

## **Responding to The Demand of 21st Century Teaching and Learning: the Case of Higher Education in Indonesia**

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### **Abstract**

The world over experiences constant changes affecting all aspects of our lives in this 21st century. The wind of changes already force major impact in our work and daily life. It is observed that the most sensitive and responsive to the forces of change are national governments, businesses, and industries which have to keep up to the changes to be able to survive and made reasonable profits. All aspects of education systems must thus respond to the demand of providing human resources that can adapt and adept to the necessary changes to ensure any nation survival and competitiveness. The focus of this paper is higher education system in Indonesia, which have to respond appropriately to meet the challenges of 21st Century. How the government of Indonesia responds to the demand to reform the higher education system and to consider the open and distance teaching and learning delivery will be described in this paper. Mainly it will describe the experiments of utilizing information communication and technology to deliver teaching and learning activities for the teacher or faculty development and for students replacing parts of face to face interaction in the effort to reach as many participants as possible from all over the Indonesia archipelago or the Southeast Asian region. These experiments are done to answer the demand to develop the human resources that have knowledge and skills necessary to survive the 21st Century.

Key words: 21st Century, higher education, open and distance education

### **Introduction**

As we already learned, the 21st century changes are driven by rapid developments in knowledge and technology that affect communication, transportation, infrastructure, agriculture/fishery/animal husbandary, trades, health system, etc. Graduate of higher education system should be able to answer the demand of skills necessary to those fast changes. Those necessary skills are ability to think innovatively, holistically, and entrepreneurial to get or create jobs, to communicate persuasively, to bridge cultural gaps in the multicultural environments, and to periodically adjust themselves to the markets or environment conditions. The higher education system needs curriculum that can ensure the preparation of students for future employability, job reaction and job security. In the long run, the higher education system is expected to deliver curriculum that have great impact on the quality and competitiveness of the future workforce, economic structure, and status of the nation.

The higher education systems in Southeast Asian region try to catch up to the demand of adjusting the higher education curriculum and program so that it is appropriate to survive the 21st century and beyond, in a globalized world. Major reform in higher education is triggered by a paradigm shift from teacher directed instruction to student-centered learning (Barr & Tagg, 1995). This reform is supposed to create curriculum that provides graduates with educational process to develop skills in: critical thinking and reasoning, problem-solving, communication, interpersonal and team-work skills, and self-directed learning skills as a basis for lifelong continuing self-education. The educational processes to provide those student-centered learning outcomes include integrated multidisciplinary, collaborative, problem-based, reflective, small-group, peer learning, and self-learning approaches in the context of open and distance education. Those processes are supposed to motivate students to take greater initiative and responsibility to direct and to manage most of their own learning, and in the long run, their own personal and professional development.

The 21st century is the era of information explosion because of the exponential growth of content knowledge in any discipline of study. The situation made it difficult for students or teachers to learn everything in their choice of study. Curriculum and educational processes must be designed to

help students to acquire the understanding of the principles and concepts that will help them develop problem-solving skills, not the acquisition of knowledge that can be easily forgotten.

The advances in information communication and technology (ICT) provide the world with easily accessible educational resources, so that anybody can learn anything, anytime, and anywhere by the click of a button in the computer or the mobile devices. Supposedly, higher education students should be able to do a lot of self-learning by accessing the educational databases available on the internet. The role of teachers of higher education is not to determine exactly what, when, and how their students learn anymore, but to guide the students in the process of information and data mining, so that the students can search, gather, analyses, integrate, and evaluate information for their own learning. The students should be encouraged to exploit the internet for their own learning.

### **The Higher Education in Indonesia**

In Indonesia there are 204 state and 1293 private higher education institutions. As a developing countries of 250 millions people; the higher education system serves about 3,4 millions students in 2001 and increased to 4,5 millions students in 2009 (DGHE Strategic Planning, 2009). However, the participation in higher education is only 18%, much lower than most of the other Asian countries. The higher Education system in Indonesia also has problem of quality and relevance, showed especially by the less number of international scientific publications and patent and intellectualproperties, and high evidence of the unemployment of the graduates.

