it a fervor for educational opportunities for masses of people that previously were kept from entering education's doorway. In April 2015, the Chronicle of Higher Education in the United States published a story about Jima Ngei from Port Harcourt, Nigeria who had completed and passed 250 Coursera MOOCs. He took courses on Chinese history, Latin America culture, introduction to operations management, organizational analysis, social epidemiology, the life of Thomas Jefferson, data science, and much more despite his struggles with Internet bandwidth. Ngei felt an improved sense of personal agency and empowerment from participating in these MOOCs. He could catch up educationally with his peers around the globe.

Jima Ngei's story is much different than secondary students in North America who take advanced placement MOOCs from edX to get ready for college preparatory exams or to perhaps earn course credit prior to college. For them, the key concern is not access, but course quality, timing, and acceptability of course credit. Nevertheless, for all of us, the starter fuel for learning online is most certainly content access. Fortunately, the doors that were once closed tightly are now widely open and accessible for all to view whether these be free e-books for MBA students, mobile applications demonstrating fitness exercises, flash animation sequences showing how cancerous tumors can be shrunken with chemotherapy, simulations of human migration from rural parts of Western China to the highly urban areas of the east, interactive online scenarios and activities for learning a new language, or videos of someone like Clayton Christensen of Harvard University explaining the impact of disruptive technology on a particular sector of education or business. These are but a few examples of what is prevalent online for learners today in open formats that were unavailable just a couple of decades prior.

Access is the buzzword in many developing parts of the world. Nevertheless, from my journeys, readings, and interactions, it is clear to me that the more developed parts of the world are less focused on access to OER and more concerned with quality, copyright, plagiarism, and assessment. While such issues are important in the developing world, they are overshadowed by the sheer attraction to educational opportunities and unique forms of access to educational content for those on the other end of the digital divide. There are billions of people on this planet who could benefit from such access. These are not singular paths waiting to be traversed in a lock-step fashion; instead, in this new age, there are many routes and optional learning journeys to consider and select from. And there are many hybrid paths and blended approaches. So it is with formal instruction today; blended learning has firmly taken root in all sectors of education. There are many unique forms of instruction that have

emerged and many new learning routes and potential destinations; some highly formal, some markedly informal and spontaneous.

In addition, in this new age of learning, each person can contribute to the learning map. Each person is important as both a consumer and a producer. We see this generative behavior in the form of video or podcast summaries of what a student has learned. We also see it in book chapters that such learners might write for a class wikibook. Perhaps more importantly, many ambitious learners develop resources for next year's class such as a video documentaries, mobile applications, and online multimedia glossaries. Or, as in the case of my friend Paul Kim's MOOC at Stanford University, a group of students can provided valuable resources and ideas on behalf of their MOOC class members. The impact of OER is apparent in all these ways and much more—both through the use of existing resources as well as the creation of new ones. These are extremely exciting and fun times for instructors and learners alike.

2. What are opportunities and challenges OER bring about for higher education in developing countries (like China)? How do universities in developing countries (like China) better utilize OER outside of China? How do universities in developing countries (China) share their OER within the country and outside of the country?

This is a loaded question. Wait a minute…those are three highly charged questions in one. Of course, they are all excellent questions! But that is also the problem of working in this space or area—each question asked is life changing and highly significant. The answers are complex and difficult and perhaps will never be fully understood as the technologies, pedagogies, and knowledge bases on which they all rest are in a state of constant change. So much of the future of the human beings on this planet today (and in the coming tomorrows) depend on answers to questions like the ones you pose. Answers will impact how schools and universities are built (if at all) as well as how they function and are evaluated. A fuller, richer, and more accurate answer will require those writing technical reports or books in this area to address. Nonetheless, since you asked me, I will try to outline a few opportunities and challenges for those in the developing world.

Let's first address some of the challenges. As those in the open education movement have realized for more than a decade, there is the pressing issue related to the localization of content. Simply put, there are concerns about importing Western values, ideas, and instructional practices to educational systems in less developed parts of the world. In effect, there is often an assumption that what was designed and delivered in Europe, North America, Australia, or New Zealand will work just as effectively in Peru, Vietnam, Morocco, Kazakhstan, etc.

