Seminar: Innovation in Teaching and Learning: How to educate students in the changing world

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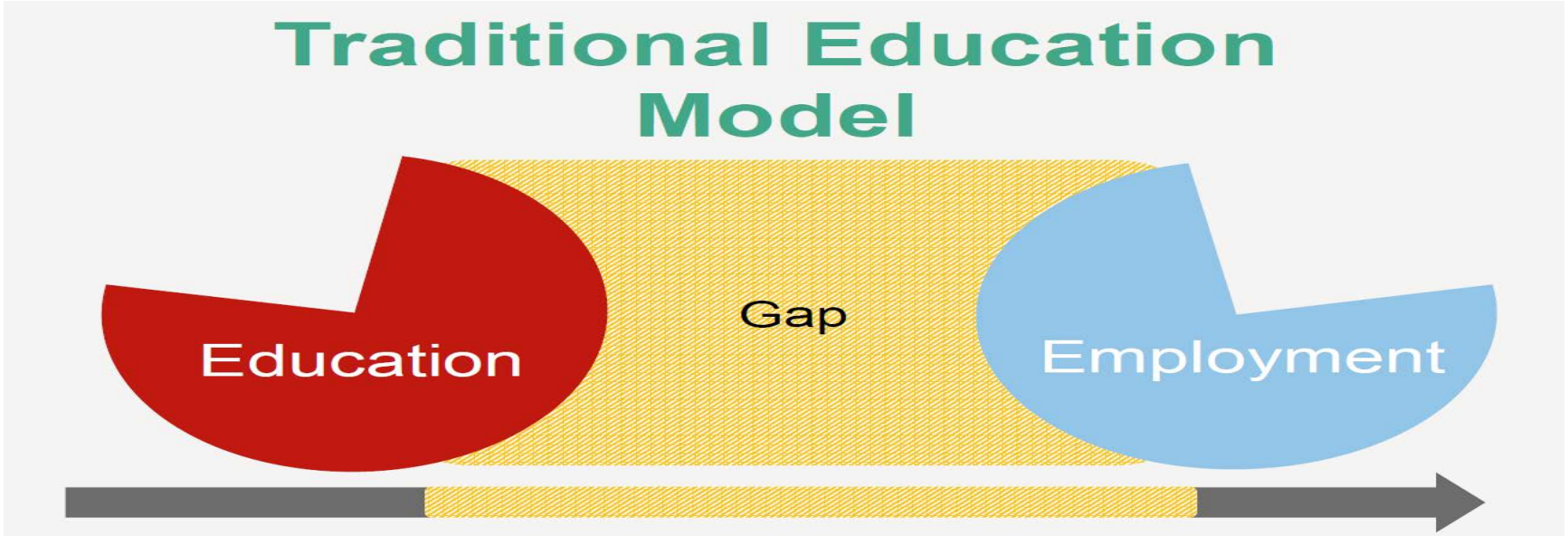
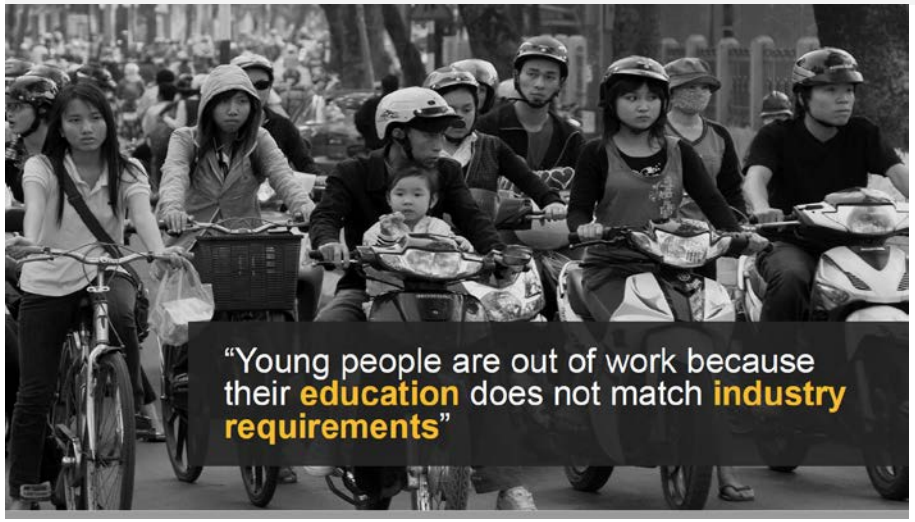
USAID COMET Program
Partnership with
Mahidol University

