# Where TEE is Today and Where it is Going Over in 5-20 yrs: Old Wine in a New Bottle?

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I will talk about this topic. And there are three subtitles: the policies for ICT in education, and understanding MOOC, and challenges for MOOC in Korea. Look at this. I do not expect you to read this picture. This is the ICT policies in education for Korea. Now this whole thing came from the inaugural ceremony in 1998. The president, former President Kim Dae Jung, announced a big policy for ICT in education, saying that Koreans will be the best people who can use computers in the world, without discussing it with the Ministry of Education.

So this is what happened. The budget, of course, first of all, the budget for the Ministry of Education has to go up, in order to provide that policy. And Korea is still technically in the war. You remember that, last month, we were threatened by North Korea? That means that we have to have a strong Ministry of Defense. So usually, when the Ministry of Defense gets the most money, we don't complain. But during this time, we complained that the Ministry of Education should be the first.

As you all know, Korea became the high-performance country in PISA study. So the PISA study not only we are strong country in the latest PISA from 2009. That study is conducted every three years. So the new one will come soon. But in the last few PISA studies, Korea has been very strong. So this is, again, the results of our performance in PISA during the 2003, 2006, and 2009. And we've been always number one or two, except science. Science is number six. So what made this country, Korea, a high-performing country? Korea invests big budget for education: 8% of GDP goes for education. That includes formal education and informal education. And that's the number one in the world.

And the social culture, that comes from a long history. We believe that our endeavor – not family background and wealth of the family – but the endeavor that makes the social class change. So education is very important. And the social culture supports higher education very much.

And we have very highly competent teachers. The best students come to the education department. School of education gets the highest score students, of course, except school

of medicine. But except that, most of the time, the school of education gets the smartest students. And the student teachers, most of them have master's degree, some have PhDs. And they are highly paid. And socially, teaching job is recognized as one of the best jobs in the society. So in the wedding market, we call it market, people with a teaching job have a very good ranking.

Now this is important. Educational policy to support teachers were embedded in the Ministry of Education, and one very strong policy is ICT. Every teacher has got ICT support, software, hardware, network. The whole school gets the infrastructure of ICT for education. And we believe that investing education money to teachers is the best way of using education money. And we had to fight over the policy priority, whether we should spend money first for reducing the class size, or providing the teacher support ICT facilities. And we won. Don't you clap?

So there are various policies for ICT in education. We have a big organization called, KERIS, which is Korea Education Resource Information System, that takes care of ICT in education in the nation. And this is the home page, and there are many policies to support ICT in education. This is just some of it. I want to show you some of the programs that Korea is using to support education through technology, ICT. We have an education broadcasting called EBS, Education Broadcasting System, 100% devoted for educational programs. They have beautiful documentaries, beautiful programs for education. The videos are divided into smaller video clips, less than 10 minutes, sometimes one or two minutes. And they are classified by themes, classified by the curriculum, so that all the videos produced by the Broadcasting System are all stored in a video clip which can be used for teachers for the classroom use. And this is the page of EDRB, Educational Digital Resource Bank. So according to the film, teachers can go in and select the video clip easily and use in the classroom.

The second policy that I want to share with you is the SMART education. SMART education is to transform our education system. Although we have high-performing students in PISA, actually, we were shocked that we were at the very top. We didn't believe that our education system is that good. So we always want to transform, update our education system. We always work on education innovation. And this is one of the methods that we are using to transform our education.

We believe that our next generation should have a different sets of skills. Like you just said, we need different 21st century skills. With the current education system, we cannot provide such skills to students. So this is how we want to do it. Before, 3R plus ACT. And now, 3R, ICT and media literacy and more 21st century core competencies embedded in the curriculum. So those teachers will get training for their 21st century competencies. The students will get different sets of literacy levels. So through that SMART education project, it has five sub-projects, and eTextbook is one of them.

eTextbook is just a textbook for Korean subjects – math subjects and English subjects for primary and junior high schools. The eBook cannot be produced for high school students where their first target is to get into the university entrance exam, and that is too risky to implement this new approach. I think Korea is the only country in the world where people will go to work one hour late on the day when students take the SAT, because students have to have an absolute quiet environment to take the English test to hearing, listening, speaking. So no airplanes, no cars. I mean, cars OK, but no airplanes. Very serious business. So we cannot make any mistake in providing eBook for their university entrance exam.