In the globalized world, every country become very competitive to ensure the economic growth. The competitiveness of any country depends on the innovativeness of the human resources that impacts the growth of the country industry, agriculture, infrastructure, and other aspects of socio-economics. The higher education system is expected to educate the human resources that can compete in the globalized markets with high quality and productivity. The role of higher education system is important to ensure nation competitiveness for the welfare of a country.

In Indonesia, the higher education system is managed by the Directorate of Higher Education (DGHE). The higher education system in Indonesia is expected to help the government to overcome the environmental issues as well as facilitated the sustainable development of the country. The system is also expected to help in the unity of the nation amidst the trends in the decentralization and otonomy of the provinces in Indonesia.

The higher education system in Inodnesia, like in other developing countries face with problems of increasing enrollment, increasing the number of institutions and variations of relevance study programs in the university, and the quality of education provided by the institutions. The DGHE has response to the challenge of providing the 21 century skills for the nation competitiveness and welfare through various policy and facilitations. One of such facilitation is the development of mass open online courses by the distance education programs the universities and. This effort is aimed at provision of quality higher education to massive numbers of students or participants.

### **Mass Open Online Courses (MOOCs)**

DGHE facilitates the development of MOOCs by major university and institutions in Indonesia for the basic sciences, mathematics, computer sciences, and management studies. The courses developed into the MOOCs are the foundation courses for the study programs and offered at <http://pditt.belajar.kemdikbud.go.id>. MOOCs also offered by the Universitas Terbuka at <http://moocs.ut.ac.id>

Universitas Terbuka is the only exclusive distance education system in Indonesia with proven ability in offereing online courses to its 350.000 students all over Indonesia. The experiences of Universitas

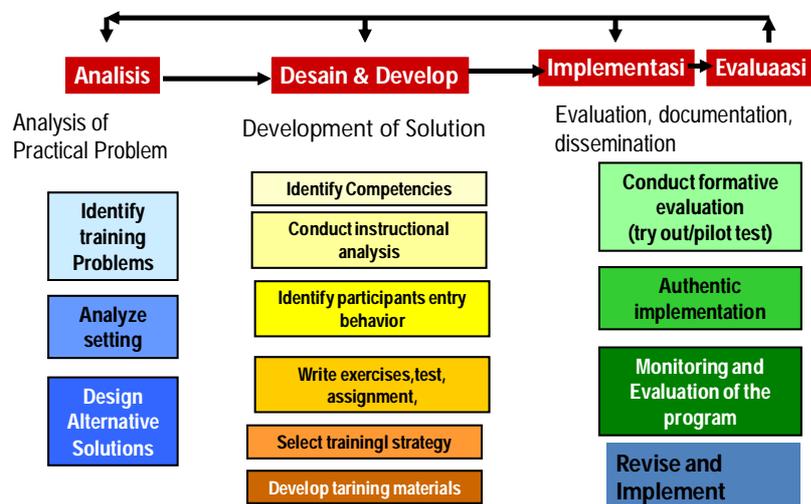
Terbuka in distance education delivery system make it possible to offer the distant training of developing MOOCs to teachers and faculty members who are interested in developing the MOOCs, or the Open Courseware or the Open Educational Resources.

Eventhough there a lot of educational resources available in the internet, for any given study programs, still expert teachers are needed to create programs that can lead to certification of skills and knowledges acquisitions. To create an online program for a particular competency, a teacher need to do design and develop activities, utilizing resources available for free in the internet to be embed in the online program.

Universitas Terbuka can offer an online training program in the form of MOOC, about how to design, develop, implement, and evaluate an online program. As an example an online program to train teachers in 5 (five) Southeast Asian Countries had been offered by SEAMOLEC in 2012 funded by the USAID. At the design phase competency map such as seen in Appendix 1, was developed and followed by the program map as seen in Appendix 2. The course can be accessed at <http://aseancybercourse.seamolec.org>. The course was offered in blended learning strategies. To teachers in Indonesia, Thailand, Cambodia, Vietnam, and Lao PDR. There were 100 participant that tried the course for 2 months before the face to face meeting at each country.

In 2014, the author is developing an online training program for teacher and faculty members to develop open educational resources, open courseware, and MOOC utilizing the ADDIE model for the process in the development activities.