Coursera and other MOOC providers have responded by creating volunteer translation teams. Now, MOOC content can come alive in Spanish, Italian, Russian, Chinese, and perhaps dozens of other languages. But translated content by itself does not solve all the problems. Some content will be difficult to translate such as the word "open" in my book, "*The World is Open: How Web Technology is Revolutionizing Education*." There are no simple translations of that word to Chinese, for instance. Nevertheless, thanks to the many wonderful translators at South China Normal University, "*The World is Open*" book is available in Chinese from East China Normal University Press.

Bonk, C. J. (July 2009). *The World is Open: How Web Technology is Revolutionizing Education.* San Francisco, CA: Jossey-Bass. (Book homepage: http://worldisopen.com)
Note: Simplified Chinese, Publisher: East China Normal University, Shanghai, China.

Related to these concerns about content appropriateness are ones about rich and accurate translation of content. If one must always be trying to interpret Western idiomatic expressions and metaphors, jokes, and assumptions, which are often based on historical norms and common cultural practices, there are huge challenges for non-western learners and teachers to overcome. Such a situation places learners in non-western parts of the world at an even more serious disadvantage than the one related to access that they experienced prior to OER, OCW, and MOOCs. Stated another way, access to quality content alone is not enough--it must be contextualized and understandable.

Third, there are concerns about technical standards of any content—how is it maintained, imported, indexed, evaluated, and so on? Since I am not a technician or computer scientist, I will move on to other concerns.

There are also challenges related to the platform expectations. Does it require a certain type of software in which to fully use or run it like Flash, Java, Shockwave, etc.? Is the infrastructure in place to adequately use a particular resource? And what happens when there is an update or version change? Is it readily available? Is it understandable? Will it cost money to use it?

Fifth, how does one know if a piece of content that meets educational standards in schools in Belgium or Canada will be appropriate for those in schools in Cambodia, Chad, or the newly emerging country of South Sudan? I bring up the latter since my university right now has many people from South Sudan working on their master's degrees. And one of them, Viola, is regularly asking me these types of questions; not just once, but repeatedly. Viola's newborn country, springing up from years or turmoil and strife, does not have the technological infrastructure required to take full advantage of new content or content delivery like MOOCs or OER. Should we wait for technology to emerge in such countries in a decade or two or be more proactive with innovative low cost ideas and policies? What can be done in the world of open education for countries like war torn Syria, Ukraine, Afghanistan, and South Sudan? What about places like North Korea?

To better utilize resources outside a country like China or the United States requires that it foster environments of discussion, exchange, and evaluation related to this new form of educational delivery. Educators should be made aware of open educational content and then discuss how it might be used. Learning through consensus building, experimentation, and sharing takes time. But through such efforts, better outcomes often appear. If the government shoves OER types of ideas down educator throats, the options become obedience, ignorance, frustration, or confusion. Stated another way, governments and institutions that impose OER ideals on their educators and students clearly do not understand the importance of the word open in OER. Ironically, buy in in these instances is less likely to occur.

In terms of sharing content, there may be a need for sharing exchanges of such content and international open education types of conferences. Already organizations such as UNECSO, the World Bank, and APEC are trying to do just that with important summits and conferences in places like Paris, Cape Town, New York, Bangkok, Busan, Seoul, Beijing, and so on. But most educators never hear about what was decided or discussed at these UNESCO conferences and events. The conversations too often remain quite confidential or bounded to the members. The open education conference recently in Banff (Alberta, Canada) in late April 2015 and one in Washington, DC in November 2014 were mere blips on the radar screen for most people. So again, the discussions and resulting reports are quite difficult to access and understand. Ideals and ideas related to openness and sharing on a grand scale remain confined to those attending these events or networked to those who do.

An obvious answer is the creation of sharing communities for teachers and teacher educators as well as for those working in colleges and universities and corporate training organizations. You should keep in mind, however, that we have had nearly two decades of experimentation with online teacher communities; nevertheless, most instructors still lack an understanding of open education possibilities. Clearly, such sharing communities of practice are only part of the solution that a developing country like China might put in place.

