Looking for the Newer and More Appropriate Teaching and Learning Strategies

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Abstract

Education has evolved to meet the challenges of the 21st Century. It places greater emphasis on accountability of educational context, process and evaluation. Investigating contemporary methods of teaching and learning, instructional design equipped with the advanced ICT is considered necessary to transport students towards the safe and ready future of knowledge based society. Instructional design is seen as a systematic process by which instructional materials are designed, developed, and delivered. Educationalists hence accept that a combination of instructional design, ICT, and materials be contented with the 21st Century skills.

Keywords: Teacher, knowledge society, quality education, the 21st Century skills, distance and online systems, and authentic evaluation

Education, Knowledge-Based Society, and Competitive & Prosperous Society

Globalization has been driving a transition onto knowledge-based societies. The term 'Knowledge Society' generally refers to a society where knowledge is the primary production resource over capital and labor. This definition highlights that knowledge society calls for the 'creating, sharing and using knowledge for prosperity of its people'. The knowledge society brings greater access to information and new forms of social interaction and cultural expression. Individuals therefore have more opportunities to participate in and influence the development of their societies. According to Evers H. (2003), the characteristics of a knowledge society are to include:

1. Its members who attained a higher average standard of education in comparison to other societies and a growing proportion of its labor force who are employed as knowledge workers i.e. researchers, scientists, information specialists, and knowledge managers;
2. Its industry that produces products with integrated artificial intelligence;
3. Its organizations – private, government and civil society – that are transformed into intelligent, learning organizations;
4. An increased organized knowledge in the form of digitized expertise, stored in data banks, expert systems, organizational plans, and other media;
5. Multiple centers of expertise and poly-centric production of knowledge;
6. A distinct epistemic culture of knowledge production and knowledge utilization

African Leaders in ICT, ALICT, has outlined four main pillars of a knowledge society, including Education, ICT, Science and Technology, and Innovation (GeSCI, 2011). In some cases, the pillars of Innovation and Science & technology were often considered to present a single pillar, which was referred to as Innovation (incorporating Science & Technology). With regard to education, lifelong learning is regarded as a requirement to keep pace with constantly changing global job markets and technologies. As such, education is not limited to formal education as in traditional structures, but also encompasses the broader societal learning necessary for development.

ICT is considered a critical tool in effort to prepare and educate students with the required skills for global workforces. It facilitates students so that they can continually adapt to the workforces for continuous technological innovations, and makes it easier for students to access knowledge. ICT is regarded as an engine for the growth of knowledge advancement and socio-economic development.

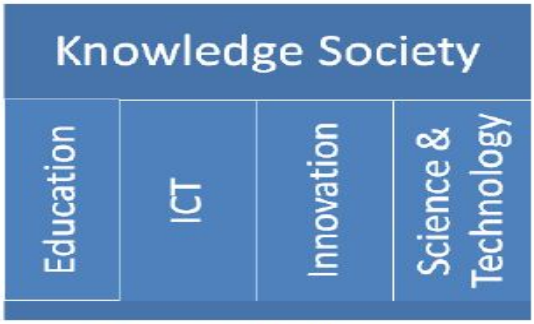

Figure 1. ALICT' Pilars

Innovation, at last, is seen as the means to support a continuous development for socio-economic functioning. Hooker, M. (2010) described innovation as a process of creation, exchange, evolution, and application of knowledge to produce new goods. It involves adapting, adopting, or using knowledge to produce new goods and services in local contents or to advance local society in general. The concept of a 'Knowledge Society' is often confused with that of an 'Information Society'. The latter concept is, however, considered more specific, as the application of knowledge to data creates information, and information has to be activated or generated by knowledge.

Information is the codified result of observation, but knowledge entails the capacity to take actions (Evers, H., 2003). As the function of information and knowledge are different in a knowledgebased society, the vision of what knowledge people need to acquire, and how they can acquire it, also needs to change. Knowing where knowledge is located and who has access to what kind of knowledge and why it is being so are becoming increasingly important. Social skills becomes the key skill for employment in the knowledge economy (Punie, Y. & Cabrera, M., 2005). This skill is increasingly exercised using the advancement of ICT. Therefore, there is a need to skills both the workforce and the unemployed to increase their ICT literacy. Further Punie & Cabrera suggested that these efforts need to be part of lifelong learning strategy and implementation, since a dynamic and fast-changing knowledge-based society requires continuous knowledge and hence skills updating. Increasingly, countries across the globe have consented for a vision for development of knowledge societies and adopting policies and strategies to encourage this development. Punie & Cabrera (2005), as illustrated in figure 2, has highlighted that education is of a vital importance in the knowledge society, as a source of basic skills, as a foundation for development of new knowledge and innovation, and as an engine for socio-economic development.

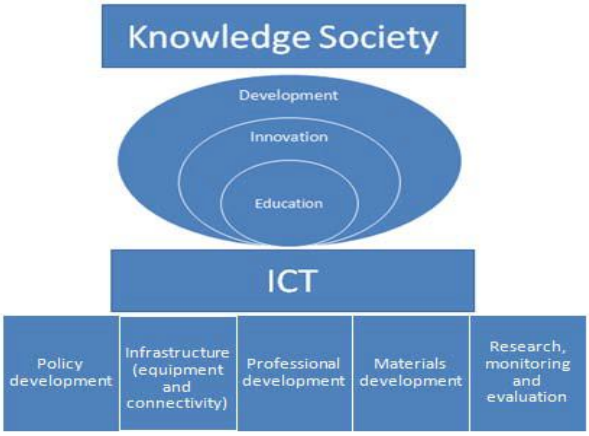

Figure 2. ALICT' Pilars Framework for reflecting on ICT, Education, Innovation and Development to support a Knowledge Society

Education is, therefore, a critical requirement in creating knowledge societies that can stimulate development, economic growth, and hence prosperity. With this situation, one may view education and development as interrelated drivers for socio-economic development and therefore prosperous society. In this view, ICT is believed to be the enabler for both innovation and education – without which knowledge for prosperous society cannot be realized, supported or further developed. ICT and education are critical for development and for securing employment in a knowledge society. However, the potential of ICT in education can only be realized when it is embedded in a social context that is open to innovation and supported by a favorable policy environment. Government policy has a real impact on strategic initiatives, and often determines the parameters of such initiatives through laws, regulations, and the allocation of funds. The potential educational power of Web 2.0 platforms is significant in contributing to education and the knowledge society, where content is important primarily as a tool to be used by learners to construct their own knowledge building on what they already know.

A critical question is then what kinds of reformation must take place in education world? As highlighted in previous account, today's global economy, countries need high-quality education systems that will teach their citizens the skills necessary and wisely to meet the challenges for tomorrow. Some focuses of reformations has to be given to the development of Science (Biology, Chemistry, and Physics), Mathematics and Statistics, Technology (and ICT), and Engineering. In addition, reformation has also to take place in education for Humanities (including Theology, Philosophy, Law, History, Linguistics/Literature, Culture, Arts, Psychology, and Education); Social, Political Science, and Economics; and National Philosophy (for Indonesia is Pancasila).

Central to reform in science education, for example, are high expectations for all students. but before educators can begin to help their students work toward ambitious standards, they need to wisely consider various appropriate materials, an understanding of obstacles to the attainment of science literacy by all the students, and widespread supports for the changes that are to take place. In considering professional development at school level, it ought to fundamentally be about teacher learning, including changes in their knowledge, beliefs, and attitudes that teachers possess to lead to the acquisition of new skills, new concepts, and new processes related to the work of teaching. Some critiques concerning teaching and learning has been given to current circumstances, suggesting that ideal teacher is hardly to find and difficult to develop, as a teacher himself cannot be created.

Often are activities happening in the classroom merely resting on teaching not educating; contrary to the principle that to teach is not necessarily and automatically to educate human beings. Additionally, teaching is often inflexible, monotonous, tasteless, mechanistic, poor of motivation, and somehow conducted inappropriate manners. It is impractical (not connected with daily life of students). Finally, the critique has suggested that assessment often focused on mere cognitive achievement and repeatedly ignoring learning processes. As a result, there has been rare innovation and continuous professional development in teaching and learning processes.

Some possible issues causing the lack of teacher professional development might be related to a lack of innovative teaching skills by teacher. Effective professional development is vital to school success, even though it has also been criticized for its cost, often vaguely determined goals, and for the lack of data on resulting teacher and school improvement that characterizes many efforts. Often do government and foundations fail in equipping teachers with adequate facilitation and environment for quality teaching process, causing unsatisfactorily innovation created by these teachers in their classroom routines. Whilist, teacher professional development can be provided in many ways, ranging from the formal to the informal. It can be made available through external expertise in the form of courses, workshops or formal qualification programs, through collaboration between schools or teachers across schools (e.g. observational visits to other schools or teacher networks) or within the schools in which teachers work. In this last case, development can be provided through coaching, collaborative planning and teaching, and sharing of good practices.