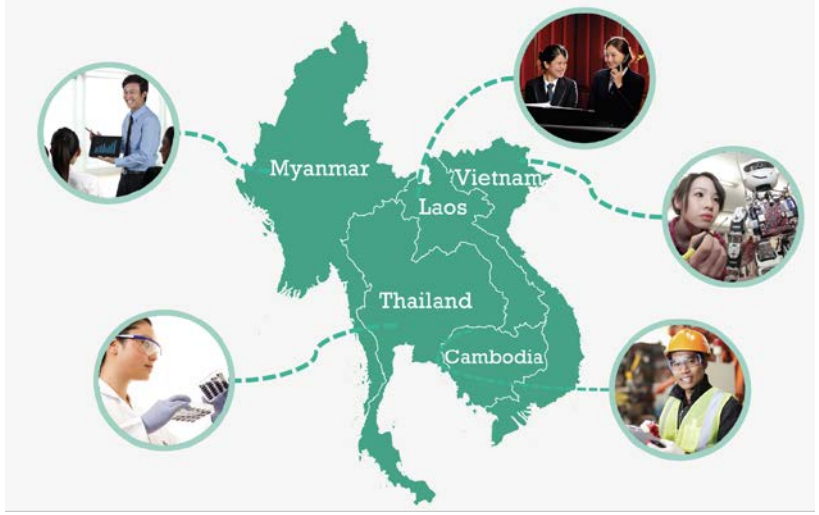
5 Sep 2016

Phattanard Phattanasri

Work Readiness and Technical Skill Gap from Traditional Education Model





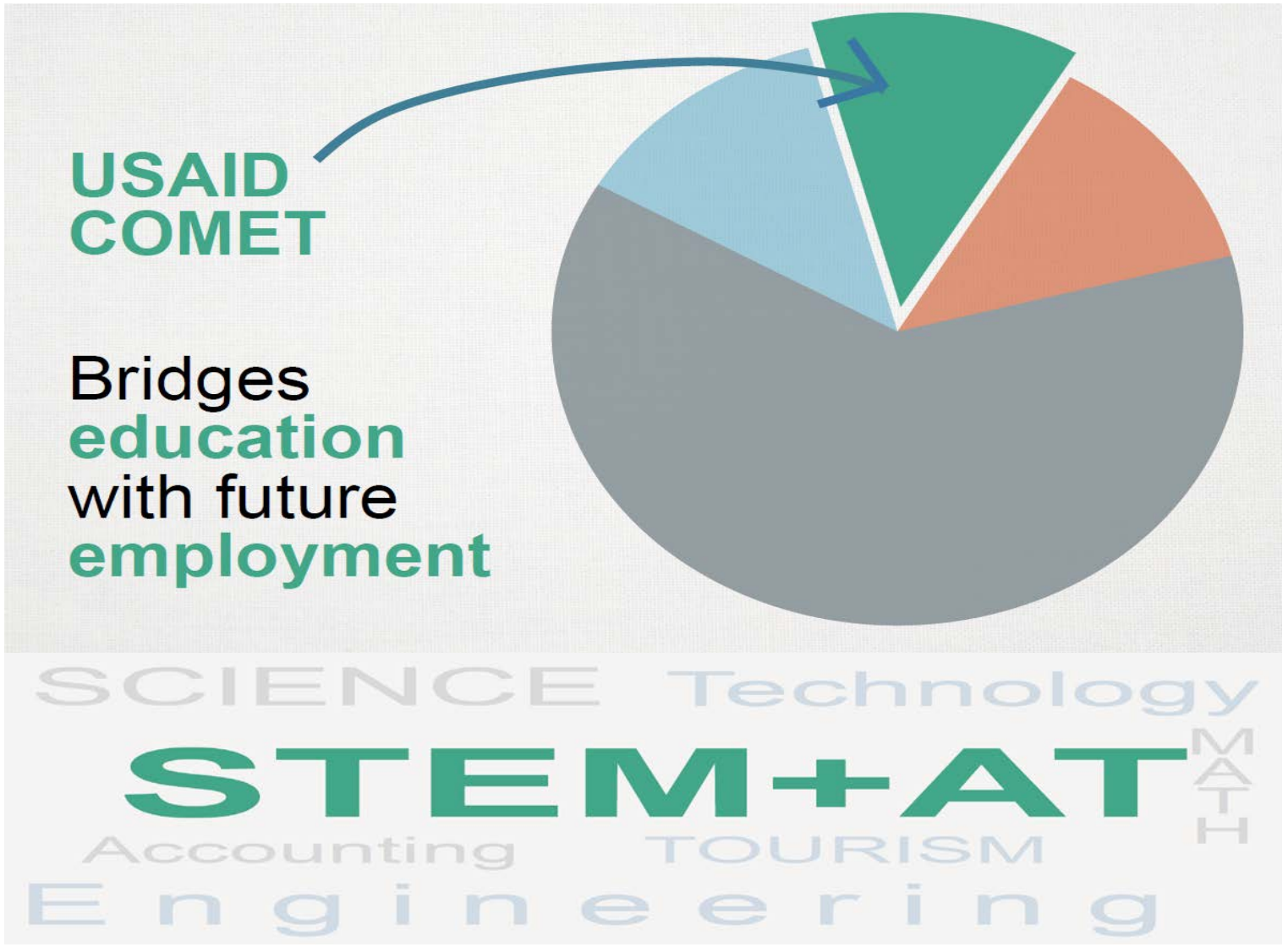


Credit: USAID COMET Program Introduction presentation by EDC

Employability Challenge and Opportunity in Lower Mekong Region

Credit: USAID COMET Program Introduction presentation by EDC

USAID COMET Program



Credit: USAID COMET Program Introduction presentation by EDC

USAID COMET Program

Connect **women** to new career opportunities

Focus partner schools on helping **poor youth**

Engage youth **at-risk of trafficking**

Target **rural vocational institutes**

USAID COMET Program Target

Targets by 2019

Reach
250,000 Youth
with skills that meet market demands

Credit: USAID COMET Program Introduction presentation by EDC

USAID COMET Program Training of The trainer (TOT) Target

Training

840

Instructors

Helping

100

Universities & Vocational Institutes teach skills in high-

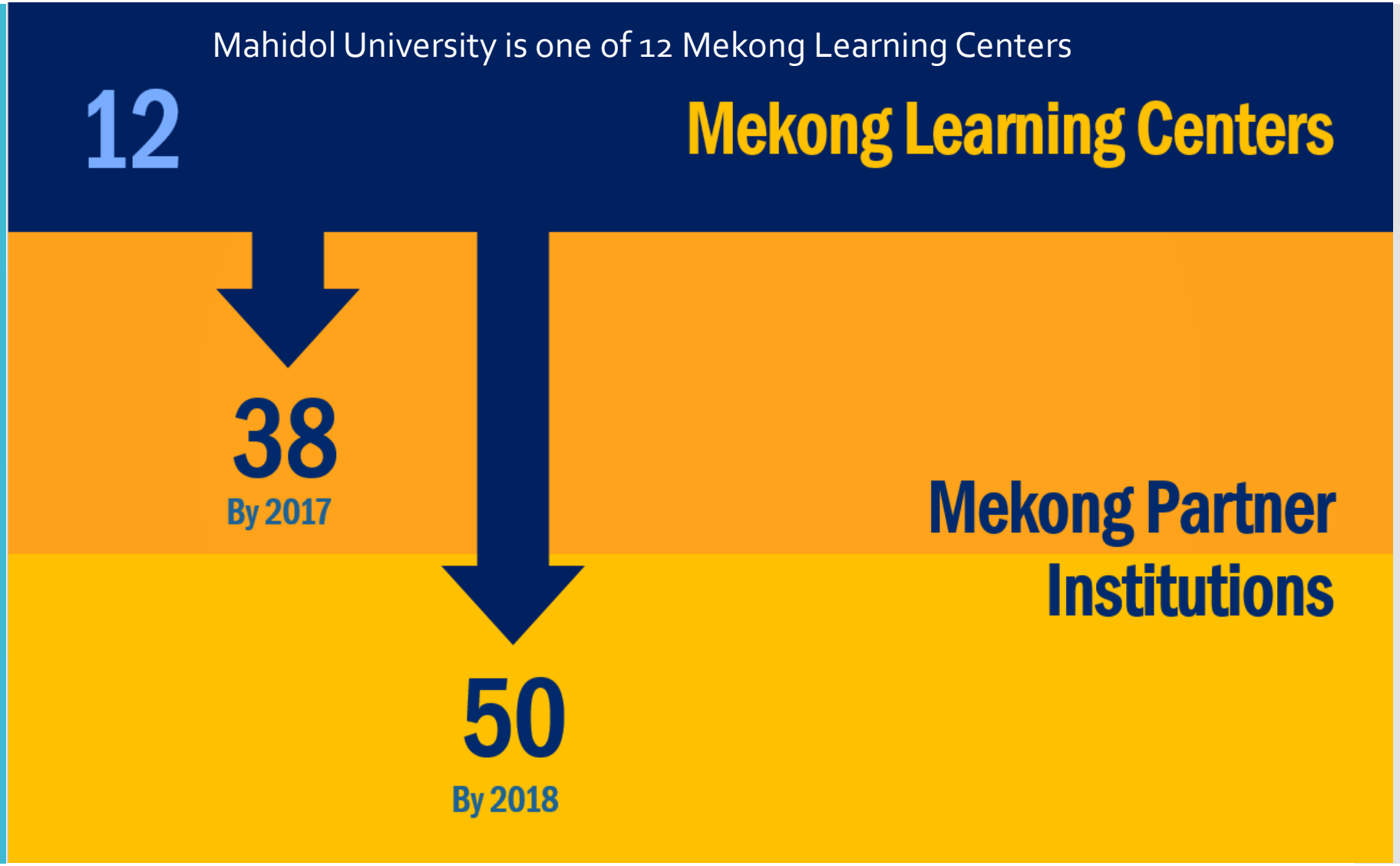
Credit: USAID COMET Program Introduction presentation by EDC

USAID COMET Program Mekong Learning Center

- **Connect schools with businesses**
- **Integrate technology-based learning solutions**
- **Develop content that addresses in-demand skills**
- **Train and exchange with faculty in region**

Credit: USAID COMET Program Introduction presentation by EDC

USAID COMET Program Mekong Learning Center Plan



Credit: USAID COMET Program Introduction presentation by EDC

Understand Gen Z?

นักศึกษา Gen Z มีลักษณะพิเศษ

- Parallelism ทำอะไรได้หลายๆอย่างในเวลาเดียวกันได้
- Connectivism เล่นไลน์ คุยไม่ต้องเห็นหน้า ต้อง งุงิ อุอิ ฟรุ๊งฟริ๊ง
- Visualization มีจินตภาพ อ่านการ์ตูน ไม่อ่านยาวกว่า 7 บรรทัด
- Virtualization เล่นเกมออนไลน์ อวตาร เป็น Avartar ได้
- Cloud application ไม่เก็บข้อมูล หรือจดจำกับตัว ฝากคลาวด์
- Short ทำสั้น เขียนสั้น SMS ทนรอคอยน้อย สมาธิไม่เกิน 7 นาที

คลาวด์เป็นต้นเหตุ
ทำให้รูปแบบการศึกษา
กลับด้าน Flipped model

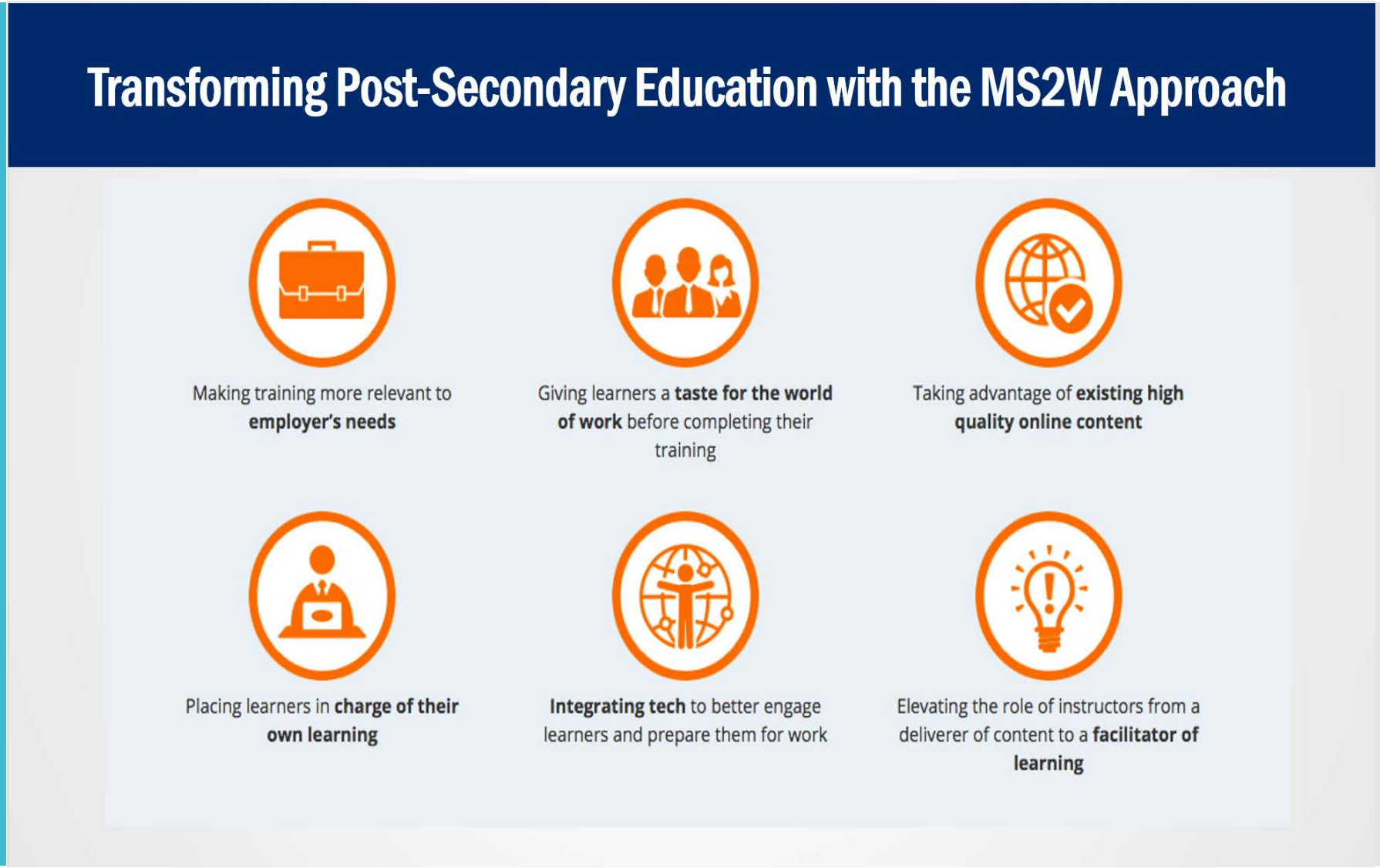
ภาพจาก:http://home.truelife.com

Credit: อ.ยืน ภู่วรวรรณ Transformative Education ความสำคัญของการจัดการเรียนการสอนโดยใช้เทคโนโลยี

Why is so difficult for University Lecturers to transform learning experience for students?