## *ADDIE Model for The Design & Development of Online Training for T/FPD*



### Conclusion

With the rapid development of ICT and including the media technology, any body can learn anything from the vast databases of open educational resources in the internet. However, the role of teacher is still important to help students to acquire the basic skills and knowledge for a certified program in any study program. The idea of offering MOOCs also need to be considered carefully because it involves the design, development, implement, and evaluate an online program that supposed to give the

participants a certificate for knowledge or skills acquired, especially if the certificate is transferable toward a degree.

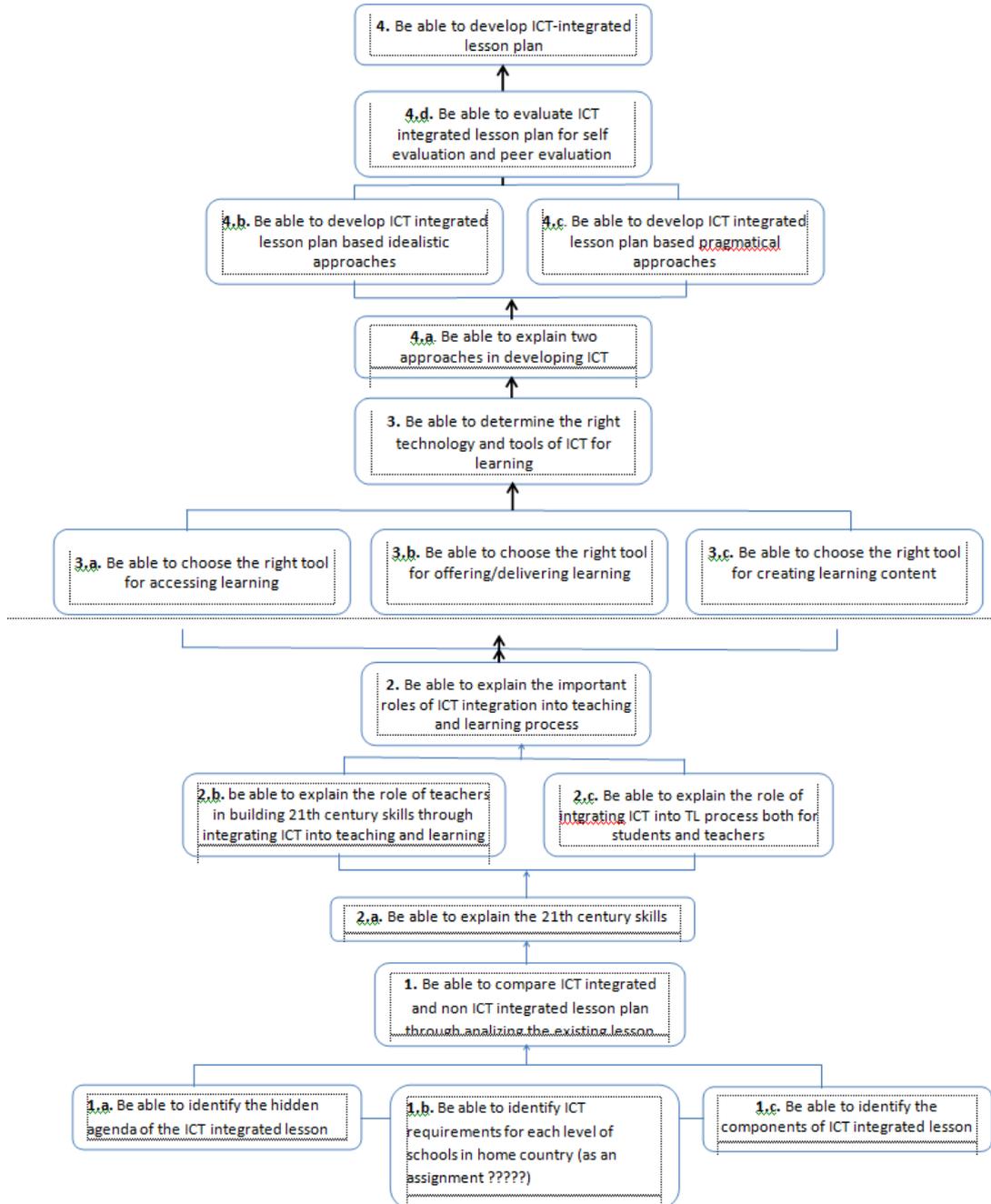
In Indonesia, Universitas Terbuka has the expertise to train teacher to develop online program efficiently and effectively utilizing the acceptable design processes.