In macro and national wide environment, educational policies shaped by the central government have to some extent been vague. Curriculum is constructed too complicated/meticulous. It has also demonstrated too detailed recipe and restricted directions that causing lack of initiative, lack of creativity, and mechanistic teaching by teachers. In many cases, superficial supervision has been demonstrated for deceitfully qualifying the mandates required by the Government. Alike situation has also occurred due to the failure of setting up equal incentives or salary for all teachers, causing unproductive performance-based incentive and lack of external motivation.

Above all, continuous professional development at schools level should require teachers to not just become implementers of effective teaching strategies, but also innovators of teaching and professional learning strategies. Effective professional learning environment can strengthen teacher practices and hence increase student achievement. Additionally, it has been argued that student achievement is higher in schools with strong professional communities, where collective responsibility, collaboration and collegiality among teachers are fostered.

What the textbook says and the people expect?

Many experts have successfully articulated a more contemporary view of instruction in a more systematic process in which every component (i.e., teacher, learners, materials, and learning environment) was organized to gain a successful learning. This perspective has been usually referred to as a systemic point of view, and advocates of this position typically used the systems approach to design instruction. As to explore its capacity, the system approach has been exposed to amplify learning evolution for the 21st Century. Such this evolution has rested on a belief that adequate skills are necessary to implement and therefore systemic ways are the key to its success.

Traditional classroom are no longer effective in this century and teachers, therefore, must develop new teaching strategies that are different from those applied in traditional teaching and learning processes. The modern classroom should be more centered on students and teachers should play more on facilitating and guiding the learning, instead of providing and transferring knowledge and information. They are to engage their students in learning and provide effective instruction using a variety of instructional methods and following different pedagogical approaches aided with technology. The students should be active participants in their own learning, and hence the teachers must seek out professional development to improve their performance and their students' learning.

The evolved 21st Century learning has to be led by a productive environment where learners develop skills that they will apply in the workforce and teachers take part as facilitators of the learning. The focus of the 21st Century classroom is on students experiencing the environment they will enter as modern day workers and developing their higher order thinking skills, effective communication skills, collaboration skills, critical thinking, creativity and innovation, in order for being adept with using technology and all other skills that they will need in the 21st Century workforces.

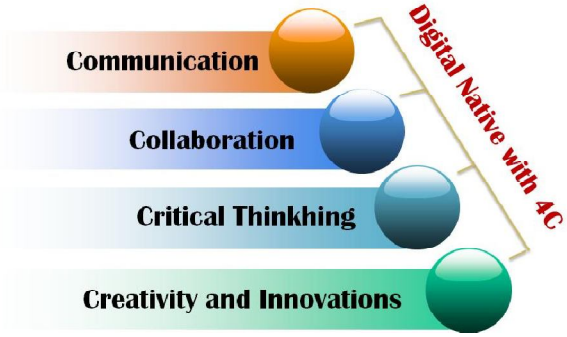

Figure 3. Digital Native with the 4C

The 21st Century classroom has many characteristics associated with it which distinguish it from the classrooms of the past centuries. Figure 3 illustrates the four characteristics of the 21st Century classroom, to include digital natives of communication, collaboration, critical thinking, and creativity and innovations. Critical thinking constitutes the key aspect to the 21st Century learning skills. It has been argued that the way to teach critical thinking is to have students think critically about something. The way to teach problem solving is to present students with problems that they must solve. Critical thinking deepens students' understanding of science, and science sharpens students' critical thinking. Problem solving is therefore a vehicle for students to own strategies for critical thinking, creative thinking, problem solving, communicating, collaborating, building arguments, and all the literacy skills. This paper agrees with what was proposed by Saxena S. (2013) suggesting that the followings are the key indications where classroom environment meets the characteristics of the 21st Century.

1) ***Student-centric***: In these classrooms, students are the center of learning process and teachers serve as mere guides. They are more facilitating the learning than lecturing the classroom.
2) ***Computing devices***: Computers are essential tools for 21st Century student learning and replacing the use of papers and pencils. They not only give students the means to conduct online research and master the technology skills they need, but also give teachers the opportunity to enhance their lessons.
3) ***Active learning***: Students are actively engaged in their learning. Students participate in more active learning by working in groups or on computers and complete projects and other interesting activities that help them discover new skills. So, they can retain the knowledge they have accumulated.
4) ***Adaptive learning***: a normal classroom will always have students with different types of learning abilities. The modern approach of adaptive learning gives students the freedom to learn at their own pace and in the way they are most comfortable with.
5) ***Invitational environment***: The classrooms should not be overloaded. Modern classrooms should have the basic material required for teaching such as, interactive whiteboards and LCD projectors. Teaching with technological material is more effective, stimulates student engagement, eases the work of teachers and makes it easy for students to focus on learning.
6) ***Students understand and follow the rules and procedures***: The learning environment is carefully planned and well-organized. Class rules, procedures, and notices of upcoming activities are posted in convenient places to help students stay on track.
7) ***Mutual respect***: Teachers and students should always have respect for each other. As now the role of teachers is no longer to be the sage on the stage, students should not forget their value as they will always receive guidance from them. Also, teachers should encourage students to speak with confidence and value their opinions.
8) ***Students take responsibility of their learning***: As students are encouraged to actively participate in their own learning, they become responsible for their learning. Self-directed students not only encourage each other, but also work with their teacher to achieve academic and behavioral goals that they themselves have helped establish.
9) ***Performance-based assessments***: Regular performance-based assessments are carried out by teachers through various methods which are not restricted to tests. Assessments are tailored to the abilities and needs of the students.
10) ***Collaborative learning***: Learning through collaboration is one of the most effective forms of learning. Teaching and learning in isolation are very restrictive and hinder progress. Learning in groups enhances the scope of learning and develops critical thinking. Collaborative learning activities include collaborative writing, group projects, joint problem solving, debates and more. Collaborative learning redefines traditional student-teacher relationship in the classroom.

As a result, technology plays an important role in developing all of these characteristics for modern classrooms. These classrooms enhance the learning experiences and better prepare students for higher education and workforce. The followings are some conditions that capable of bringing about learning process that lead to a high-competence learning environment.

1) Inspiring, active, collaborative, reflective, and synthesizes,

2) Challenging, ethical values, interesting, comfort, internally motivated, self confidence,
3) Both teacher and learner should believe that academic achievement and intelligent are not enough for successful life. Creativity, empathy, respect, and wisdom are needed,
4) Teacher as a role model, not only delivering educational contents,
5) Learner should learn polite-criticizing skills (including auto critics) and integrating politeness in daily-life,
6) Learner should be deeply involved in the group discussion, project-based learning, problem solving, and creating new ideas in the group setting,
7) Learner should be encouraged to apply knowledge, skills, and attitude that he gets from his learning process to daily life conditions during the learning process.

Good news from the adaptation of instructional design. As previously explain, with the advent of CT in learning, it seemed natural to use ICT for the creation of learning programs. The terms CAI (Computer Aided Instruction) and CBT (Computer- Based Training) put the focus on instruction instead of learning. In this paradigm, the computer program may be the teacher or a teacher aid, displaying information, asking questions and presenting more information depending on the learner's answers to previous question. Respecting the learners' pace and adapting to its answers was advocated in support for this approach. But eventually, as indicate above, ICT in education has evolved towards a more learner-oriented focus.

Instructional design, in particular to distance education, is thus taking part in systematizing the utilize of ICT in education. It may have meaning of a systematic and scientific procedure to improve or create the quality of instruction. The use of instructional design has been in various fields of instructional technology (as its' origin), in the field of distance education, and in the field of educational research. Instructional design, also called Instructional Systems Design, is the practice of creating instructional experiences which make the acquisition of knowledge and skill more efficient, effective, and appealing (Dick, W., Carey, L., & Carey, J. O., 2009). Further they suggested that the process consisted broadly of determining the current state and needs of the learner, defining the end goal of instruction, and creating some "intervention" to assist in the transition.