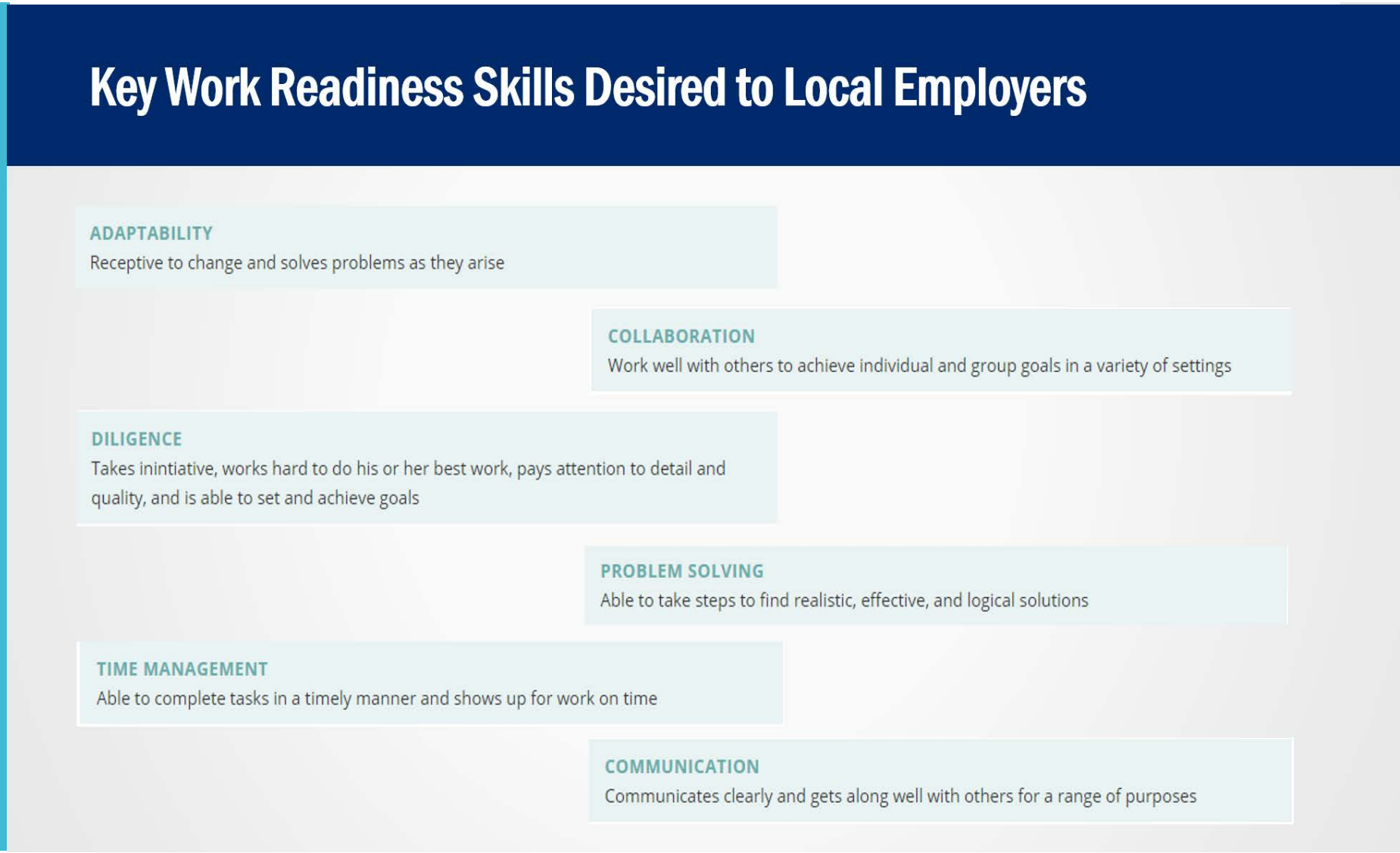
- Most University Lecturers are not professionally trained teachers, but are experts in academic fields.
- Do not know how to adapt teaching approach to cope with behavioral changes of new generation of students due to social changes and technology.
- Attempt Tried, Fail and Suffer.
- Wrong assumption about student's soft skill i.e. Google Search.
- Many roles and responsibility: Research, Teaching, Academic Service, Support social and culture promotion activities, etc.
- Student and Supervisors do not understand the consequences of student-centered pedagogy and less-content but more skill building approach
- Limited number of Community of Practice.

USAID COMET Program Approach



Credit: USAID COMET MS2W Sourcebook Presentation

USAID COMET Program Work Readiness Skill development



Credit: USAID COMET MS2W Sourcebook Presentation

USAID COMET Program Prepare learners for Work

How MekongSkills2Work Instructors Prepare Learners for Work

Through Instruction:

Learner-centered approaches:

Engage learners

Emphasize higher-level thinking skills

Learners express their ideas and reasoning

Build critical work readiness skills

Traditional lecture-centered approaches:

Learners are passive

Focus on lower-level thinking skills

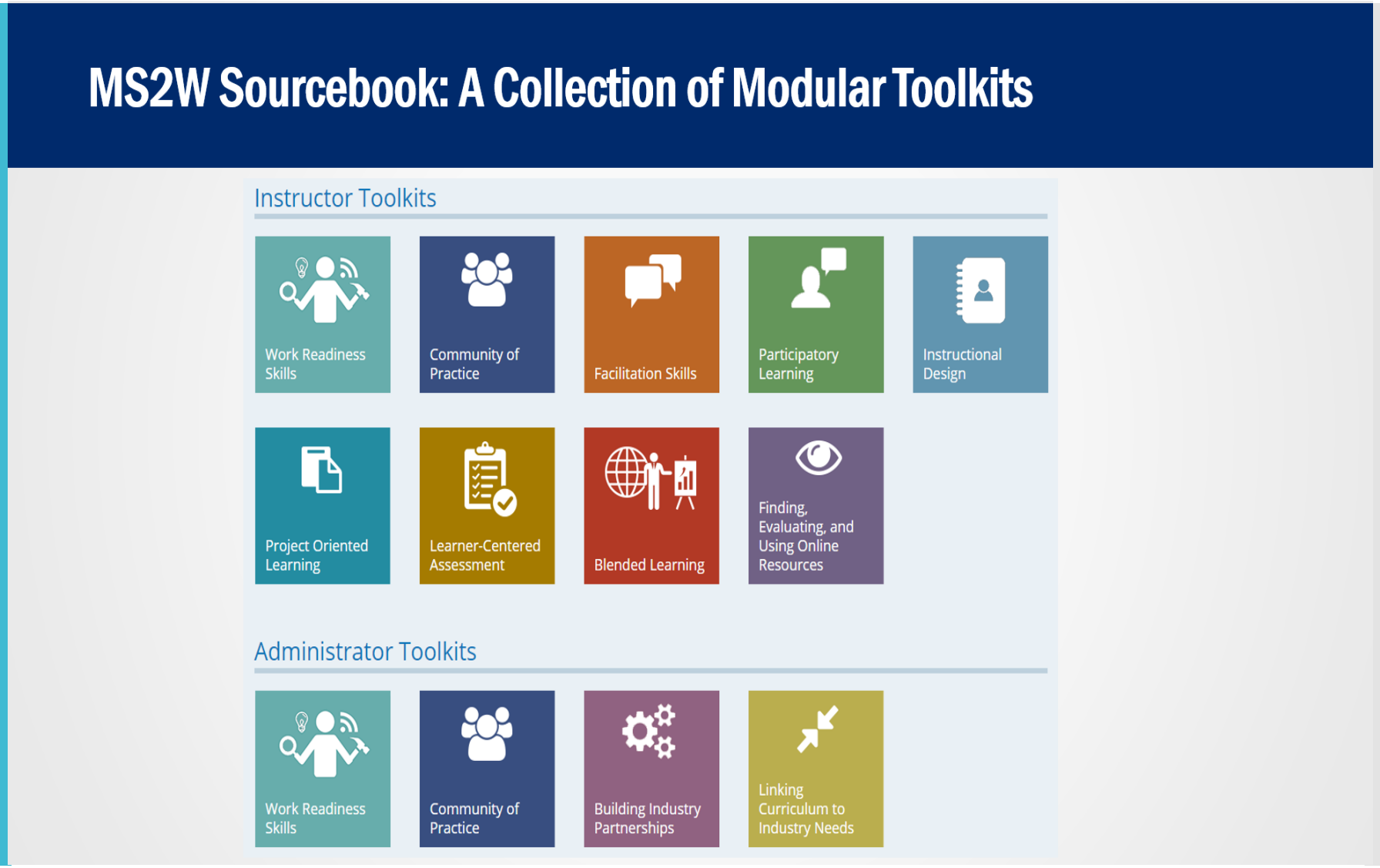
Minimal retainment of knowledge after test

Connecting Students to Industry:

- Through project-oriented learning activities
- By exposing students to workplaces and people from industry
- By improving internship programs
- By relating technical content to real workplace problems

Credit: USAID COMET MS2W Sourcebook Presentation

USAID COMET Program Toolkits



Credit: USAID COMET MS2W Sourcebook Presentation

USAID COMET Program Toolkits

Each toolkit contains:

- **Implementation Standards** with criteria and sources of evidence
- **Overview** definitions and why it is important
- **Best practices** descriptions of practices to strive towards
- **Strategies** descriptions of specific techniques
- **Steps** to take to implement the toolkit
- **Case studies and Handouts** examples and tools
- **Resources** videos and external websites

Credit: USAID COMET MS2W Sourcebook Presentation

USAID COMET Program Toolkit Structure

- Implementation Standards
- What is [Topic]? Definition
- Why is this important?
- What are the best practices?
- What are some strategies I can use?
- What steps should I take to do this?

USAID COMET Program Toolkits

MS2W Sourcebook: A Standards-Based Approach

Each toolkit has a set of **high, yet attainable**, **implementation standards**.

The combined set of standards provides an **assessment of the progress** of an institution towards the MekongSkills2Work **model for transforming instructional practices** in higher education.

Example:

Building Industry Partnerships: The institution has a mutually productive partnership with industry employers.
1. The institution has an industry advisory committee composed of employer partners from the private and/or public sectors.
2. Employer role in which employers engage with the institution is defined.
3. Employer partnerships are active.
Evidence: Interview with administrator, current contact lists, roles and expectations defined, meeting agendas

Credit: USAID COMET MS2W Sourcebook Presentation

Example of Toolkits

Instructional Toolkits

Facilitation Skills draw out ideas, promote participation, ensure equity and develop deep knowledge in learners.