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**Appendice 1**

**COMPETENCY MAP (revised)**



**Appendice 2**
**PROGRAM MAPPING**

No	Competencies/Topics	Online Learning Strategy	
		Asynchronous Activities	Synchronous Activities
(1)	(2)	(3)	(4)
1	<p>1. Be able to compare ICT integrated and non ICT integrated lesson plan through analyzing the existing lesson plan</p> <p>1.a. Be able to identify the hidden agenda of the ICT integrated lesson plan</p> <p>1.b. Be able to identify the components of ICT integrated lesson plan</p>	<p><b>Learning Materials :</b></p> <ul style="list-style-type: none"> <li>- Module KB 1: Lesson Plan: With or Without ICT (pdf)</li> <li>- <a href="#">Lesson Plan: With or Without ICT (ppt)</a></li> <li>- Video examples of TL process with and without ICT (flv)</li> <li>- Video examples of TL process with and without ICT (embed script from youtube)</li> </ul> <p><b>Discussion Forum:</b> Perhatikan kegiatan inti B pada modul KB 1 halaman 1. Mengapa kegiatan inti B tersebut dikatakan sebagai RPP yang telah mengintegrasikan TIK? Berikan alasan Anda secara logis dan singkat.</p> <p><b>Assignment:</b></p> <ol style="list-style-type: none"> <li>1. Pick one of your lesson plans</li> <li>2. Analyze whether it is already integrating ICT in the TL process or not.</li> <li>3. According to your opinion, how it should be?</li> <li>4. Please, attach your original lesson plan and then the revised one.</li> </ol>	<ul style="list-style-type: none"> <li>• Regular chatting whenever instructors appear online</li> <li>• Computer conferense on ..... 2012 at ..... am/pm</li> </ul>
2	<p>2. Be able to explain the important roles of ICT integration into teaching and learning process</p> <p>2.a. Be able to explain the 21th century skills (according to UN and 21th century USA)</p> <p>2.b. Be able to explain the role of teachers in building 21th century skills through integrating ICT into teaching and learning process</p> <p>2.c. Be able to explain the</p>	<p><b>Learning Materials :</b></p> <ul style="list-style-type: none"> <li>- Module, KB 2: Urgensi Integrasi TIK dalam Pembelajaran (pdf)</li> <li>- Urgensi Integrasi TIK dalam Pembelajaran (ppt)</li> <li>- Video examples of 21 century skills needed for next generation(flav)</li> <li>- Video examples of 21 century skills needed for next generation (embed script from youtube)</li> </ul> <p><b>Discussion Forum:</b> Pay attention to an example of lesson plan on page 7 of module. According to</p>	<ul style="list-style-type: none"> <li>• Regular chatting whenever instructors appear online</li> <li>• Computer conferense on ..... 2012 at ..... am/pm, instructor/resource person: .....</li> </ul>