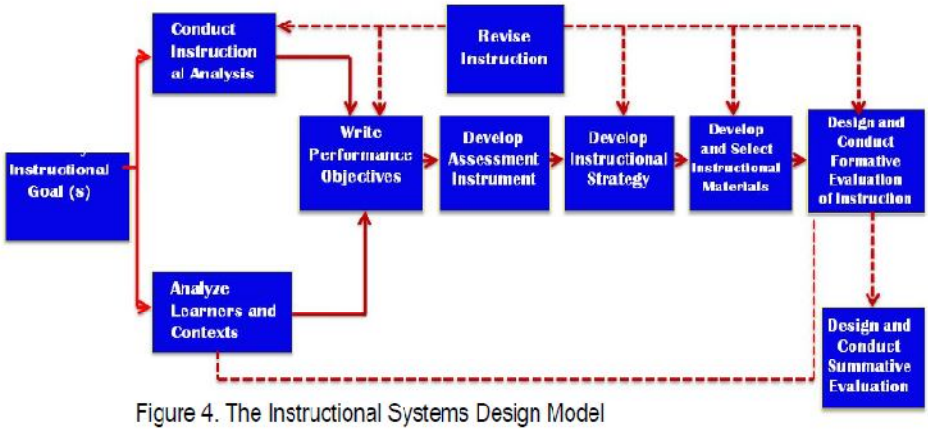

Figure 4. The Instructional Systems Design Model

Instructional design should consider all aspects of the instructional environment, following a well-organized procedure that provides guidance to even the novice distance materials developers and instructors/tutors. As illustrated in Figure 4, the instructional environment should be viewed as a system, a relationship among and between all the components of that system—the material developers, the learners, the materials, and the technology. Especially when planning for distance education, the material developers must make decisions that will affect all aspects of the system. Applying theory and the model in the context of teaching at a distance requires planning and organizing. However, teaching at a distance, whether synchronous or asynchronous, requires that greater emphasis necessarily be placed on the initial planning phase (Simonson, at.al., 2012). Figure 5 illustrates

adapted the same model from Dick, W., Carey, L., & Carey, J. O. (2009) as a system approach model of educational research and development.

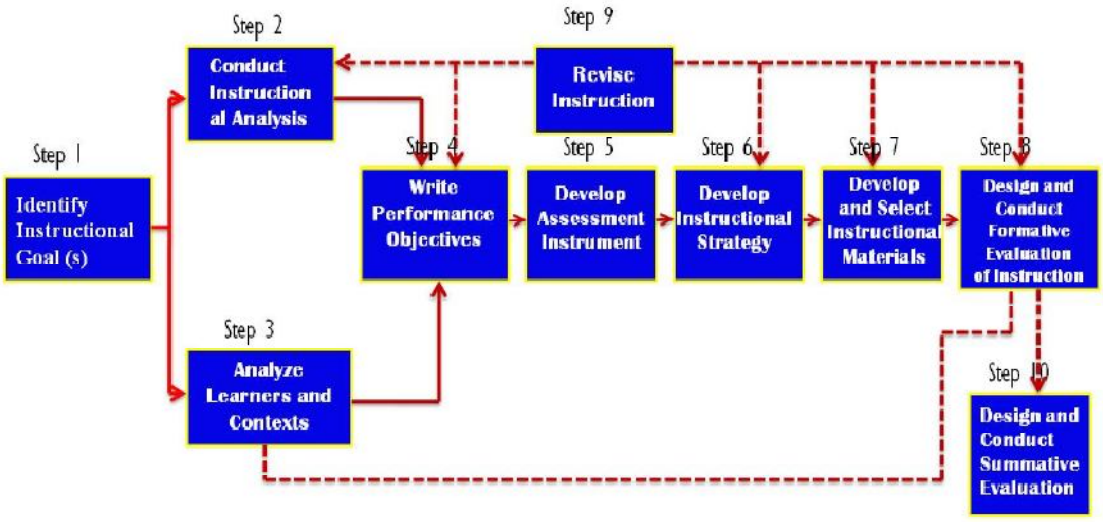

Figure 5. Steps of system approach model of educational research and development

All the components of the model have to be considered as a system; including those of the material developers, the learners, the materials, and the technology as suggested previously. The model permits the instructional designer, multimedia developer, and tutor, to consider elements such as instructional goal and content, the nature of the learner, the process by which the learning will take place (methodology), and the means for assessing the learning experience. By following through the steps, the material developers, tutors and multimedia designers will find that teaching and learning is not only an exciting and dynamic experience but also a scientific method.

Teaching TIPs

There are tips when developing instruction design in distance learning contexts (some are adapted from Simonson, 2013).

1) There is no single good way to teach
2) A teacher should become an architect for his teaching practices through applying instructional design skills.
3) Teacher and learner need to own up feeling of enjoyment and likes the teaching and learning systems that have been created together.
4) Keep in mind that the focus of the instruction shifts to visual presentations, engaged learners, and careful timing of presentations of information.
5) Consider ways to illustrate key concepts, or topics, using tables, figures, and other visual representations.
6) Plan activities that encourage interactivity at all the sites. Students may be required to experience training in how to participate actively in these types of activities.
7) Plan activities that allow for student group work. This helps construct a supportive social environment.

As previously mentioned, ICTs constitutes a powerful tool for amplifying the teaching for underserved people —scattered and rural populations, groups traditionally excluded from education due to cultural or social reasons such as ethnic minorities, girls and women, persons with disabilities, and the elderly, as well as all others who for reasons of cost or because of time constraints are unable to enroll on campus. ICTs make possible for conditioning asynchronous learning, or learning characterized by a

time gap between the delivery of instruction and its reception by learners. Online course materials, for example, may be accessed 24 hours a day, 7 days a week. ICT-based educational delivery (e.g., educational programming broadcast over radio, television, or online learning media) also dispenses with the need for all learners and the tutor to be in one physical location.

ICT offers incredible promise for improving learning and teaching. Web 2.0 interactive media are easy to access and use, free, and designed to support collaborative knowledge creation and sharing (Dede, 2008 in Gray, et.al., 2011). Immersive interfaces are enabling the design of rich virtual experiences accessible by learners even in contexts isolated from the real-world, like classrooms. (Dede, 2009 in Gray, et.al., 2011). The emerging infrastructure of powerful mobile wireless devices is complementing the classic infrastructure of workstations, laptop, and wires (Bjerede, Atkins, & Dede, 2010 in Gray, et.al., 2011). Unfortunately, many of these so-called advanced learning technologies have not resulted in substantial and sustained improvements in learning (Spector in Moller, et.al., 2009).

Evaluation Systems for the 21st Century

Finally, this paper discusses evaluation system that suits the above explanation, especially to its implementation for the 21st Century. To pull out the history, in 1935, Ralph Tyler proposed an "enlarged concept of student evaluation," encompassing specific approaches in addition to tests and quizzes. He advocated teachers to sample learning by collecting products of their efforts throughout the year. This effort has evolved into what is today termed "authentic assessment," which includes a range of approaches including portfolio assessment, journals and logs, products, videotapes of performances, and projects.

Authentic assessment can be successfully used with students of varying cultural backgrounds, learning styles, and academic ability. Tasks used in authentic assessment are more interesting and reflective of students' daily lives. Ultimately, a more positive attitude toward school and learning may evolve. Authentic assessment promotes a more student-centered approach to teaching. Teachers assume a larger role in the assessment process than that of through traditional testing programs. This involvement is more likely to assure the evaluation process reflects course goals and objectives. Authentic assessment provides valuable information to the teacher on student progress as well as the success of instruction.

As a result, authentic evaluation has been considered be more appropriate to assess student learning process, achievement, and progress and development. Student progress is exposed to the impacts of instructional activities before, during, and afterwards (using portfolios). It has been applied on the principles of competency-based evaluation. This evaluation focuses on student ability to transform knowledge they learned into actual daily-life activities. Through this evaluation processes, learners involve themselves in collaborative-group actions to create innovative and productive works. This evaluation also measures student motivation to continuously improve their capacities.

Conclusion

Educational reform is necessary to get through to knowledge-based society and to create competitive & prosperous society. Educational reforms should be focused on educational contents, and teaching and learning systems. Instructional design, as scientific concepts, principles, and procedures to create the newer and more appropriate teaching and learning for 21st Century, should be used consistently. It has to involve teachers, students, and society in creating innovative curriculum, and teaching and learning systems. Technology, on the other hand, is an integral and important part of instructional strategy in instructional design concepts, principles, and procedures.