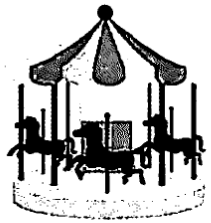
The toolkit introduce **strategies and ideas for asking good question, organizing collaborative teams and summarizing learning.**

Facilitations don't lecture – they question, observe, summarize and organize learning.

Credit: USAID COMET MS2W Sourcebook Presentation

Example of Toolkits

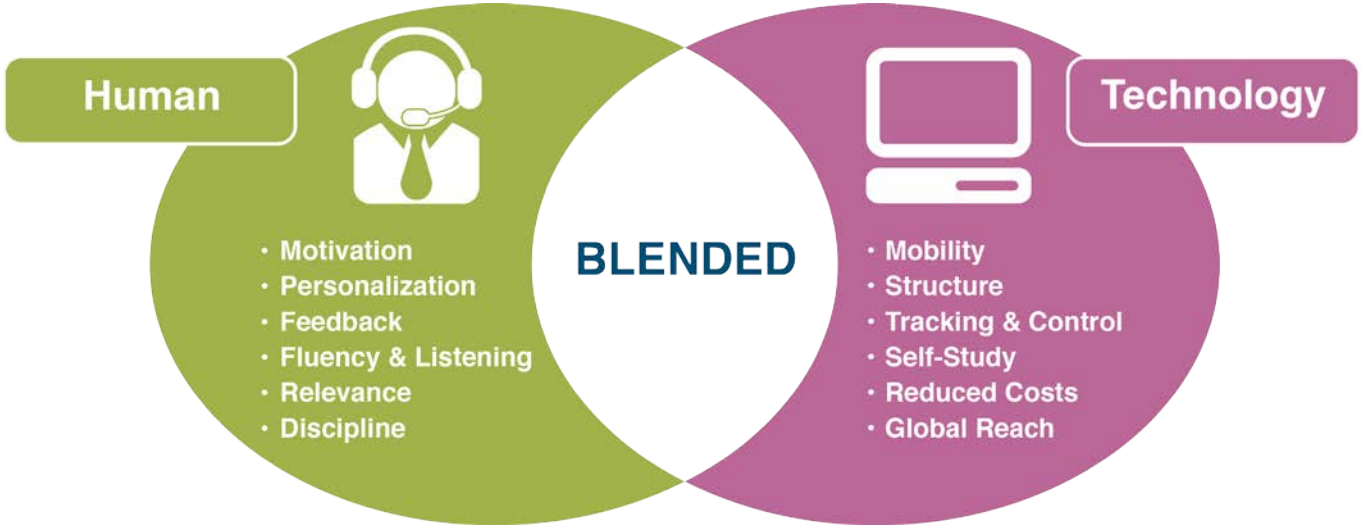
Here are more participatory techniques you can use in your classrooms.

Participatory Technique	How It Works	Why Would I Use This Technique?
Carousel 	• Instructor posts a number of different questions around the room on easel paper. • Learners form groups of 3–4 and are assigned a starting point to begin the carousel process. • After a few minutes answering as a small group, they move on to the next question and repeat the brainstorming process. • This continues until all groups have had the opportunity to answer each question (about 20–30 minutes total).	• Carousels assess the knowledge of learners and frame the learning around a particular focus. • They allow learners to discuss questions, share ideas, and process as a group. • They can serve as a warm-up activity or as a synthesis of learning at the end of a session. • They are also physically active and good for times when learners' energy is low.
Caucus	• Teams research an issue (some are pro, and some are con). • Each pro and con team meets and tries to convince the other about the correctness of their point of view using evidence and reason. • After a certain amount of time, the caucus opens, and teams can switch sides if they are convinced of the correctness of the opposing position. • The caucus is repeated with new reformulated pro and con teams.	• This is a competitive technique in which learners are rewarded for presenting compelling arguments. • A caucus involves higher-level thinking and rewards teams for preparation, research, and communicating effectively. • There is clearly a "winner" after this process (which will be a great motivator to many learners).

Credit: USAID COMET MS2W Sourcebook Presentation

What is Blended Learning?

- Teaching and Learning Method to create deep learning
- Combine Face to Face activities (discussion, etc) and Technology-based instruction (Online or Offline).
- Lot of models and they are all about teaching, not technology.
- Give student ability to control time, path, pace of learning.
- Promote learner-centered learning
- Teacher must change the role from instructor to facilitator.



https://en.wikipedia.org/wiki/Blended_learning

Models and Tools use in Blend Learning

- Some of Models
- 1. Technology Enhanced Formative Assessment
- 2. Flipped Classroom
- 3.Digital Learning Object
- 4. Integration of Workplace Simulation

Example of Blended Learning

Link https://www.ted.com/talks/michael_bodekaer_this_virtual_lab_will_revolutionize_science_class

Relatively inexpensive VR Headset i.e. Google Cardboard can help transform Education with more engagement from students.

Example of Blended Learning

This virtual lab will revolutionize science class By Michael Bodekaer

Why tools and Technology important?

- It is a part of Blend learning
- Help us create learning not memorizing in the classroom. Some of our instructors tried, failed and gave up because they do not have the right tool.

" Oh I tried Flipped classroom, but my students did not look at the video that I recommended. When I asked the questions in the class, they won't discuss. What can I do? "

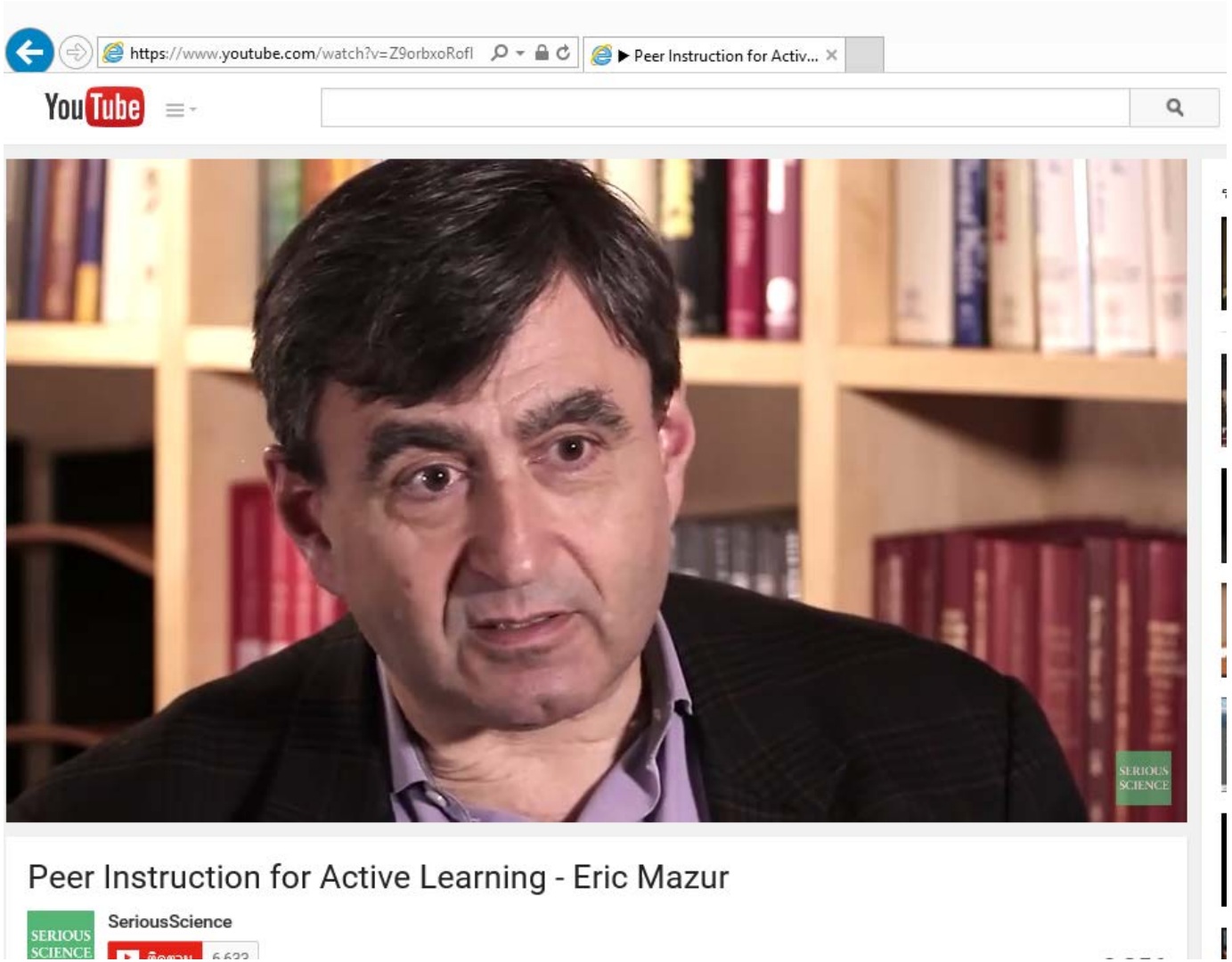
- Tools must be easy to use, meaningful , fun and create for/utilize skills of new generations.

  - Must be Student/Learner centered, **NOT teacher centered**

Technology Enhanced Formative Assessment Model

- Help Teacher monitor and evaluate the learning or understanding of students in the subject immediately such as quick poll
- Promote Deep learning
  - Deep learning to ability to relate, integrate, identify and evaluate the knowledge that they learn.
- Support Question-Driven Instruction
  - See Prof. Eric Mazur, Harvard Physics Professor Youtube He is the one who pioneer this method
- Help student to stay anonymous (Gen Z like it) not shy to share idea

Why Peer to Peer Active learning?