And Edunet is another portal, another national educational portal. Through Edunet, students and teachers share instructional materials and instructional activities. Teachers who work in this space are called "cyber teacher." The ministry hired the volunteers from schools, and teachers work as a teacher to students in this cyberspace. Another system is called NEIS: National Education Information System. This is administrative national system to support teacher's daily work. So this NEIS will support the service for teachers and parents, and home education service, and online recruitment, and score qualifying examinations – all kinds of administrative work. And this is the page for NEIS. Without NEIS now, teachers cannot function. When it was embedded first, the teacher's union had huge resistance. In fact, that was the first time in the world that this kind of system can raise a human rights problem. Teachers think this system will invade their personal information, so they show huge resistance. And because of that resistance, the government had to change the minister. That was really serious. We have many serious events in ICT in education.

And now, I go for higher education. KOCW – sorry that we copied the name from MIT OCW – this is Korean OCW. So the lectures from universities load their videos. Up until now, 4,746 lectures were uploaded, and the course materials – immense. And a lot of other foreign OER associations are part of this KOCW, so those Korean students get access to OER through these portals, and this is the first page.

And our universities are called cyber universities. Now this is different from Open University. Cyber universities are regular universities, but all the instructions are done through cyberspace. Now we have 21 cyber universities. Some regular campus-based universities own the cyber university as well. But some are purely independent cyber universities. So through these cyber universities, people at work can study at their own time at their own speed. And we have a lot of ODA projects, and Asian Cyber University is one of the ODA by the government for education. This is governments' initiation, Korean present to the Asian countries. This contract was made during the summit meeting in 2009. So this cyber university – online university for Asian countries – will start to open from next year.

Now all these policies look glamorous, but I have to say that we are in here. During the last presidential regime, the Ministry of ICT was gone. And the budget support for ICT

policies were reduced. And people do not trust anymore that ICT can meet their rosy promises. I think we are here. I hope, so that we can catch up. From this present, new ministry for ICT came back. So I hope, next year, I can report that we are here.

So what have we learned from these policies? We learned that teachers are the most precious, most important agency to conduct these policies. And a lot of education research shows that education cannot be done without teacher support. So teacher's acceptance, teacher's support, that's the best way to make your innovation work in the field. And we had bottom-up approaches, and a lot of top-down approaches. We learned, by now, that the bottom-up approach is important, as important as top-down approach or even more so. Now we went through a cycle that we learned that top-down approach is no longer valid. Without the understanding, without the acceptance from the field, teachers, administrators and students, that innovation cannot work.

And we need to accept that the start is always slow. We get very impatient to see the result when you invest, particularly, lots of effort and money. But it's always a slow pickup. So you have to understand that it's slow, but it will come. You should have trust that it will come. Parents are as important stakeholders as students. We have to treat parents very importantly. A lot of times, important decisions are made by parents, not teachers, not students, not administrators. So you have to take parents' opinion, their voice, seriously in new innovation. And education should come first. And then technology can support it. When you introduce your new ICT policy, don't show that word, "technology," in the front. Then people get really upset and say, no, no, no.

Now education transformation is agreeable in a general level. But when it comes to a more detailed level, a lot of disputes, a lot of battles, a lot of discussions. So you have to expect that. And then, sometimes, because of that discussion for the details, the general agreement for the education transformation will be gone. And quality comes from quantity. When Korea tried to provide education for all as a policy in the nation, we started with primary school. Some nations start with higher education, because higher education can produce the elite who can lead the country. But we started from the bottom, elementary schools. And then we invested the middle school and high schoolm and the higher education came the last.