No	Competencies/Topics	Online Learning Strategy	
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(1)	(2)	(3)	(4)
	role of integrating ICT into TL process both for students and teachers	<p>your opinion, what are the impacts of RPP tersebut bagi siswa. Baca terlebih dahulu modul KB 2, untuk menjawab contoh kasus seperti ini!</p> <p><b>Formative Test:</b> 10 items multiple-choice objective test</p> <p><b>Assignment:</b> 1. Coba Anda refleksikan pada diri sendiri, apakah keberadaan fasilitas ICT di sekolah Anda masih digunakan sebagai sarana belajar tentang TIK atau sudah digunakan sebagai sarana belajar dengan TIK? 2. Jika masih dimanfaatkan sebagai sarana belajar tentang TIK, jelaskan ide Anda agar terjadi perubahan agar dimanfaatkan sebagai sarana belajar dengan TIK 3. Jika sudah dimanfaatkan sebagai sarana belajar dengan TIK, jelaskan perubahan yang terjadi pada perkembangan keterampilan abad 21 daripada siswa-siswi Anda. 4. Tuliskan ulasan Anda dalam bentuk paper tidak lebih dari 10 halaman</p>	
3.	<p>3. be able to determine the right technology and tools of ICT for learning</p> <p>3.1. choose the right tool for accessing learning</p> <p>3.2. choose the right tool for offering/delivering learning</p> <p>3.3. choose the right tool for creating learning content</p> <p>3.4. identify ICT requirements for each level of schools in home country (as an assignment ?????)</p>	<p><b>Learning Materials :</b></p> <ul style="list-style-type: none"> <li>- Module, KB 3: Mengenal Teknologi dan Tools TIK untuk Pembelajaran (pdf)</li> <li>- Mengenal Teknologi dan Tools TIK untuk Pembelajaran (ppt)</li> <li>- Video examples of tools for accessing learning (flv)</li> <li>- Video examples of tools for offering/delivering learning (flv)</li> <li>- Video examples of tools for creating learning content</li> </ul> <p><b>Discussion Forum:</b> Seorang guru mengajarkan topik biologi tentang reproduksi tumbuhan. Tujuan pembelajaran yang ingin dicapai adalah students dapat menggambarkan salah satu proses reproduksi pada tumbuhan dengan tools yang mereka kuasai. Menurut Anda, teknologi dan tools TIK apa yang memungkinkan digunakan oleh</p>	•

No	Competencies/Topics	Online Learning Strategy	
		Asynchronous Activities	Synchronous Activities
(1)	(2)	(3)	(4)
		guru tersebut?  <b><u>Formative Test:</u></b> 10 items multiple-choice objective test  <b><u>Assignment:</u></b> 1. Pilih salah satu topik pelajaran yang Anda ampu. 2. Tentukan beberapa (2-3) tujuan pembelajaran yang ingin Anda capai. 3. Buatlah rencana metode pembelajaran dan tools teknologi yang akan Anda gunakan untuk mencapai tujuan tersebut 4. Berikan alasan mengapa metode pembelajaran dan tools teknologi tersebut yang Anda pilih untuk digunakan!	
4	3. Be able to develop ICT integrated lesson plan 3.a. Be able to explain two approaches in developing ICT integrated lesson plan 3.b. Be able to develop ICT integrated lesson plan based idealistic approaches 3.c. Be able to develop ICT integrated lesson plan based pragmatistical approaches 3.d. Be able to evaluate ICT integrated lesson plan for self evaluation and peer evaluation	<b><u>Learning Materials :</u></b> <ul style="list-style-type: none"> <li>- Module, KB 4: Mengembangkan RPP yang Mengintegrasikan TIK (Pdf)</li> <li>- Mengembangkan RPP yang Mengintegrasikan (PPT)</li> <li>- Example of RPP yang mengintegrasikan TIK (pdf)</li> </ul> <b><u>Discussion Forum:</u></b> Perhatikan contoh lesson plan pada modul halaman 18. Jelaskan menurut pendapat Anda mengapa RPP tersebut dikatakan sebagai RPP yang menggunakan pendekatan pragmatis?  <b><u>Formative Test:</u></b> 10 items multiple-choice objective test  <b><u>Assignment: (sekaligus sbg TUGAS AKHIR)</u></b> 1. Pilih salah satu topik pelajaran yang Anda ampu 2. Kembangkanlah RPP yang mengintegrasikan TIK yang menurut Anda paling sesuai dengan kondisi lingkungan sekitar dan siswa serta keberadaan TIK di sekolah atau lingkungan sekolah Anda	<ul style="list-style-type: none"> <li>• Regular chatting whenever instructors appear online</li> </ul> Computer conferrence on ..... 2012 at ..... am/pm, instructor/resource person: .....

No	Competencies/Topics	Online Learning Strategy	
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(1)	(2)	(3)	(4)
		3. Praktekkan dalam kelas Anda dan bualah laporan pelaksanaan RPP tersebut!	
		<b>Test Akhir:</b> Around 50 items multiple-choice test (berbeda dengan formative test)	