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I. Education, Knowledge-Based Society, and Competitive & Prosperous Society

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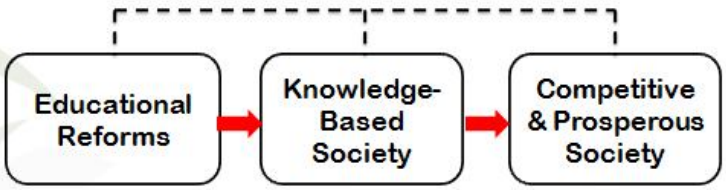
1. Towards a Prosperous Society

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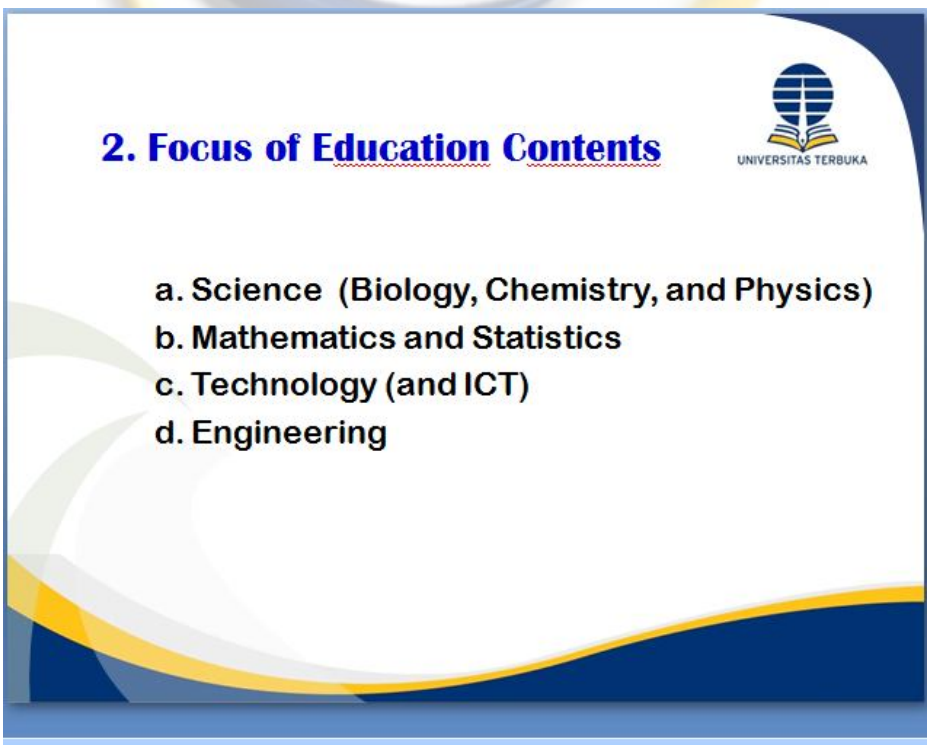
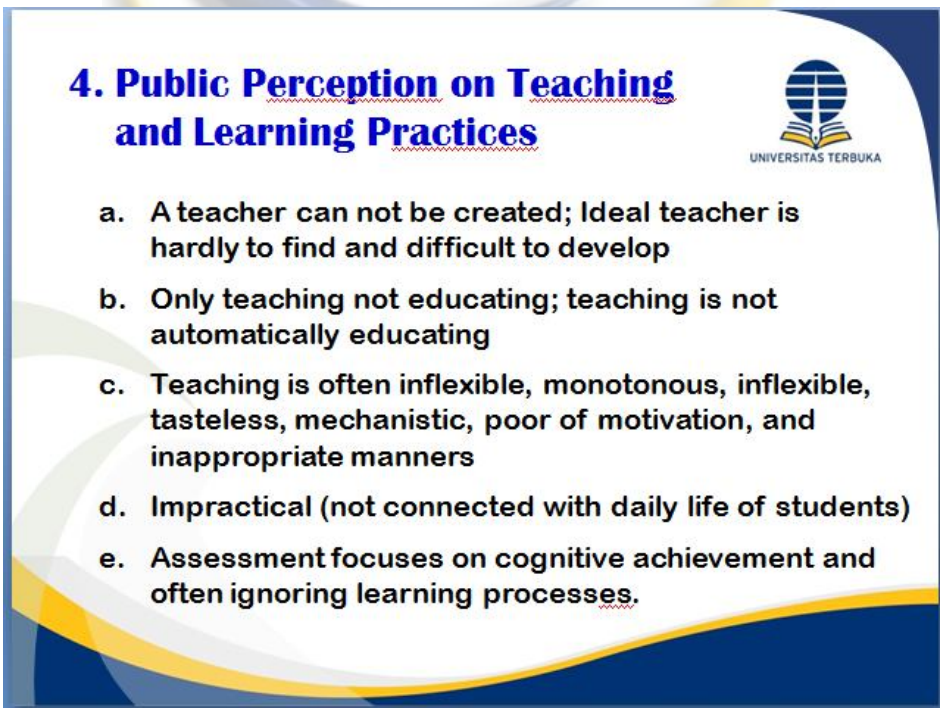
CRITICAL QUESTIONS
What Kinds of Educational Reforms?


2. Focus of Education Contents
UNIVERSITAS TERBUKA
a. Science (Biology, Chemistry, and Physics)
b. Mathematics and Statistics
c. Technology (and ICT)
d. Engineering


3. Other Fields Focuses
UNIVERSITAS TERBUKA
a. Humanities (Theology, Philosophy, Law, History, Linguistics/Literature, Culture, Arts, Psychology, Education)
b. Social, Political Science, Economics
c. National Philosophy (for Indonesia is Pancasila)


4. Public Perception on Teaching and Learning Practices
UNIVERSITAS TERBUKA
a. A teacher can not be created; Ideal teacher is hardly to find and difficult to develop
b. Only teaching not educating; teaching is not automatically educating
c. Teaching is often inflexible, monotonous, inflexible, tasteless, mechanistic, poor of motivation, and inappropriate manners
d. Impractical (not connected with daily life of students)
e. Assessment focuses on cognitive achievement and often ignoring learning processes.


5. Possible Causes
UNIVERSITAS TERBUKA
a. Lack of innovative teaching skills (teacher)
b. Inadequate teaching facilities (Government & Foundation)
✓ Classroom conditions
✓ Equipment


Cont....
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c. Educational policies (central government and foundation)
✓ Curriculum is too complicated/meticulous, too detailed recipe and restricted (causing lack of initiative, lack of creativity, and mechanistic teaching)
✓ Superficial supervision
✓ Equal incentives/salary for every teacher (not productive performance-based incentive), causing lack of external motivation.

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II. What the textbooks say and the people expect ?

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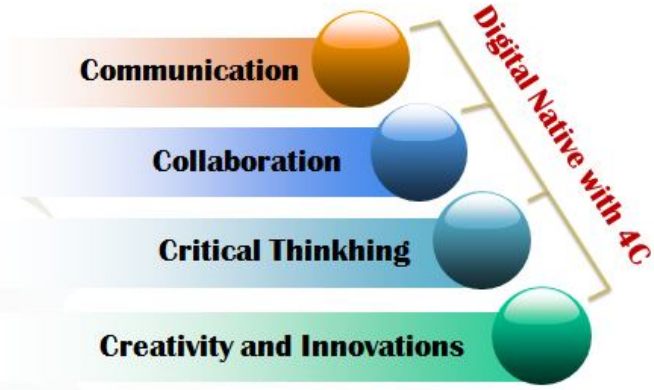
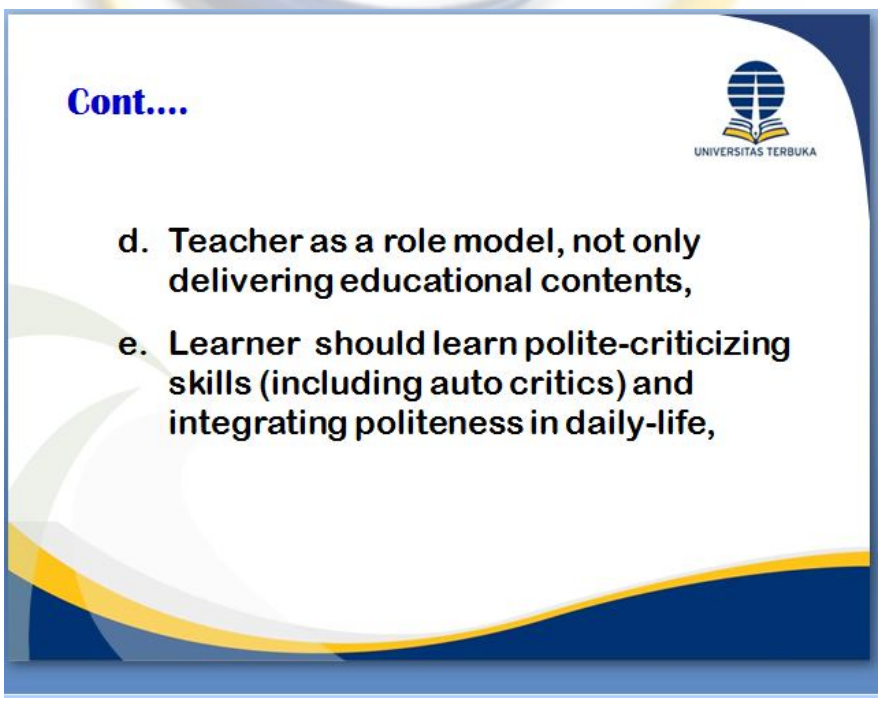
1. Learning Characteristics for The 21st Century



Trilling, B. & Fadel, C. (2008). *21st Century Skills: Learning for Life in Our Times.* San Francisco: Jossey-Bass.