Now through these all education transformation approaches, we want to have different sets of new approach. We want to show that some new approach can really make a transformation in education. And I believe that that can be MOOCs. So what is MOOC? Normally, e-learning systems consist of three elements: contents, and LMS instructional activities, and then management. Now MOOC has contents and LMS. But I cannot see management. It's mixed. It's not easy to find all those elements. And I'm not sure whether it should have it or it shouldn't.

A lot of people say MOOCs will be the true engine to make the change in education, will be a true disruptive engine. Now tuition is free, which may not be true next year. And

massive numbers of students, this characteristic has lots of potential and lots of beauties. Now massive numbers of students can make beautiful learning communities. Interaction is always active, 24 hours active. And the immediate feedback is always possible. Now we all know that immediate feedback is so important in education. So we trust that this massive number will make the true, unique contribution of MOOCs to be a disruptive agent for education.

And mastery-based, personalized learning, this is one of the promises that MOOCs say they can deliver. But it will take time. And just-in-time learning, that's, again, a very important aspects of MOOC. I am struggling to understand what role MOOCs can play in scores for informal education. So I tried to make an analogy of e-learning system to school system. MOOCs are a part of e-learning system. So as usual, I classified the elements of e-learning – contents, LMS and management – into the school elements.

The contents can be textbook. If it's a textbook, who pays for textbook? Sometimes, the schools pay. But usually, students will pay. So the contents in MOOC, if students are asked to pay, this will be a natural thing to do. Now LMS. This LMS includes instructional activities. And this is a platform where students and teachers do their feedback and interactive activities. Now, if this part requires a fee, if this is the situation in school, do you think students will pay for this? It's a unique role of teachers. So of course, students won't pay. School will pay. Schools will pay salary to the professors to do the interactivity with the students. So this role from platform cannot be charged to students. Now management, this a school operation. This is to maintain the credits and the entrance and give the degrees and so on. Now this, students can pay for tuition for this service. This is not clear what to do.

Now contents and LMS, those two are elements of what's going on in the classroom. So school – which is management in learning system – can be a combination of lots of these kinds of classrooms. So this is one classroom, and collection of these classrooms will make a school. And then the school should have a management function.

I am still confused about MOOCs, and the roles. And the fee is to come from where? And how these models can be applied in campus-based universities.

The lack of MOOC model for campus-based university is a task that we have to serve now. They are the minor users among MOOC users. But they are the important element in making sense of this MOOC model. Let's go back to this. Now I made this model, based on the MIT model. Now this MITx is a content development center. So that belongs to MIT. Now the platform, edX, can be used for many, many universities. So their use can be part of MIT, but they are not part of the MIT system.

Now the management of these contents and platform can be done by somebody else. That OEIT, I think, is taking a role of management in this MOOC system. Now will MIT get content from other universities? From other platforms? If so, then how is the tuition or

management to be done? I'm not sure. So I am proposing some challenges. This is not for the whole scope of MOOCs – but that's more from a perspective of pedagogy.

Now accessibility, that will be still a problem. Now a lot of people for MOOCs are from many countries, but the majority of users of MOOCs are from USA. This is the number of students who have access to the MOOC. Now this is a quiz for you. I need your interaction feedback. Which ones belong to the same category? Number one, two round cylinders. And number two, two brown figures? Now raise your hand, if you think number one is the answer. Raise your hand, if one is the answer. Please, everybody. OK. Number two? Please raise your hand. OK. This shows the cultural differences. This is for Western people. And this is for the Asian people. You're all Asian people. And this, again, is a cultural difference. So if you classify this picture of a Monkey, a Panda and a banana by animals, that's Western people. And if you classify this by these two [a monkey and a banana], that's Asians.

This is a very famous psychology study done by the Michigan people. And languages, again, very different. Western people tend to use nouns more. And Eastern, meaning Asia – the CJK, China, Japan, Korea – is verb-oriented language, because we think everything is connected. So when you say "More tea?" in English, we say, "Do you want to drink more?" So this is just a small example of cultural differences. And I do not know what to do with these differences. But what I want to say is that cultural difference has to be embedded as part of the pedagogy for e-learning. OK. I think I will stop. Thank you.