Perhaps someone needs to develop an intelligent tutoring system that can reflect on a learner's needs and provide specific resources in response to those needs in any language or at any developmental level. Indeed, more intelligent forms of tutoring may really be the springboard to effective use of such content. So governments might fund initiatives related to (1) OER communities for discussion, testing, sharing, and evaluation; (2) technological development for the remixing of OER content as well as the intelligent filtering and recommendation of open educational materials; (3) the translation and localization of said content; (4) content standards; and (5) creative pedagogical application of this content. These are just five areas of need or concern. Try not to be alarmed if your list had many other items on it.

3. What's your experience and attitude toward MOOC? What do MOOCs mean for faculty members and college students in traditional universities? And what's your opinion about MOOC's development and trends in the future?

Again you are asking me three questions here. Each of them could result in a book or at least a book chapter. From my perspective, MOOCs offer us all something akin to educational programming on radio or TV. As I noted earlier, I am biased since my life changed from taking TV and correspondence courses which helped me to qualify for graduate school. However, the joint synchronous learning possibilities of a MOOC differentiate it from radio, TV, and correspondence courses. There is a sense of common community, albeit often very light or faint, from participating in a MOOC. In addition, unlike a self-paced correspondence course, there is a common start and end date.

With a MOOC, students can rest easy at night when they cannot get into a particular course or program. Today, there are dozens of such courses and programs from which to select. Class Central, Open Culture, and the MOOC List are three places that learners who speak English can visit to find one or more MOOCs on topics that they need or are interested in. Chinese learners might try to access RedHoop.

Now, I am not saying that these courses and programs would be acceptable to the supervisors in one's work setting or that MOOCs can substitute for a course in one's program of study; at least not yet. That is a decision for administrators and supervisors to make. Such decisions will gradually shift from "no" to "yes" during the coming decade. Nevertheless, already they can give someone the personal freedom to learn what they want in a manner that conforms to their specific learning preferences. If a degree or job promotion are not among one's learning goals, these are personally fulfilling and liberating times.

And that is exactly what our research indicates is happening. Learners crave for personal freedom to learn and assorted other intrinsic motivational principles, including choice, learning autonomy, flexibility, feedback, and convenience--among these, freedom is clearly the most sought after motivational principle. It is a characteristic of effective learning environments which famed psychologist, Carl Rogers, argued for decades ago. We finally may be closing in on a sense of freedom to learn for all learners, or, at least those with Internet access. These is clearly an educational

era in which Rogers would have reveled in. As he would have noted, there times offer universal possibilities for improving the human condition.

In terms of the future, MOOCs will evolve into many new forms of learning delivery. Just two months ago, in April 2015, Arizona State University announced a collaboration with edX to create the Global Freshman Academy which will offer MOOCs for freshman students and introductory college courses. Along these same lines, two years ago, Georgia Tech University partnered with Udacity and AT&T to offer a master's degree in computer science using MOOCs at a much lower price than its residential program. Other universities are offering MOOCs for the initial course in a master's program as part of an initiative called MOOC2Degree. I predict that MOOCS will soon be graded by intelligent assessment engines of some type. Other developments that are needed are those related to community building and collaboration as is witnessed in MOOC systems like NovoEd from Stanford. As a former educational psychologist, it is clear to me that we humans learn best in social spaces. Hence, an effective MOOC will offer more ways to form teams and make substantive contributions to them.

Finally, we need a better system or way of tracking the MOOC experiences that one has gone through. Learning in the 21st century is life. And MOOCs and open education are now key components of that life and what it means to be human. As such, we need to keep better records of one's OER explorations and MOOC accomplishments. In 50 to 100 years, our life record or epitaph will refer to learning accomplishments and analytics more than our work related ones. Our resumes will have additional layers to denote our informal learning results to go along with our more formal ones. We must now begin to prepare for such educationally interesting and perpetually changing times.

4. **How MOOC impacts traditional classroom practice? What kind of innovative instructional models MOOC may bring about to traditional universities**?

I think one of the more interesting new models is the notion of the flipped classroom which utilizes videos, texts, and other resources of MOOCs. Today, instructors, including myself, are experimenting with delivering traditional courses after mining the best quality content that they have found online; much of it being MOOC content. As such, the learning blends are changing in front of our eyes.