2. Learning Process Towards High-Competence Learners
UNIVERSITAS TERBUKA
a. Inspiring, active, collaborative, reflective, and *synthesizes*,
b. Challenging, ethical values, interesting, comfort, internally motivated, self confidence,
c. Both teacher and learner should believe that academic achievement and intelligent are not enough for successful life. Creativity, empathy, respect, and wisdom are needed,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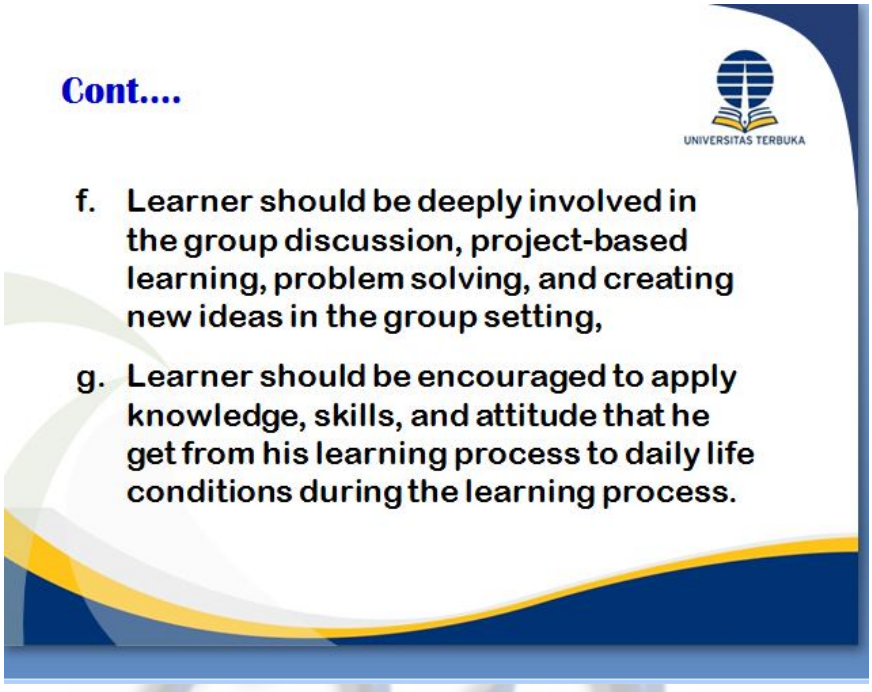
d. Teacher as a role model, not only delivering educational contents,
e. Learner should learn polite-criticizing skills (including auto critics) and integrating politeness in daily-life,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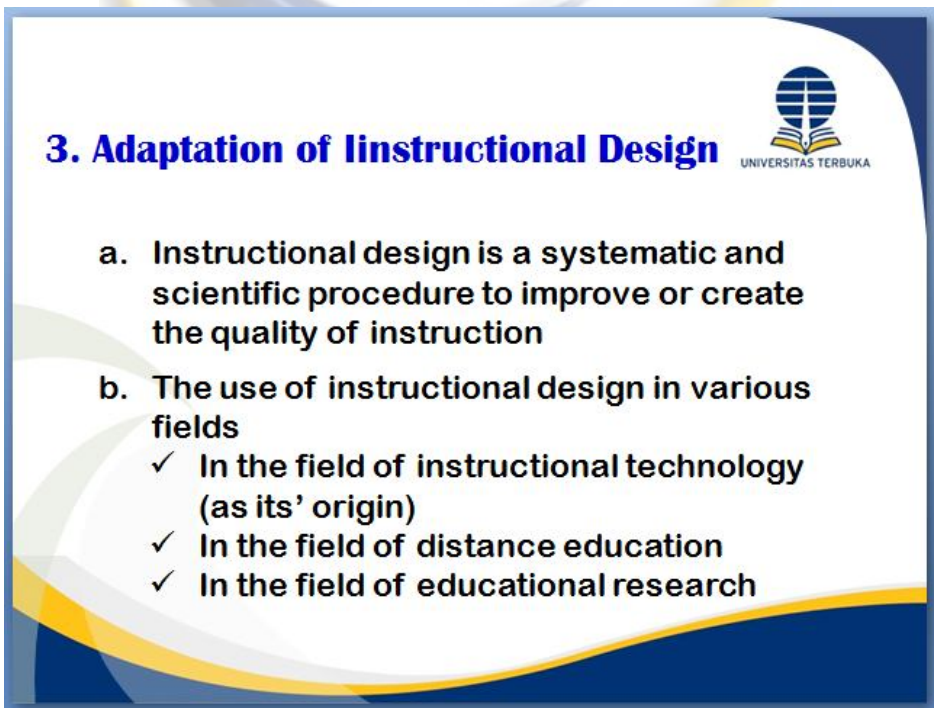
f. Learner should be deeply involved in the group discussion, project-based learning, problem solving, and creating new ideas in the group setting,
g. Learner should be encouraged to apply knowledge, skills, and attitude that he get from his learning process to daily life conditions during the learning process.


3. Adaptation of Iinstructional Design
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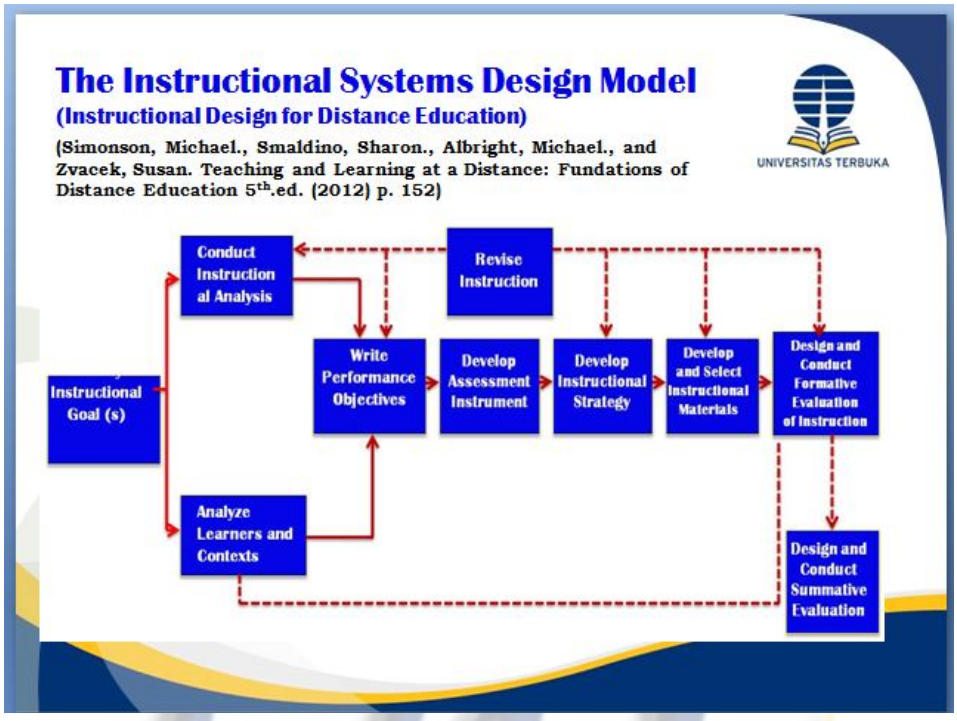
a. Instructional design is a systematic and scientific procedure to improve or create the quality of instruction
b. The use of instructional design in various fields
✓ In the field of instructional technology (as its' origin)
✓ In the field of distance education
✓ In the field of educational research