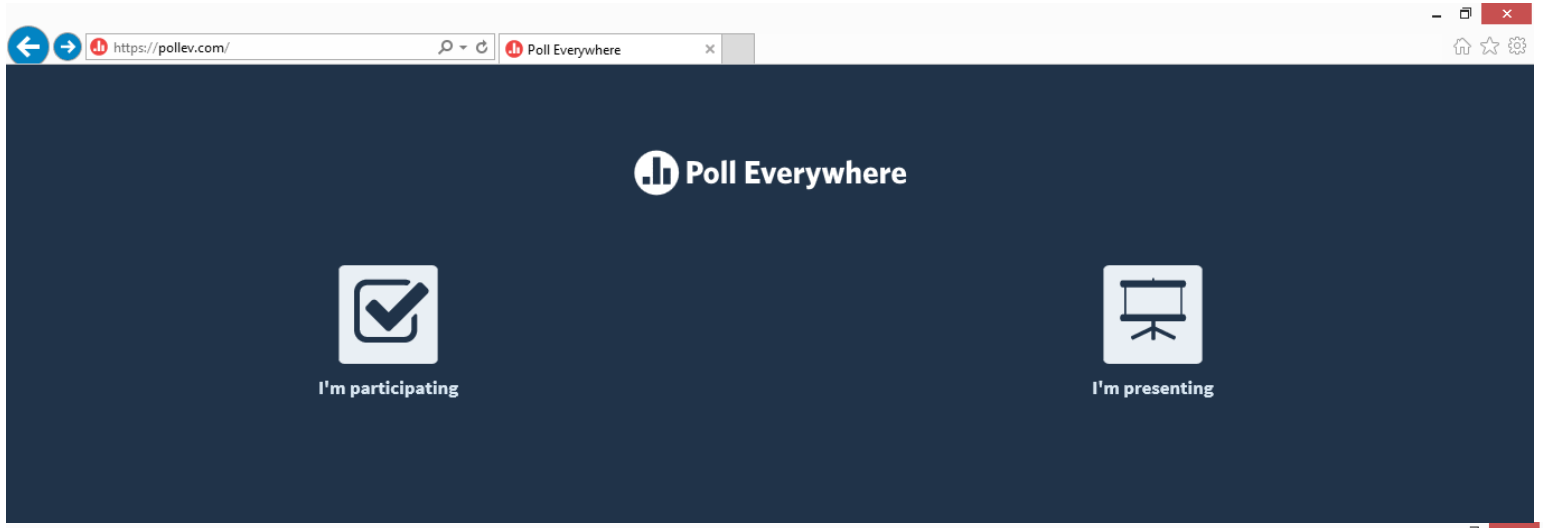


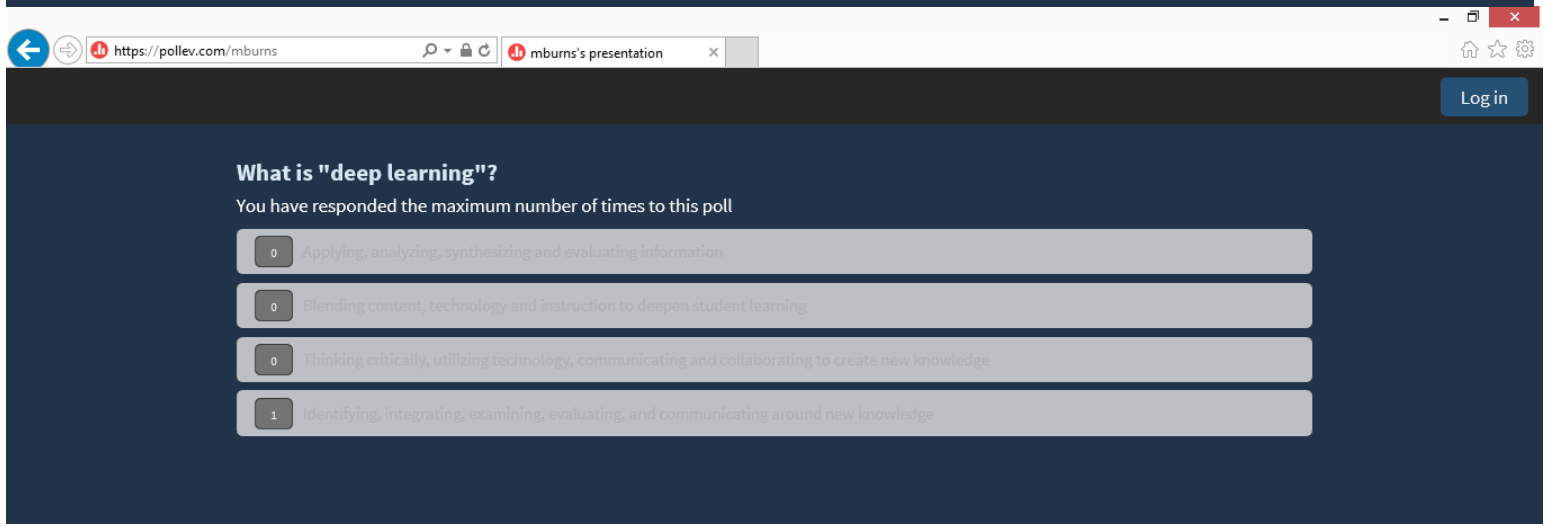
https://www.youtube.com/watch?v=Z9orbxoRofI

Question-Driven Instruction Technique

https://www.youtube.com/watch?v=dUJS48XQeXE

Technology Enhanced Formative Assessment Tool

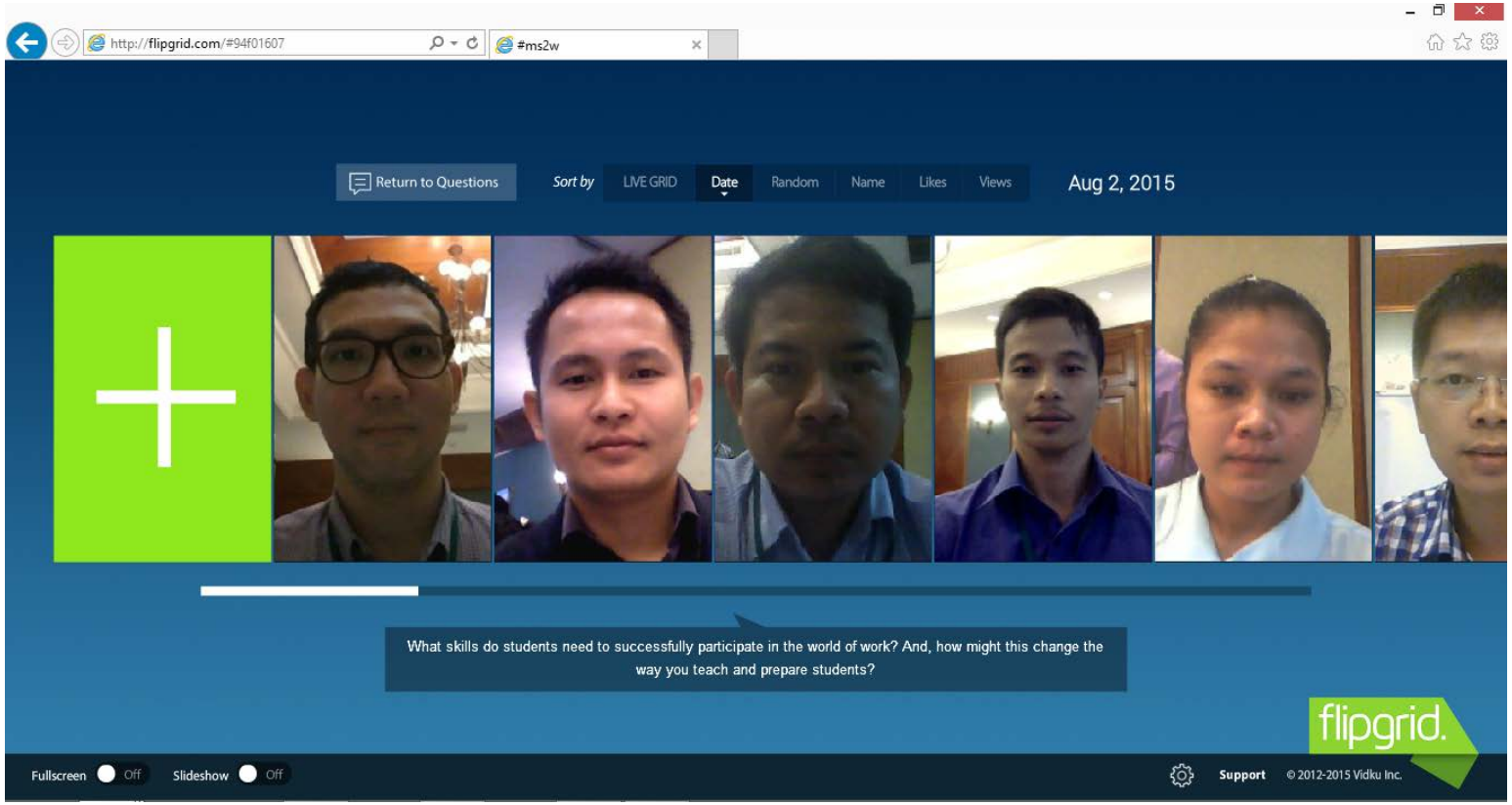




https://pollev.com

- Interactive poll system, students can use smartphone to respond to questions, instructor can show the live poll in front of the class.

