Teaching the K12 Standards with ICT for Global Competitiveness

Dr. Mike Rapatan
DLSU-Manila
The 21st Century Workplace
The Seven Cs – 21st Century Lifelong Skills

<table>
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# The 21st Century Workplace

## The Seven Cs – 21st Century Lifelong Skills

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The 21st Century Workplace
20th century
21st century
The 21st Century Workplace

K12 CURRICULUM PROGRAM
How do we integrate technology in teaching and learning in a way that enables our students to develop 21st century skills and become globally competitive?
Begin with the end in mind.

Stephen Covey
Author
The Seven Habits of Highly Effective People
...Filipino graduates to be locally and globally competitive.

Section 10.1, IRR of K12 Law, 2013
Excellence anywhere, anytime.
21st CENTURY SKILLS

COMMUNICATION

CRITICAL THINKING

CROSS-CULTURAL UNDERSTANDING

CAREER AND LEARNING SELF-BALANCE

COMPUTING / ICT LITERACY

CREATIVITY

GLOBAL COMPETITIVENESS

Excellence anywhere, anytime.
21st CENTURY SKILLS

Connect all skills; do not isolate.

GLOBAL COMPETITIVENESS
AIM TO TRANSFORM, NOT JUST INFORM.
What topics will I discuss today?
What challenge will my students tackle today?

What topics will I discuss today?
What will my students recite?
TRANSFORMATION

PASSIVE RECEIVERS
OF INFORMATION

What will my students recite?

ACTIVE PRODUCERS
OF KNOWLEDGE
WITH ICT TOOLS

What will my students make?
TRANSFORMATION

CEMETERY EFFECT OF ROWS IN CLASSROOM

How will my students sit?
TRANSFORMATION

CEMETERY EFFECT OF ROWS IN CLASSROOM
How will my students sit?

FLEXIBLE LEARNING SPACES FOR GROUP WORK
How will my students interact?

STATION ROTATION
ASSESSING FOR RECALL

How much content can my students correctly recall?
How much content can my students correctly recall?

How will students transfer their learning to daily life?
TRANSFORMATION
TRANSFORMATION

DIGITAL SOCIETY
TRANSFORMATION

“INTERNET OF EVERYTHING”
ICT Integration in Teaching and Learning

- TEACHER ACTIVITIES
  - Access
  - Process, Organize, Store
  - Create, Produce Output
  - Send, Communicate
  - Collaborate

- STUDENT ACTIVITIES

Information and Communications Technology

Transformative Learning Environment

DEPARTMENT OF EDUCATION

DepEd Order No. 42, s2016
TRANSFORMATION

Marketing
TRANSFORMATION

What real world challenge will my students tackle today?

Marketing
TRANSFORMATION

What real world challenge will my students tackle today?

Marketing

What concepts will students need to know and understand to solve the challenge?
TRANSFORMATION

What real world challenge will my students tackle today?

Marketing

What concepts will students need to know and understand to solve the challenge?

What tools will students use to find and produce the solution to the challenge?
TRANSFORMATIVE LEARNING WITH ICT

What real world challenge will my students tackle today?

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TRANSFORMATIVE LEARNING WITH ICT

PERFORMANCE STANDARD

What real world challenge will my students tackle today?

CONTENT STANDARD

What concepts will students need to know and understand to solve the challenge?

What tools will students use to find and produce the solution to the challenge?
DESIGN WITH STANDARDS and CONTEXTUALIZE
K12 CURRICULUM STANDARDS

CONTENT STANDARD

WHAT?

PERFORMANCE STANDARD

HOW THEY WILL USE?
K12 CURRICULUM STANDARDS

BEGIN

PERFORMANCE
STANDARD

NEXT

CONTENT
STANDARD

HOW THEY WILL USE?

WHAT?
"The world doesn’t care what you know. What the world cares about is what you do with what you know."