The Instructional Systems Design Model
(Instructional Design for Distance Education)
(Simonson, Michael., Smaldino, Sharon., Albright, Michael., and Zvacek, Susan. Teaching and Learning at a Distance: Fundations of Distance Education 5th.ed. (2012) p. 152)
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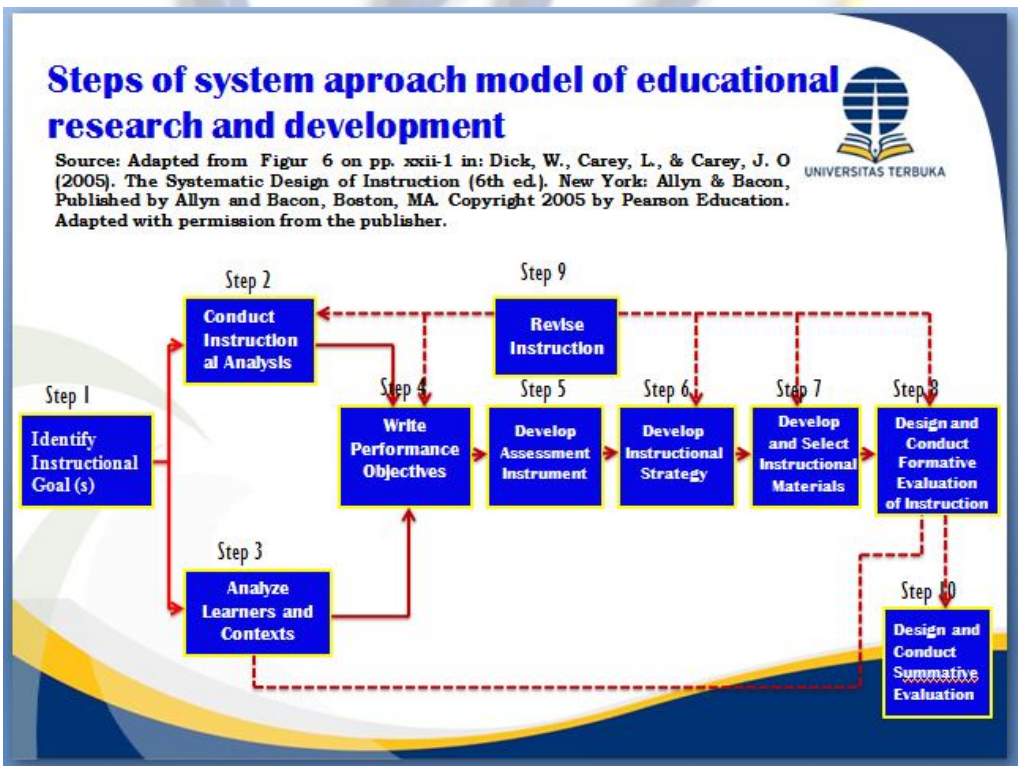
Instructional Goal (s)
Conduct Instructional Analysis
Analyze Learners and Contexts
Write Performance Objectives
Develop Assessment Instrument
Develop Instructional Strategy
Develop and Select Instructional Materials
Design and Conduct Formative Evaluation of Instruction
Revise Instruction
Design and Conduct Summative Evaluation


Steps of system aproach model of educational research and development
Source: Adapted from Figur 6 on pp. xxii-1 in: Dick, W., Carey, L., & Carey, J. O (2005). The Systematic Design of Instruction (6th ed.). New York: Allyn & Bacon, Published by Allyn and Bacon, Boston, MA. Copyright 2005 by Pearson Education. Adapted with permission from the publisher.
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Step 1
Identify Instructional Goal (s)
Step 2
Conduct Instructional Analysis
Step 3
Analyze Learners and Contexts
Step 4
Write Performance Objectives
Step 5
Develop Assessment Instrument
Step 6
Develop Instructional Strategy
Step 7
Develop and Select Instructional Materials
Step 8
Design and Conduct Formative Evaluation of Instruction
Step 9
Revise Instruction
Step 10
Design and Conduct Summative Evaluation


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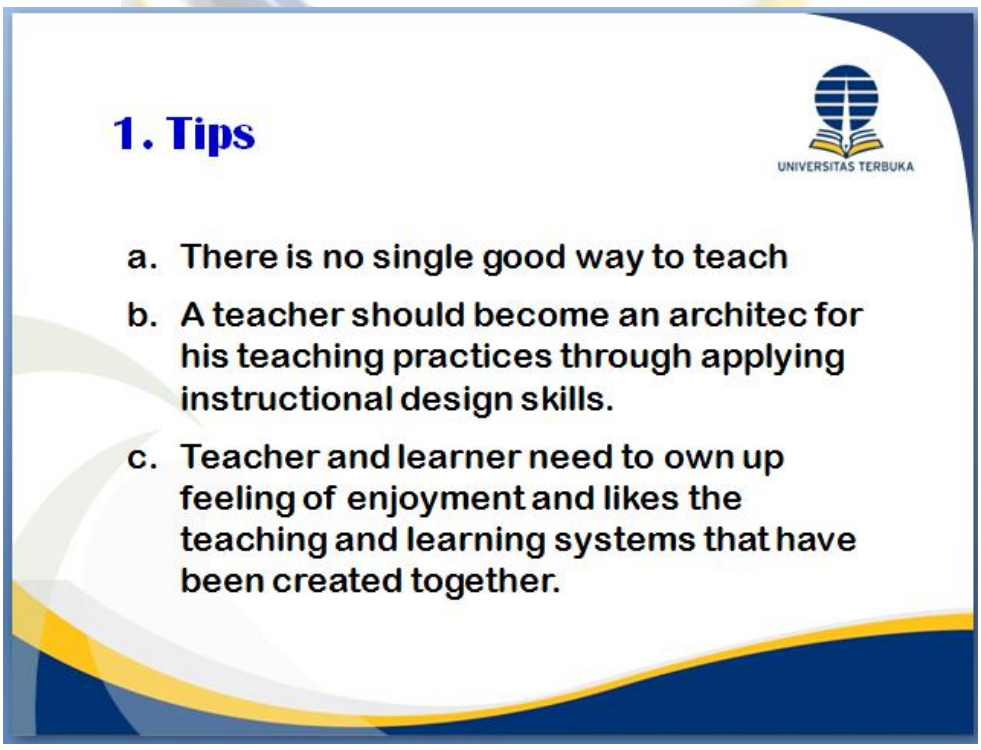
III. Teaching Tips


1. Tips
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a. There is no single good way to teach
b. A teacher should become an architec for his teaching practices through applying instructional design skills.
c. Teacher and learner need to own up feeling of enjoyment and likes the teaching and learning systems that have been created together.