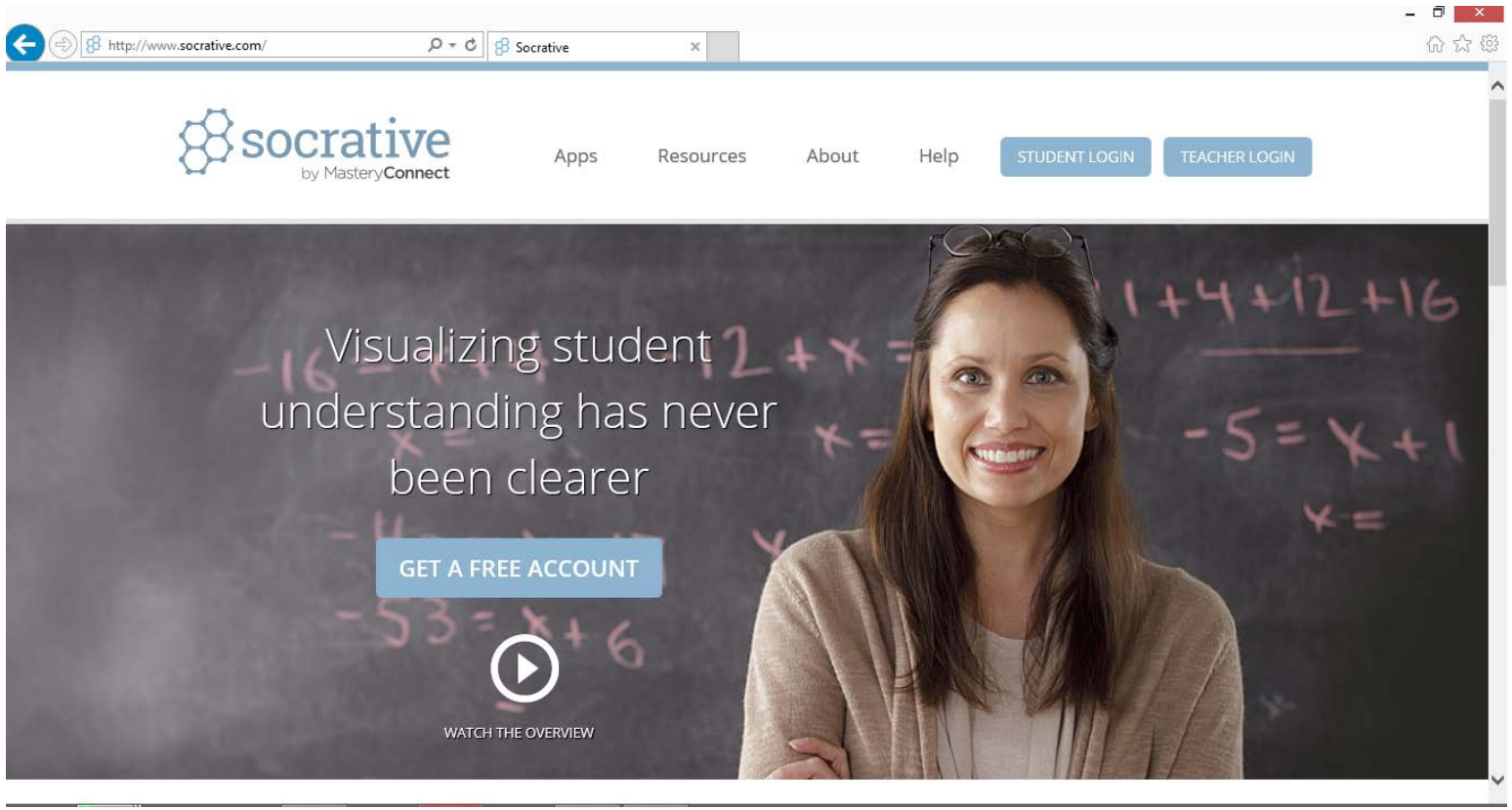
Technology Enhanced Formative Assessment Tool



http://flipgrid.com/

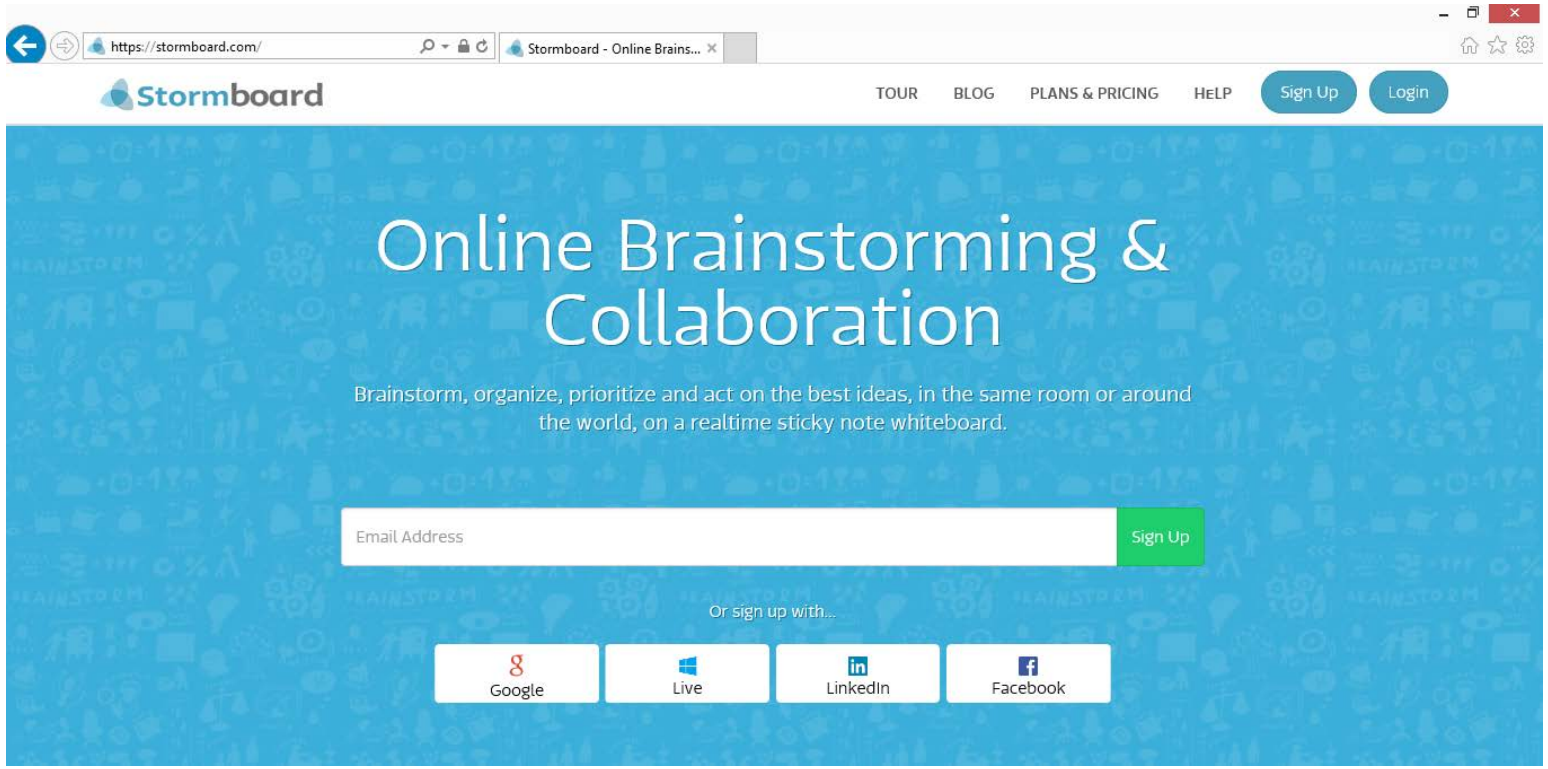
- University of Minnesota project: Students can share their recoded video (90 sec max) That responds to questions in the classs and share it on this tool.
- Can use as the tools for students to prepare for class(i.e. read or see online content) and explain the understanding of the subject. Instructor can view the videos and pick some to discuss in the class.

Technology Enhanced Formative Assessment Tool



http://www.socrative.com/

Technology Enhanced Formative Assessment Tool

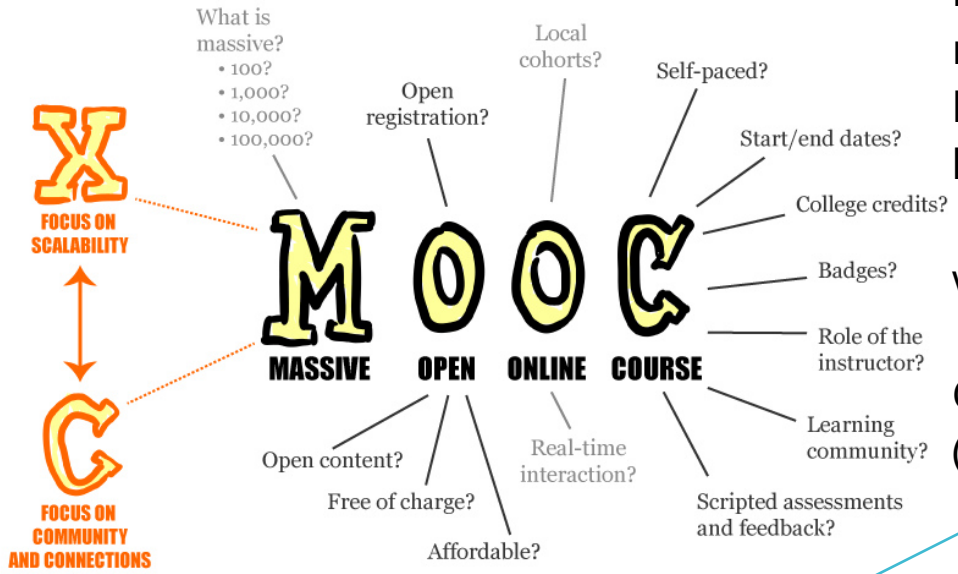


https://stormboard.com/

Flipped Classroom

- Based on the idea of Bloom's learning Taxonomy
- Current University practice is to put the hard parts of learning (homework, experiment, project) outside of the class (where there is no expert to help the students) while put the easy parts (reading , listen to lectures) in the classroom (where there is expert to help learning).
- Flipped Classroom is to flip the easy parts of learning for the students to do outside of classes and bring the hard part of learning into the classroom.
- Study shows that lecturing is the least effective way for teaching students to become expert in the field, however, most university lecturers use it because it is easy and reach a lot of students at once.
- Utilize online contents, MOOC

What is MOOC? And it is not E-Learning.



New Generation learning
not by completing the course
But by looking for basic information
From different places and connect it together to answer what they want to know.
We need to build MOOC for future Generation, not for old generation (video lecture upload) like xMOOC.