Tony Wagner
Harvard University Innovation Lab
UNPACK K12 CURRICULUM STANDARDS

BEGIN

PERFORMANCE
STANDARD

NEXT

CONTENT
STANDARD

K to 12
STANDARDS
“As teachers unpack the component knowledge and skill required by a standard statement, they better understand the learning expectations and can more clearly articulate those expectations to students and parents.”

-Konrad et al., 2014

UNPACK K12 CURRICULUM STANDARDS

BEGIN

PERFORMANCE

STANDARD

UNDERSTAND?

KNOW?

DO?

NEXT

CONTENT

STANDARD

UNPACK

K to 12

STANDARDS
KUDs in Philippine K12 Standards-based Curriculum
UNPACK K12 CURRICULUM STANDARDS

BEGIN

DO?

PERFORMANCE STANDARD

NEXT

CONTENT STANDARD
UNPACK K12 CURRICULUM STANDARDS

BEGIN

PERFORMANCE STANDARD

DO?

NEXT

CONTENT STANDARD

KNOW?

UNDERSTAND?
The learners should be able to conduct a collaborative action to preserve the ecosystem in the locality.
The learners should be able to conduct a collaborative action to preserve the ecosystem in the locality.

The learners demonstrate an understanding of organisms interacting with each other and with their environment to survive.
Select the ICT tool that serves the standards.
### The SAMR Model

**enhancing technology integration**

Ruben R. Puente, Ph.D.

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http://www.hippasus.com/rrpweblog/
# The SAMR Model

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**Examples added by the Digital Learning Team**
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enhancing technology integration

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Ruben R Puentedura, Ph.D.
Parts of the Food Chain (Producers/Consumers...)

Producers

Plants are called producers. This is because they produce their own food! They do this by using light energy from the Sun, carbon dioxide from the air and water from the soil to produce food - in the form of glucose/sugar. The process is called photosynthesis. Click on the image below to learn about photosynthesis.

Consumers

Animals are called consumers. This is because they consume (eat) plants and/or animals.

There are 3 groups of consumers. (Click for more information)

- Herbivores
- Carnivores
- Omnivores

QUESTIONS TO ANSWER:

• What roles do animals play in a food chain?

• How many roles are there? Why are they different?

• Compare and contrast the two food chains. Discuss similarities and differences.
Technology for Transmitting Content
Technology was never invented as an extension of the chalkboard or textbook.
The SAMR Model
enhancing technology integration

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http://www.hippasus.com/rrpweblog/
Every living organism on Earth needs energy in order to live.

Real World Science: Food Chains (Accessible Preview)

https://www.youtube.com/watch?v=x55QCGvl16Y
AUGMENTATION
Motion demonstrates process; Presents topic in real world

Real World Science: Food Chains (Accessible Preview)
https://www.youtube.com/watch?v=x55QCGvl16Y
Every living organism on Earth needs energy in order to live.

Real World Science: Food Chains (Accessible Preview)
Every living organism on Earth needs energy in order to live.

Real World Science: Food Chains (Accessible Preview)

PROCESSING INFORMATION WITH PLAYBACK

WORKSHEET
PROVIDING INSTANT FEEDBACK IN INTERACTIVE ASSESSMENTS

ZIPGRADE
VIDEO ASSESSMENT WITH EDPUZZLE

edpuzzle.com

The Forgotten War Heroine - Milunka Savic I WHO DID WHAT IN WW1?

Who did the Serbs drive out of their country in November and December, 1914?

- Austria-Hungary
- Germany
- France
- Ottoman Empire

Submit  Skip
The SAMR Model
enhancing technology integration

Ruben R. Puentedura, Ph.D.

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http://www.hippasus.com/rrpweblog/

UNDERSTAND
the food chain game

Instructions: Drag the parts of the food chain to their correct place.
(If you drag something incorrectly, it won't stay there).

Visit the food chain pages to get ready or if you need help!

When the chain is complete, it will come to life and you can watch the food chain in action!

Play the game!

http://www.sheppardsoftware.com/content/animals/kidscorner/games/foodchaingame.htm
Instructions: Drag the parts of the food chain to their correct place.
(If you drag something incorrectly, it won't stay there).