Through the flipping experience, students can come to class having already gone through much of the content. They can have more confidence that they know the content, and, if not, they can replay or reuse it until they do. In effect, in such an environment, the learner is taking more control of the learning experience. The instructor role can change from content dispenser to course facilitator and content curator who challenges students to think.

MOOC content can supplement the learning process of traditional classrooms and, thereby, create a blended learning experience. According to a couple of meta-analyses from Stanford Research Institute (SRI), the research on fully online, blended, and face-to-face learning indicates that blended learning is the most effective form of instruction. Now MOOCs offer extensive resources to potentially blend. But what is the copyright on such course content? Do MOOC vendors like Coursera and edX allow for the sharing and reuse of that content outside the MOOC for which it was designed? And will access to that content be terminated when the term of the MOOC ends? My friend, David Wiley, tends to ask such types of questions in his blog posts, article writings, and conference presentations.

These are serious questions that need to be addressed. Nevertheless, the potential forms of learning delivery from MOOC and MOOC-like derivatives is quite exciting. As educators and as learners, we definitely live in interesting times.

5. How do OER and MOOCs impact the university's undergraduate program management, graduate program management and faculty professional development program, and e-learning and e-management related policy decision-making?

I am laughing now (even though these are very serious questions). You seem to want me to resolve every issue facing universities in one interview. Look back at the above, it seems to me that you are asking four or five questions here. Let me try to address the one related to faculty professional development (PD). In fact, I predict that PD MOOCs will be the most important type of MOOC in the coming decade. Already, there is an explosion of MOOCs being developed for teacher training. PD MOOCs will also be designed for business people, university administrators, dentists, doctors, nurses, counselors, school psychologists, architects, engineers, and those in other professors.

In terms of educators, MOOCs offer a new way to get faculty members exposure to online and blended forms of instruction. I taught a MOOC on instructional ideas related to how to teach online. Participants came from around the world. And anyone can still access my MOOC content for free today. I also developed a set of 27 short videos of roughly 10 minutes each on how to teach online. These include ones on managing an online course, assessment, handling plagiarism, blended learning, providing feedback, and the future of e-learning. Jack Cummings, who was the Executive Associate Dean in the School of Education at Indiana University when I developed the 27 videos, decided that they should be free to the world, not just our 100 or so faculty members (see http://www.indiana.edu/~icy/media/de_series.html).

As a result, these video primers can be downloaded, reused, and remixed to suit specific needs and requirements. Such content availability and flexible licensing or rights to use that content has the possibility to change what a college or university needs to do when designing faculty development courses. Today, university administrators recognize that most of the content will not need to be developed in house. Instead, the most appropriate or best content can be cherry picked according to the most pressing needs. And the certification or badging from the completion of such courses or experiences can come from outside the institution. Consequently, the team that needs to be put in place to offer faculty development courses can be more small and nimble; and it can reform and react to specific needs that emerge on an as needed basis.

What is also important to realize is that learning communities and support groups form in many MOOCs. So when you teach a MOOC on how to teach online, the impact is immense due to such sharing communities. There is potential for faculty training in such a MOOC to influence thousands of courses taught around the world and countless learners in those courses. It is the ultimate teaching situation. We all want to make an impact on those we teach and a MOOC delivered to thousands of other instructors seems boundless in terms of rich instructional possibilities and idea sharing. Fortunately, those in the MOOC often continue to share ideas with each other long after that MOOC has ended; at least that was my experience.

6. How do open college textbooks (such as Flat World Knowledge, Inkling, OpenStax, Open Textbook Library of University of Minnesota), e-books and audiobooks (such as Scribd, Worldreader, BookRix, Boundless) impact higher education reform in developed countries and developing countries?

I had a chance to interview the founder of Scribd, Trip Adler, on the anniversary of its initial year of

existence back on March 7, 2008. At the time, Scribd was located on the South of Market (SoMA) District of San Francisco. We had a great conversation about the future plans of the company. Back then Scribd was totally free. Now it relies on a monthly subscription model. The business plans of many other ebook companies such as Flat World Knowledge have also changed since that time. Apparently, the totally free model is not sustainable. Perhaps, in contrast to a monthly subscription fee, some companies will rely on selling services for teacher training wrapped around free books. Lumen Learning (http://lumenlearning.com/) relies on such a model.