A study from Stanford University's Learning Analytics group identified four types of students: auditors, who watched video throughout the course, but took few quizzes or exams; completers, who viewed most lectures and took part in most assessments; disengaged learners, who quickly dropped the course; and sampling learners, who might only occasionally watch lectures.[97] They identified the following percentages in each group:[98]

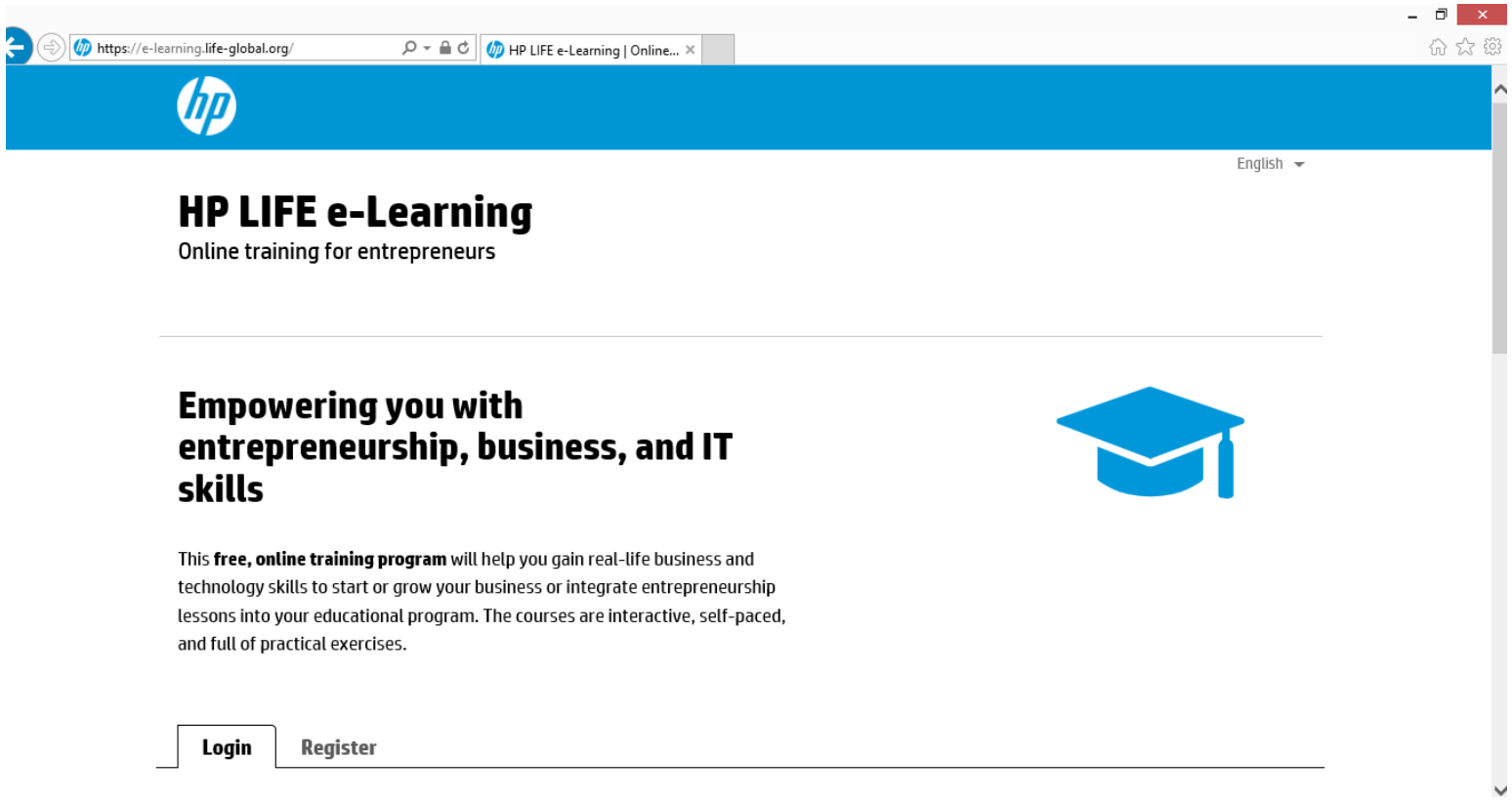
Course	Auditing	Completing	Disengaging	Sampling
High school	6%	27%	29%	39%
Undergraduate	6%	8%	12%	74%
Graduate	9%	5%	6%	80%

MOOC= Content+social media+ anonymous+ Connect information.

https://en.wikipedia.org/wiki/Massive_open_online_course

Credit: อ.ยืน ภู่วรวรรณ Transformative Education ความสำคัญของการจัดการเรียนการสอนโดยใช้เทคโนโลยี

Good Example of cMOOC.



https://e-learning.life-global.org/

MOOC integrated technology

- Neuromarketing technology for education

  -New Field of research that studies sensorimotor, cognitive and affective response to learning stimuli

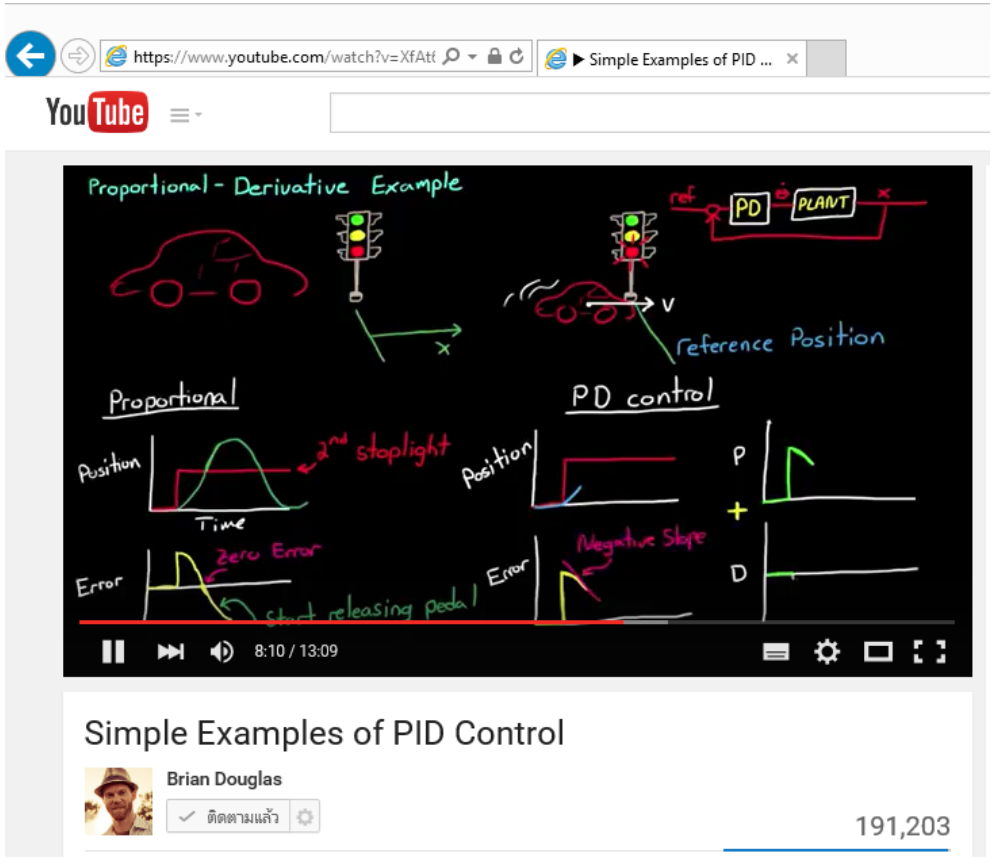
  - Help keep to measure the engagement of students when using online courses or MOOCs

- Web engine that verify if the person who use MOOCs are the same person and she/he really completes the content viewing or course. Some employer ask employee to take MOOCs course and get certification. This technology help support on this case.