Visit the food chain pages to get ready or if you need help!

When the chain is complete, it will come to life and you can watch the food chain in action!

http://www.sheppardsoftware.com/content/animals/kidscorner/games/foodchaingame.htm
What do you notice about the sequences? Can you have more than one correct sequence? If only one correct sequence is possible, what does this tell us?
OFF-LINE INTERACTIVITY WITH FLASH FILES
OFF-LINE INTERACTIVITY WITH RASPBERRY PI

Content Providers

- Wikipedia
- Hesperian Health Guides
- cK-12
- Khan Academy
- Project Gutenberg
- MIT OCW
- and more

Wireless Router

Raspberry Pi

To wired PCs
The SAMR Model
enhancing technology integration

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http://www.hippasus.com/rrpweblog/
DO ACTIVITY: Select from the given options the important components for a panda habitat. You will know that your choices are good when two pandas come out to try your design.
Director
a successful exhibit

Behavioral Scientist
learning from research

Curator
panda preferences

Exhibit Developer
balancing visitors’ needs

Horticulturist
trees for climbing

Keeper
a diverse environment
think GLOBALLY, act LOCALLY
21st CENTURY SKILLS

PERFORMANCE TASK

HOW DO WE PROTECT THESE ENDANGERED SPECIES?
IF THE WORLD WILDLIFE FUND WERE TO RECRUIT YOU AS THEIR AMBASSADOR, HOW WOULD YOU ADVOCATE FOR THE PROTECTION OF ENDANGERED SPECIES?
IN GROUPS OF THREE, SELECT 3 ANIMALS AND REPORT ON THE FOLLOWING:
WHY ANIMAL IS ENDANGERED; HOW TO PROTECT THE ANIMAL
21st CENTURY SKILLS

MAKE A MULTIMEDIA CAMPAIGN IN A BLOG TO PROTECT YOUR ENDANGERED ANIMAL. INCLUDE IN YOUR CAMPAIGN IMPORTANT MEASURES IN VARIED FORMS.
MAKE A MULTIMEDIA CAMPAIGN IN A BLOG TO PROTECT YOUR ENDANGERED ANIMAL. INCLUDE IN YOUR CAMPAIGN IMPORTANT MEASURES IN VARIED FORMS.
REACH OUT TO AND NETWORK WITH ASEAN’S DIFFERENT GROUPS AND ORGANIZATIONS WITH A #ACCOUNT. HAVE THEM SHARE WITH YOU HOW YOUNG PEOPLE CAN GET INVOLVED WITH YOUR CAMPAIGN.
Reach out to and network with ASEAN’s different groups and organizations with a #ACCOUNT. Have them share with you how young people can get involved with your campaign.
AT THE END OF YOUR CAMPAIGN, SHOW IN A BLOG HOW YOUTH CAN HAVE A LIFELONG INVOLVEMENT WITH THE ADVOCACY OF PROTECTING ENDANGERED SPECIES.
COLLABORATE TO INTEGRATE

TEACHERS
COLLABORATE TO INTEGRATE

TEACHERS + TECH COORDINATORS
C O L L A B O R A T E  T O  I N T E G R A T E

TEACHERS  +  TECH  +  ADMINISTRATORS

RAPATAN2018
CITY SCHOOLS DIVISION OF BATAC, ILOCOS NORTE
CSD BATAC TECHNOLOGY INTEGRATION PLAN: NEEDS, GOAL AND OBJECTIVES

To establish an ICT-enabled school system in the City Schools Division of Batac such that teachers and students level up from knowledge consumers to knowledge creators.