Each of these entities and initiatives is well intended and has found a niche area to explore. There are many other similar ebook projects and initiatives. For instance, the Global Text Project offers learners as well as instructors in the developing parts of the world hope that they will obtain access to quality resources at low prices or for free. The goal of the Global Text Project is to provide unique educational opportunities for people in developed countries and help them escape poverty. It is important to point out that it has its roots in the ideas and actions of one professor at the University of Georgia. Stated another way, in this world of untold openness to educational content, one person can often change the world.

Much of the ebook content from the Global Text Project and other similar efforts is downloadable to a mobile device; this is most fortunate given that a large percentage of people in the developing world own a mobile phone and many have a tablet computer as well. What is lacking is a sense of the totality in terms of ebook resources across all of these online projects and programs. There is no one grand resource or portal for all open books; at least, not yet.

That is part of an answer to your question. I should also mention that I have a free e-book that I completed a year ago that is available in English and Chinese. In effect, I have been experimenting with the very item you are interested in. I am happy to report that the English version of my free ebook has been downloaded over 50,000 times in just the first year and from just one website (see the reference information below). Now that a Chinese version also exists, perhaps the readers of this article can download it and discuss the viability of free ebooks from authors. I am still experimenting with these ideas about free and open content and so should you.

Bonk, C. J., & Khoo, E. (2014). *Adding Some TEC-VARIETY: 100+ Activities for Motivating and Retaining Learners Online*. OpenWorldBooks.com and Amazon CreateSpace.
Free eBook English: http://tec-variety.com/; http://tec-variety.com/freestuff.php
Free eBook Chinese**:** http://tec-variety.com/TEC-VARIETY-Chinese.pdf

All that said, how do free and open college textbooks affect us? This is complicated. First, they give the instructor much to pull from in creating a class. As this occurs, the course transforms from an authoritative structure of preset objectives and content to one that allows for some personal learning journey and exploration. Welcome to 21st century learning. Welcome to Education 3.0. This is an educational age in which instructors are assuming new roles to facilitate, guide, curate, and offer unique paths within and around the learning world. We are now living in a time in which so much is possible and at lowering points of access in terms of the cost, risk, and technological infrastructure required.

Nevertheless, I see the key contribution is not in lowering costs but in changing the relationship of instructors and learners in the organization or institution as well as with the entire learning process. When learning resources in the form of textbooks and instructor lectures are freely available to anyone at any time, then the institution or organization has to provide some added value or people will simply learn it on their own. I hope to be writing about this shift in how learning is delivered in my next

book.

7. What such programs as Lumen Learning mean for traditional universities? How does open education (such as Lumen Learning) change student success?

What Lumen Learning indicates to me is that education has become a grander enterprise than any of us ever imagined that it would be a couple of decades ago. Free and open access to learning content can help us be perpetual learners who learn on demand, just in time, and from the types of resources that appeal to us most. As open education has expanded, instructors need additional support to help them better make use of this content. The supports needed to find, select, mix, and implement such content now come from experts like David Wiley at Lumen Learning and myriad other places. When those structures are in place, more intelligent decisions are typically made and, hence, there should be greater learner success. The jury is still out, however, as this remains a very new enterprise.

Measuring student success will depend on what is meant by it. The definition may change based on where you are on this planet. But for most learners, organizations like Lumen Learning and OpenStax College offer alternative ways to access course content. As a former educational psychologist, I realize that multiple forms or channels of learning (e.g., text, video, animations, etc.) allow for richer storage and enhanced retrieval of that content. If you learn the content in multiple formats (text and images, for instance), there is greater likelihood of remembering that content not only for the exams, but many years later. So, to the degree that organizations like Lumen Learning are providing access to high quality and engaging content, then learning should be elevated.

8. Stanford University started Open Learning Initiatives in 2014. Carnegie Mellon University (CMU) put forward its Open Learning Initiatives named Acrobatiq in 2014. What do these implicate for other universities around the world?