2. ICT offers incredible promise for improving learning and teaching
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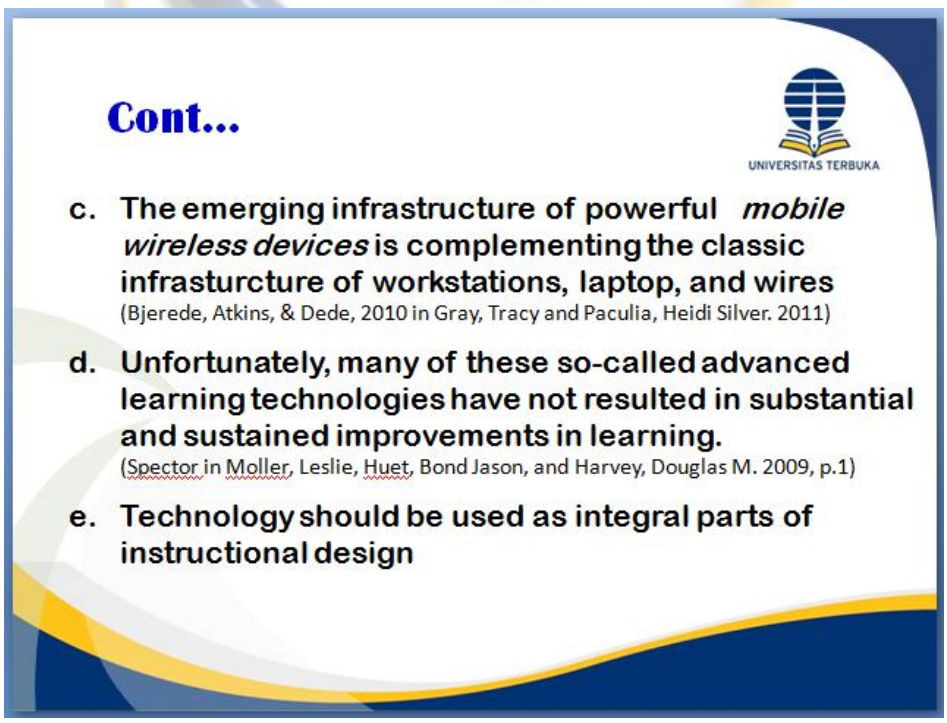
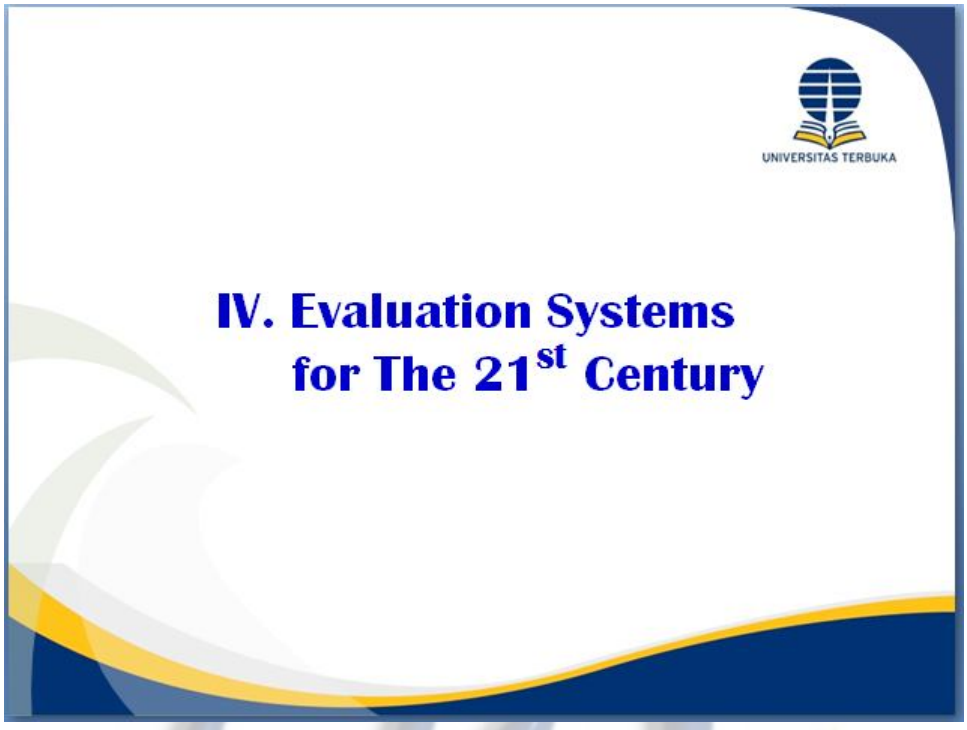
a. Web 2.0 interactive media are easy to access and use, free, and designed to support collaborative knowledge creation and sharing
(Dede, 2008 in Gray, Tracy and Paculia, Heidi Silver. 2011)
b. Immersive interfaces are enabling the design of rich virtual experiences accessible by learners even in contexts isolated from the real-world, like classrooms.
(Dede, 2009 in Gray, Tracy and Paculia, Heidi Silver. 2011)


Cont...
UNIVERSITAS TERBUKA
c. The emerging infrastructure of powerful *mobile wireless devices* is complementing the classic infrasturcture of workstations, laptop, and wires
(Bjerede, Atkins, & Dede, 2010 in Gray, Tracy and Paculia, Heidi Silver. 2011)
d. Unfortunately, many of these so-called advanced learning technologies have not resulted in substantial and sustained improvements in learning.
(Spector in Moller, Leslie, Huet, Bond Jason, and Harvey, Douglas M. 2009, p.1)
e. Technology should be used as integral parts of instructional design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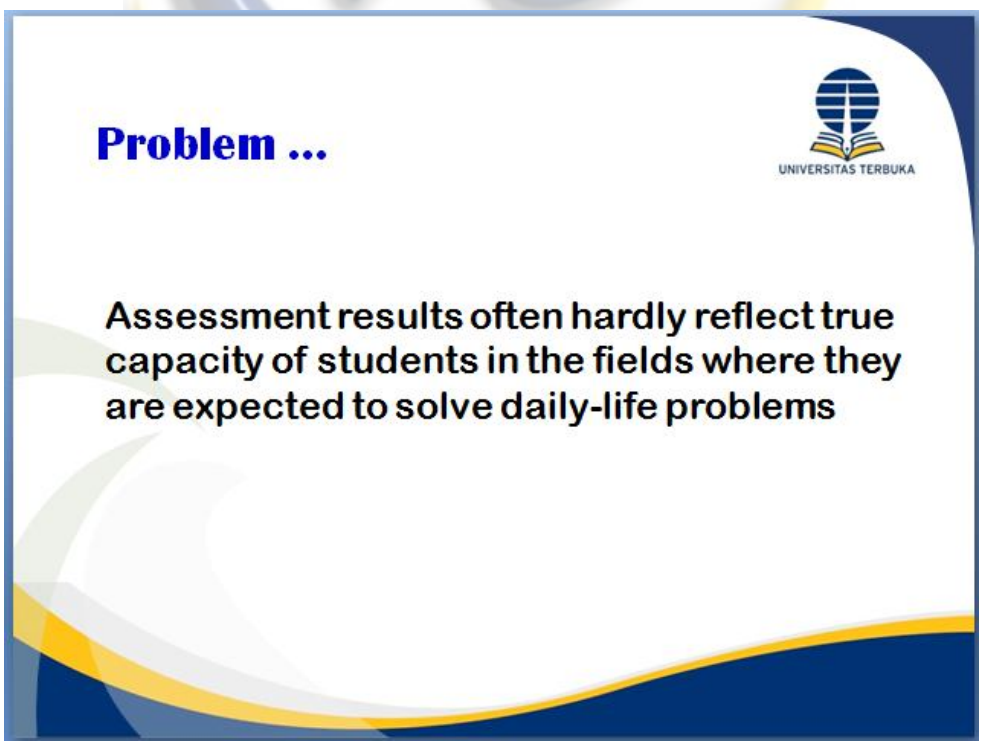
IV. Evaluation Systems
for The 21st Century


Problem ...
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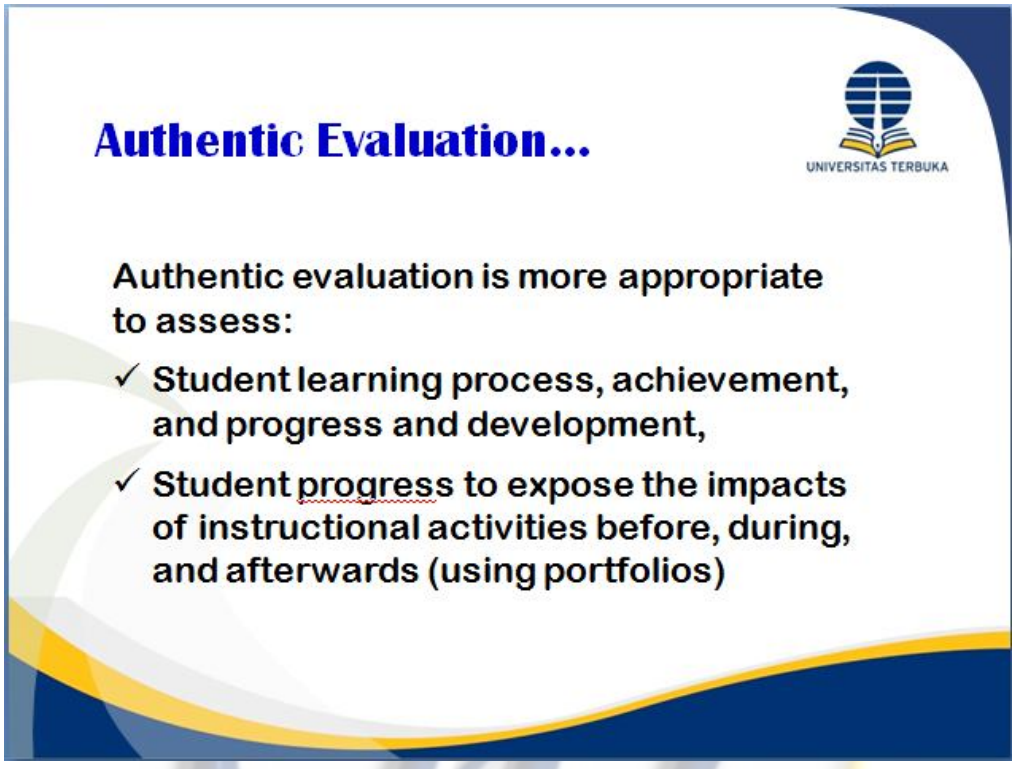
Assessment results often hardly reflect true capacity of students in the fields where they are expected to solve daily-life problems