- To have equitable access in using technology tools where active, collaborative, authentic and goal-oriented learning are best served.
- To be able to use technology tools within teaching and learning environments geared to the attainment of learner-oriented project-based learning.
- To uplift leadership among schools by improving the exploration of new horizons for new form of knowledge and creating an environment parallel to the requirement of a technologically-advanced learning environment.
- To provide computer units and infrastructure needed by schools in providing an ICT-enabled learning environment.
Offline Quiz

Class Discussion

Individual Simulation
GROUP PERFORMANCE TASK OUTPUT PRESENTATIONS USING WEB 2.0 TOOLS
CSD BATAČ STUDENTS’ INCREASES IN SUBJECT COMPETENCY LEVELS

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<tr>
<td>Beginning (B: 74% and Below)</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Developing (D: 75% -79%)</td>
<td>44.22%</td>
<td>49.15%</td>
<td>43.96%</td>
</tr>
<tr>
<td>Approaching Proficiency (AP: 80% -84%)</td>
<td>81.09%</td>
<td>83.37%</td>
<td>84.27%</td>
</tr>
<tr>
<td>Proficient (AP: 85% -89%)</td>
<td>61.38%</td>
<td>59.16%</td>
<td>72.00%</td>
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<tr>
<td>Advance (AP: 90% and above)</td>
<td>11.68%</td>
<td>20.19%</td>
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CSD BATAC TEACHER TRAINING

SCHEDULED WEEKEND TRAINING

LEARNING APPS

LAC SESSION
CSD BATAC
TEACHER-DESIGNED
INTERACTIVE LOCALIZED LEARNING MATERIALS

E-LEARNING PORTAL
CSD BATAK ENGAGEMENT WITH STAKEHOLDERS

Walk for a Cause
Every Last Saturday of the Month, 4:30 A.M.
Let us walk towards the 21st Century through ICT Integration.

Krismas Tree ng CSDB para sa ICT

Dinner for a Cause
CSD BATAC ENGAGEMENT WITH STAKEHOLDERS

School Alumni

Community Leaders

Kapihan with Local Media
“...the gadgets funded under MOOE and School-to-school partnerships were bought based on the immediate needs of the schools.”
Virtual Reality Cardboard Boxes

KIBO Robotics (Primary Level)
COMMUNITY COLLABORATION

Student Learning Need (s)

Teachers need to develop pedagogical techniques and strategies to facilitate learner-centered, project-based learning that integrate the use of technology tools.

School administrators must foster an ICT-enabled leadership that provides no limitation in the creation of a school that caters to holistic development on learning, innovating and creating technological knowledge among staff and students.

Schools need computer units, peripherals, and internet access in order to provide ICT integration in the curricula.

Faculty Development Need (s)

Leadership Need (s)

Resource Infrastructure Need (s)

ICT INTEGRATION

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To provide computer units and infrastructure needed by schools in providing an ICT-enabled learning environment.
CITY SCHOOLS
DIVISION OF BATAC

PROBLEM-SOLVING STUDENTS
CITY SCHOOLS
DIVISION OF BATAC

PROBLEM-SOLVING STUDENTS

ICT INTEGRATION

EMPOWERED TEACHERS
CITY SCHOOLS
DIVISION OF BATAC

PROBLEM-SOLVING
STUDENTS

EMPOWERED
TEACHERS

RESPONSIVE
LEADERS
CITY SCHOOLS
DIVISION OF BATAfüg

PROBLEM-SOLVING STUDENTS

EMPOWERED TEACHERS

RESPONSIVE LEADERS

FUNCTIONAL INFRASTRUCTURE
CITY SCHOOLS DIVISION OF BATAK

TRANSFORMATIVE ICT-ENABLED LEARNING ENVIRONMENT

PROBLEM-SOLVING STUDENTS

EMPOWERED TEACHERS

RESPONSIVE LEADERS

FUNCTIONAL INFRASTRUCTURE

ICT INTEGRATION

Wireless Router

Raspberry Pi

To wired PCs
GLOBALLY COMPETITIVE-READY LEARNERS
We must prepare our children not for the world of the past, not for our world but for their world, the world of the future.

John Dewey
Educator-Philosopher
GLOBALLY COMPETITIVE-READY LEARNERS

FROM BECWARD TO TECHWARD