Acrobatiq, which you mention above, is just one of many companies in the open learning arena. At the end of September 2014, the Gates Foundation funded seven such entities as part of a $20 million challenge to design the next generation of digital courseware that helps to customize and personalize the instructional process based on well researched principles and ideas from the field of learning sciences and its' sister field, educational psychology. The ultimate aim is this endeavor is to help low income and disadvantaged learners find success in high-enrollment courses such as introductory college courses and MOOCs.

In addition to Acrobatiq, other entities funded by the Gates Foundation included Cerego, CogBooks, Lumen Learning, Rice University OpenStax, and Smart Sparrow. These are just a few of the firms now making progress in the area of personalized learning. By 2020, we will see dozens more such companies as well as wholly new types of learning technology entities helping 21st century learners successfully navigate through the myriad learning paths available today.

You also mention the Open Learning initiatives from Stanford University and Carnegie Mellon University (CMU). As you are aware, these efforts did not spring out of midair. Stanford and CMU both had been making large investments in technologies for learning for decades. Some of the foremost researchers in artificial intelligence are housed at each institution. And as highlighted by the OpenCourseWare (OCW) movement which had its roots in a speech from MIT president Charles Vest back on April 4, 2001, the same can be said for MIT. So naturally, many interesting inroads have been made at Stanford, CMU, and MIT that we are now reading about seemingly each day.

Other universities cannot be expected to be like Stanford, MIT, and CMU. That would be unfair to their overall mission and may not align well with their long and rich histories. But these other universities should be reading the results of experimentation at Stanford and related places with great interest. They might start their own pilot programs or initiatives. They might create summer institutes or mini-conferences to highlight and discuss a few specific issues and concerns. And they might form consortia with other universities in their own region of the world or country to help localize the process and enhance the results.

9. What are hot spots in worldwide OER and MOOC-related studies?

This is a new area of study. As such, much that has been studied over the past two centuries related to learning without such technology and open content is now worth studying again; albeit in different ways. A few hot spots that I am aware of include looking at self-directed learning needs, experiences, and results from open content. As detailed in my response to Question #1, my research team and I have been exploring that question for several years now and recently published a paper in *Educational Technology and Society* that details learner challenges, goals, expectations, interests, and successes or accomplishments from their attempts to learn from open education and MOOCs.

Other important research areas include learning analytics which help us better understand learner behavior as it unfolds when engaging in online content. Such data on tens of thousands of course participants can provide a new window on learner experiences when using such content. Recently, university administrators seem to be salivating at the possibility of such data.

At the same time, as my friend, Dr. George Veletsianos from Canada mentioned in a recent study in the *British Journal of Educational Technology*, learning analytics cannot give the complete picture. The fact that one has logged into a system does not tell us his or her intents or personal goals and accomplishments. Veletsianos recommends that qualitative research such as learner interviews, focus groups, and content analysis can be equally, if not more, informative in helping to grasp what learners are actually doing when entering a MOOC. As he documents, some MOOC participants may be quite silent in terms of the discussion forums, but they are often nonetheless engaging an online world that is equipping them with new skills and competencies. In effect, there is life change even from those who do not complete all of the intended MOOC activities or tasks.

As my research has shown, some people prefer to enter a MOOC or explore OER without anyone else knowing. The following quote epitomizes that notion:

> "Knowing that I did not need to ask an actual person for help was life changing. I am an introvert by nature, and I prefer to figure out things on my own. Knowing that I can research informally on the Web is reassuring."

There is much more currently being researched concerning MOOCs and open education. Among the key areas of concern are learner retention, learner engagement, content reuse, content development, etc. Some researchers believe we still need to define what openness actually is and create better awareness of it. Several recent studies, in fact, are conflicting. One from the United States indicates that most faculty are unaware of the capabilities and possibilities of OER. Another from the Open University in the UK offers a different story and showcases faculty awareness of open educational content and their diverse uses of it around the world. As with any research, the results depends on what you are studying as well as who and how you are studying it. Be careful in overgeneralizing

from just one or two studies.