Authentic Evaluation...
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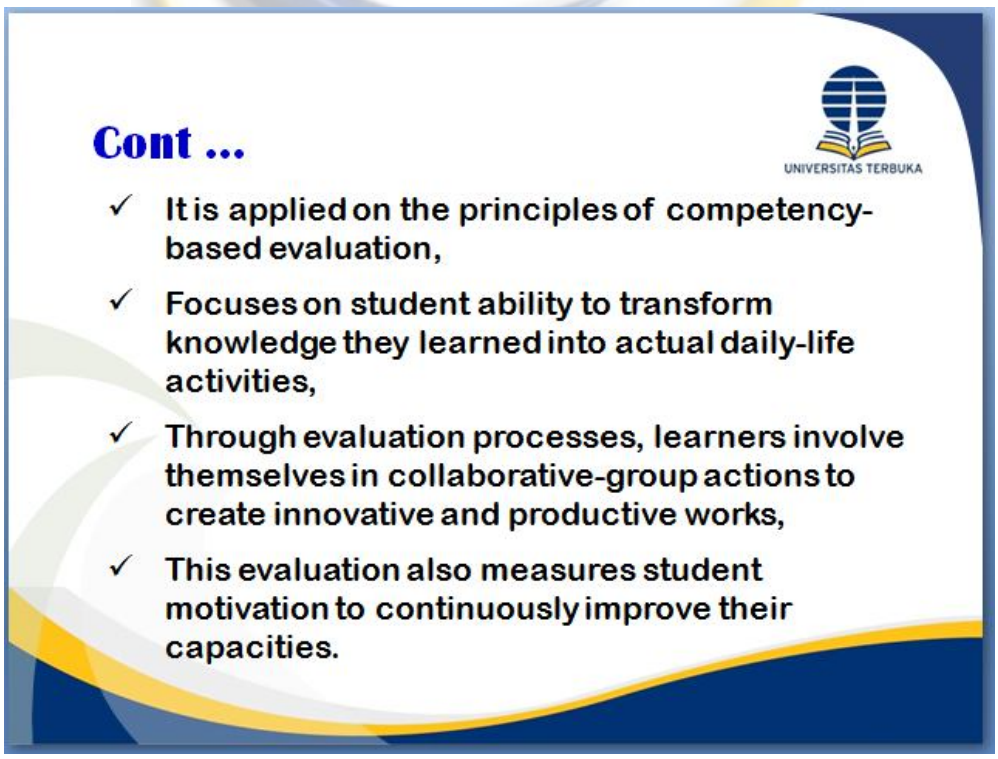
Authentic evaluation is more appropriate to assess:
✓ Student learning process, achievement, and progress and development,
✓ Student progress to expose the impacts of instructional activities before, during, and afterwards (using portfolios)


Cont ...
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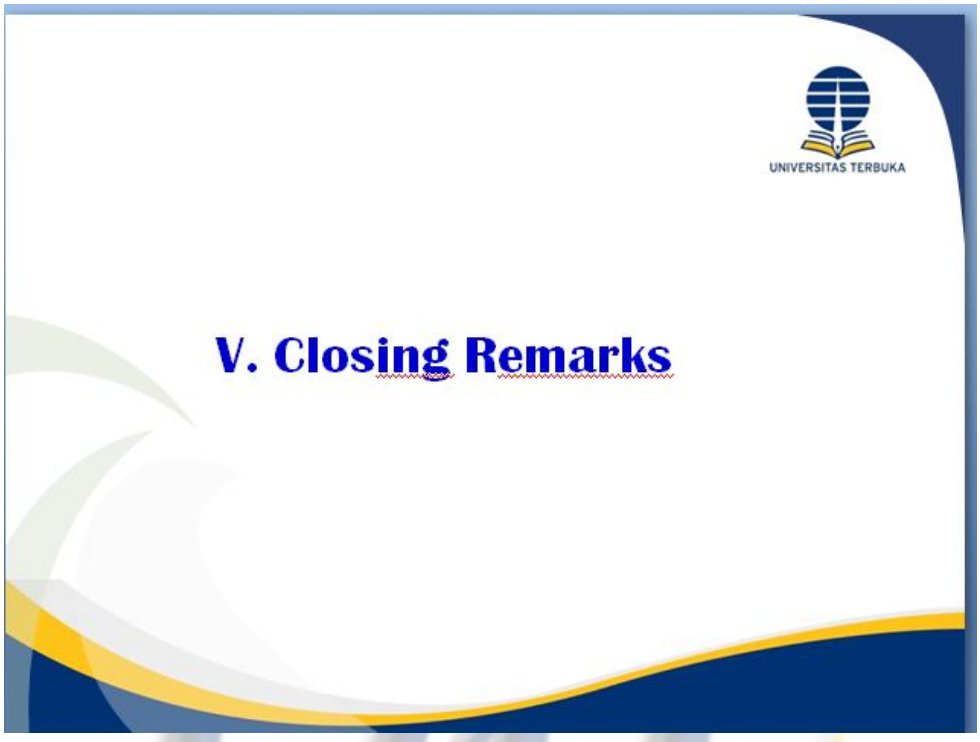
✓ It is applied on the principles of competency-based evaluation,
✓ Focuses on student ability to transform knowledge they learned into actual daily-life activities,
✓ Through evaluation processes, learners involve themselves in collaborative-group actions to create innovative and productive works,
✓ This evaluation also measures student motivation to continuously improve their capacities.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V. Closing Remarks


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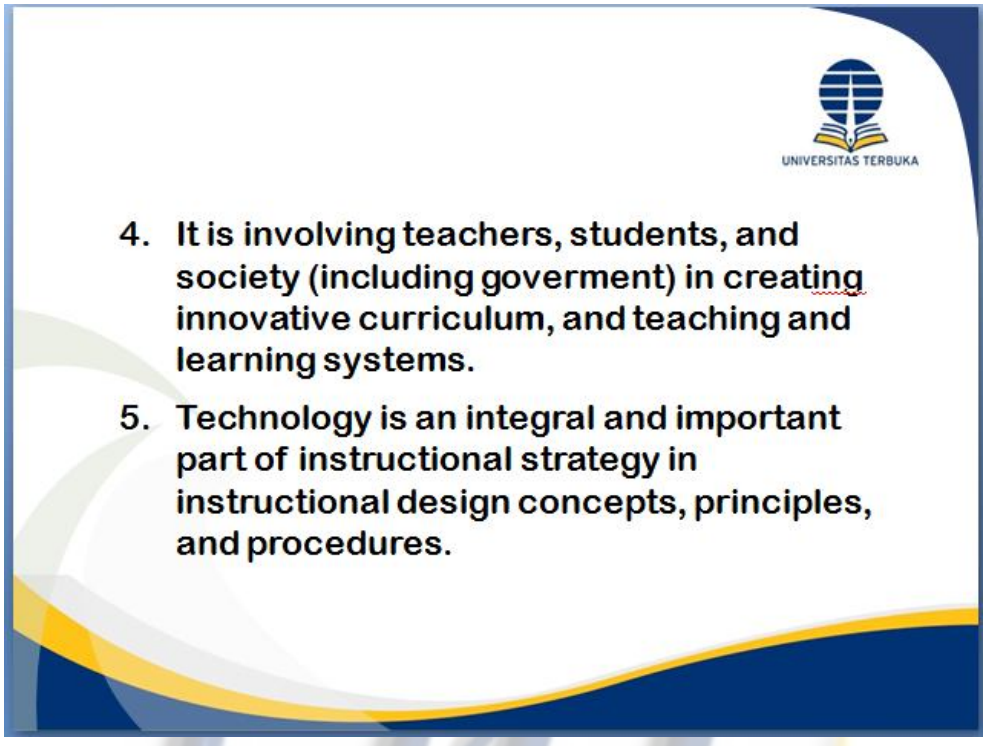
1. Educational reforms is needed towards knowledge-based society and to create competitive & prosperous society.
2. Educational reforms should be focused on educational contents, and teaching and learning systems,
3. Instructional design as scientific concepts, principles, and procedures to create the newer and more appropriate teaching and learning for 21st century should be used consistently.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4. It is involving teachers, students, and society (including goverment) in creating innovative curriculum, and teaching and learning systems.
5. Technology is an integral and important part of instructional strategy in instructional design concepts, principles, and procedures.


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I hope you enjoy this seminar
Thank you...


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