If you want to learn more, you might take a look at my most recent book from Routledge/Taylor and Francis, "*MOOCs and Open Education Around the World*." I just got a copy of the book in the mail today, June 29, 2015. I co-edited this book with my wonderful colleagues, Mimi Lee from the University of Houston, Tom Reeves from the University of Georgia, and Tom Reynolds from National University. The four of us have been working on this project for nearly two years. There are 65 contributors for the 32 articles in this comprehensive book project. The book includes eight different sections including ones on the history of openness, open education opportunities, research and evaluation, quality issues, models of instruction and innovative courses and programs, MOOCs and open education in the developing world, MOOCs for corporate training, and the future of MOOCs and open education. Chapters come from individuals in countries such as Indonesia, Malaysia, India, the Philippines, Japan, New Zealand, Australia, Ireland, the UK, the Netherlands, Germany, the United States, South Africa, Kenya, and Canada. And the learners described in these chapters live in dozens of other countries.

If you cannot afford the book, a document with the Preface and the chapter abstracts and author bios is freely available from the book homepage as well as my personal homepage. The details on the *MOOCs and Open Education Around the World* book are below.

Bonk, C. J., Lee. M. M., Reeves, T. C., & Reynolds, T. H. (Eds). (2015). *MOOCs and Open Education Around the World.* NY: Routledge.
Book homepage: http://routledge-ny.com/books/details/9781138807419/;
Amazon: http://www.amazon.com/dp/1138807419
Free Preface: http://publicationshare.com/moocsbook/

The four of us—Lee, Bonk, Reynolds, and Reeves—have also teamed up to coordinate and edit a special journal issue of the *International Journal on E-Learning* (IJEL) on the same topic of "MOOCs and Open Education." It is scheduled to be published in July 2015 with eight additional articles.

Lee, M. M., Bonk, C. J., Reynolds, T. H., & Reeves, T. C. (Eds.) (2015). Special Issue: MOOCs and Open Education. *International Journal on E-Learning*, *14*(3), 261-400.

These two projects grew out of a preconference symposium on MOOCs and Open Education at the International E-Learn Conference held in Las Vegas in October 2013. We were fortunate that the ideas for the book and special issue continued to evolve all the way to publication. We made many new friends and colleagues in the process.

10. **In the OER and MOOC movement, what are your suggestions for Chinese universities and Chinese faculty members**?

Be aware of the news related to OER and MOOCs and internal projects and policies of your own institution or organization but do not be a slave to everything you hear or read about. Too much is hyped up in the news, and, unfortunately, many of your colleagues may find it highly appealing and seductive. As a result, the expectations of faculty members in China as well as other parts of the world may not be based on solid research, genuine learner needs, or university or school capabilities. Too much is tossed out as valuable or possible without really knowing the actual facts. While those number tossers play a prominent role in providing targets or goals of success, please do not be conditioned by them. Try to avoid relying on these external sources for your personal learning goals

or targets.

Start small. Educational change is incremental at best. In teaching a MOOC, you may, in fact, be teaching thousands or tens of thousands of people in a single class. I know that since I did one myself a few years ago with over 3,000 people signed up and eventually had more than 4,000 enrolled. At the same time, I should point out the more frequent or consistent participants were likely just a few hundred. That did not matter to me; my goal was to impact at least one person with a single idea or example. Do not get swayed by the expectations of others to impact millions of people from your use or development of OER or your first MOOC-related teaching experience. Pursue your genuine interests, not "other people's projects" as many academics tend to do.

Find your own path. What you find beneficial or vital to use or teach from will differ greatly from other instructors around the world or even from those in your own department. We live in an age wherein we each can impact learners in unique ways. You will be more committed and passionate when you find that place or space wherein you want to enter the open education field or deliver a course in a more massive way. Your learners can detect a lack of commitment from your course related behaviors and enthusiasm. At the same time, MOOCs can amplify your passion for teaching and expose you to the excitement and interests of innumerable others whom you would not otherwise meet or talk to. Now, your course ideas and resources can extend to all corners of the planet. You will meet learners from dozens of countries and many regions of the world; some of which you may not have known even existed.

As I stated in previous answers, these are highly unique and exciting times. MOOCs and open education extend around the world in terms of participants, content, and potential impact. They create a rich and lively conversation about educational opportunities for all learners as well as quality issues. Keep pushing. Keep learning. And keep trying to impact the learning of others.

In closing, I should point out that I was in China for nearly the entire month of June 2015. I returned home just a few days ago. I hope to meet some of the readers of this article in my next trip to China. Please say hello if you come to one of my talks.