Credit and please learn more from อ.เชน

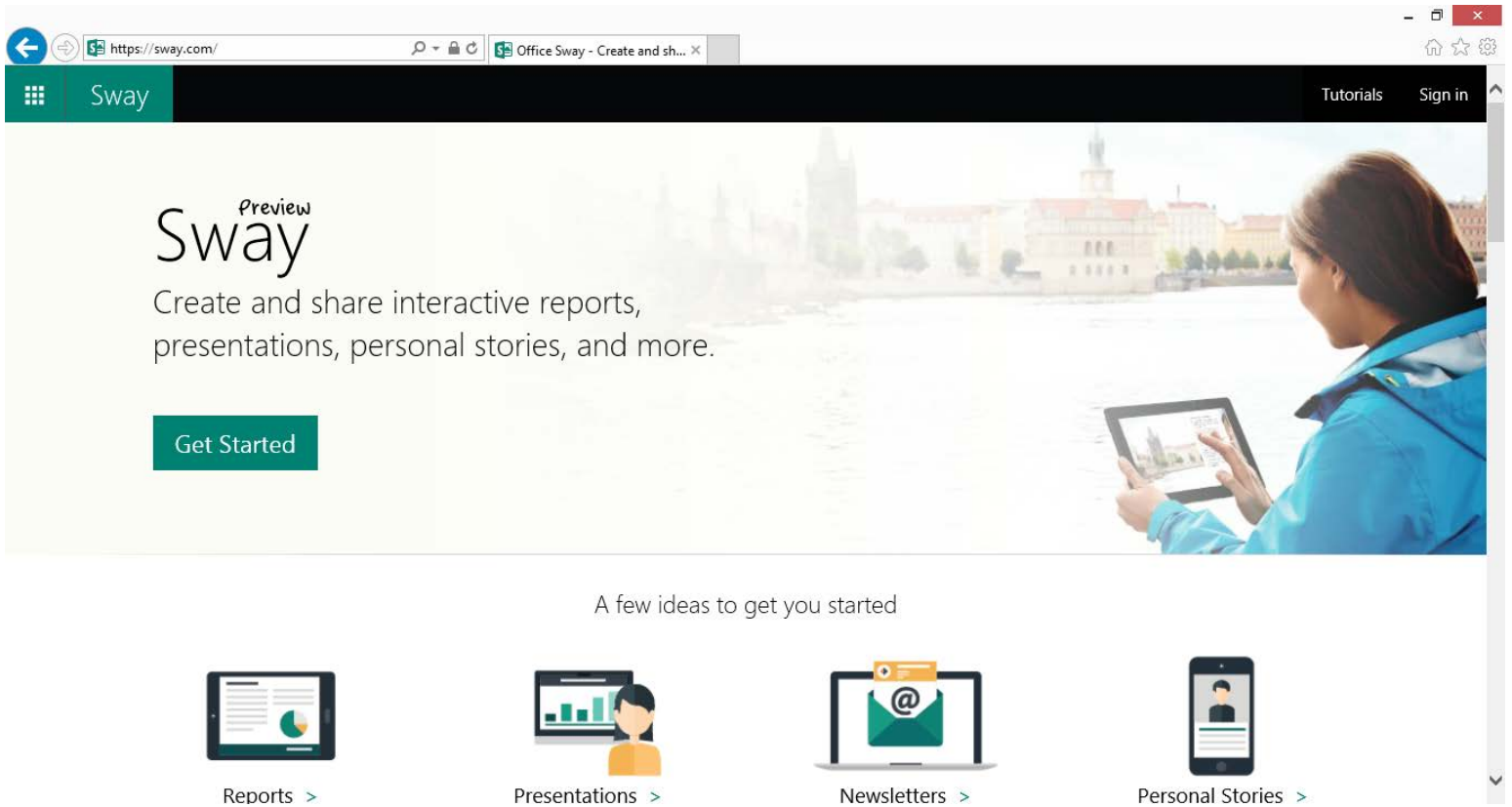
MOOC Contents Support tools

- Few student or even us willing to watch 90 mins of video lectures, contents must be short, interactive and fun. Look at the video example below.
- There are tools like Pencasts, Animation tools, etc to help create interactive contents, infographics easily. See below example



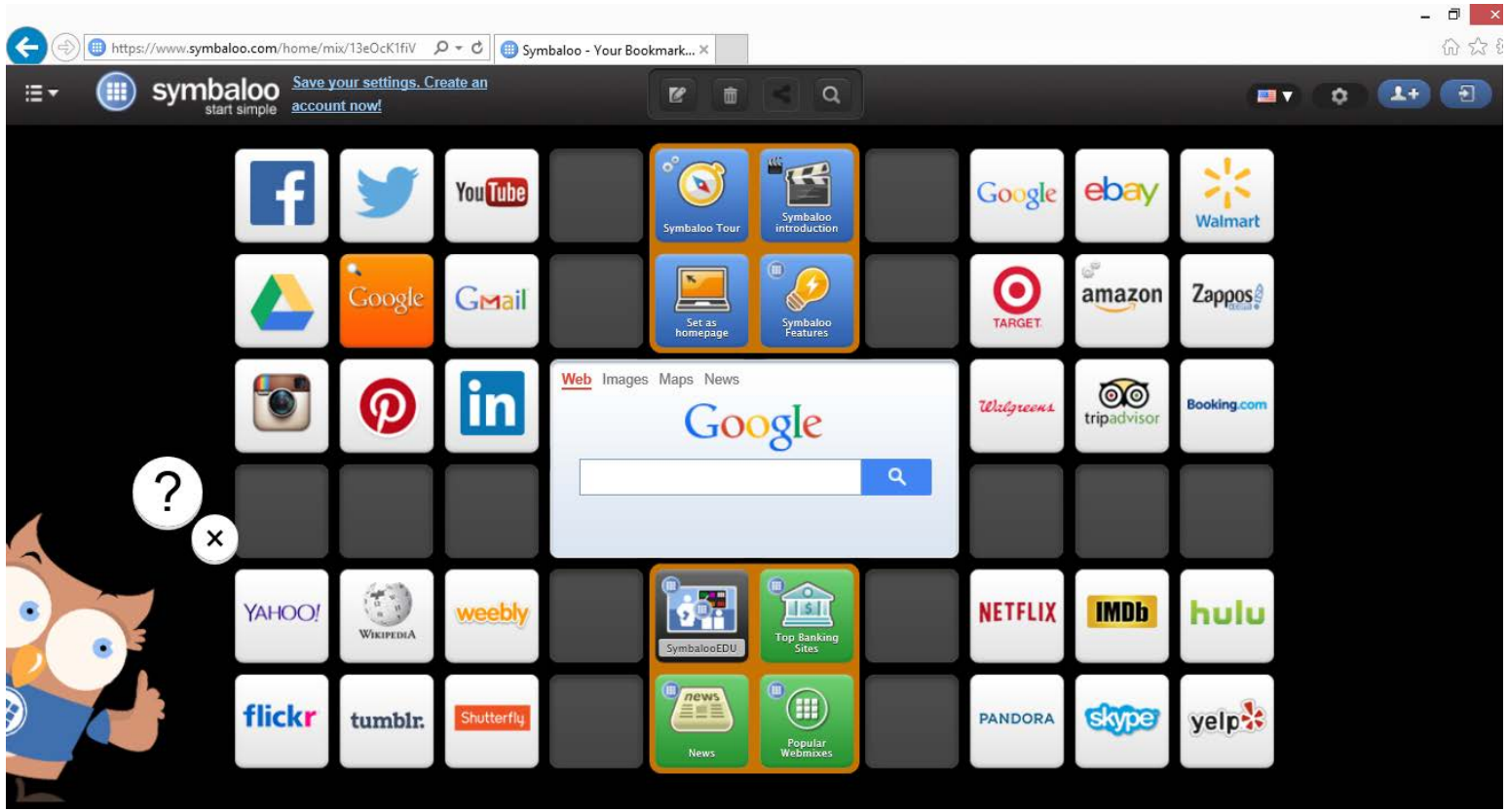
https://www.youtube.com/watch?v=XfAt6hNV8XM

MOOC Contents Support tools



https://sway.com/

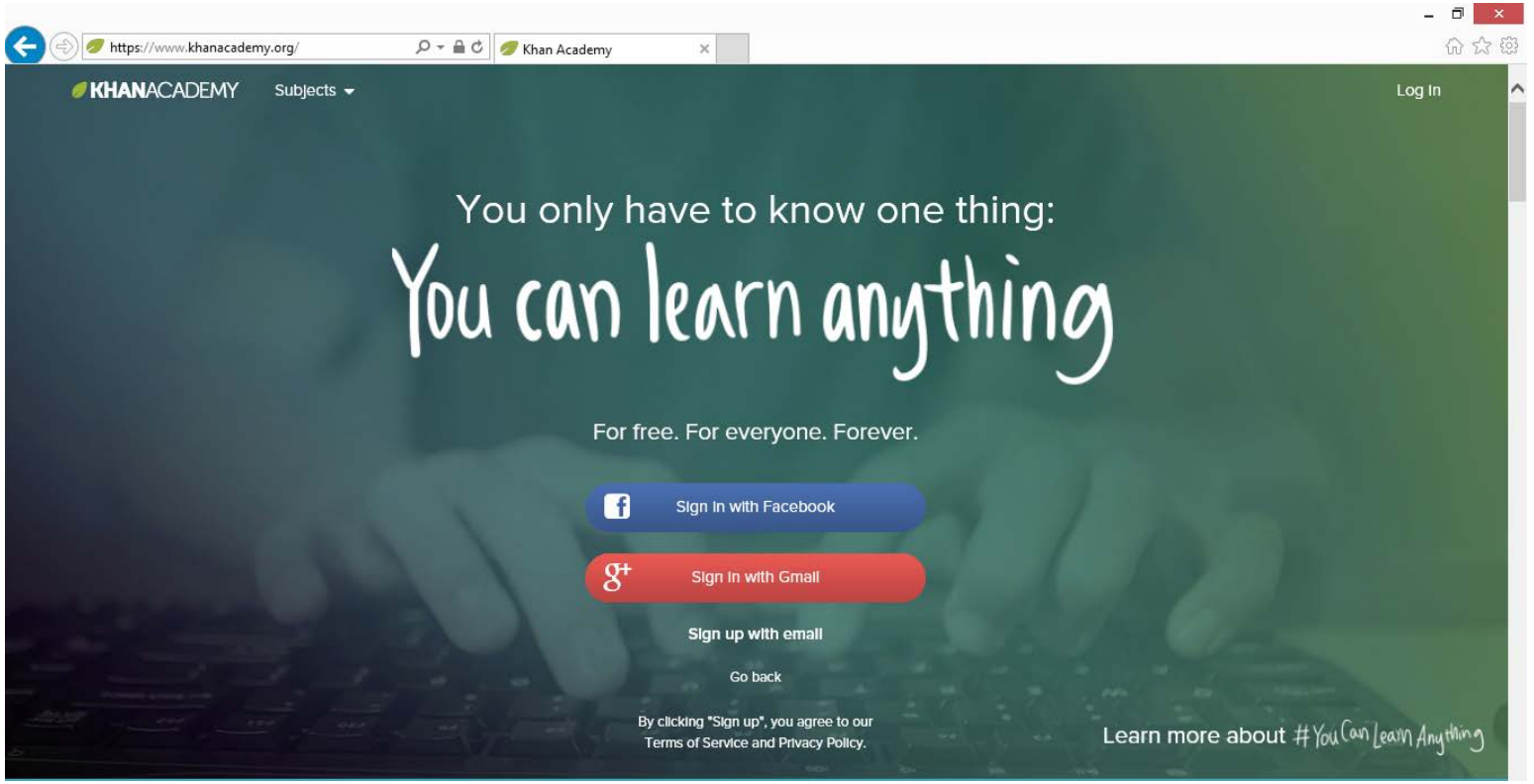
Flipped Classroom Tools



https://www.symbaloo.com/home/mix/13eOcK1fiV

- Help teachers and students map and manage online contents

Flipped Classroom Tools



https://www.khanacademy.org/

- Source of Online Contents, interactive media for teaching

Digital Learning Object Model

- To use digital learning objects from online resources to initiate learning by inductive reasoning

Observe→ Pattern→Hypothesis→ Theory

Example: Ask students what TrianQuad is? But not giving students the definition. Start showing pictures (Digital learning objects) and ask if these pictures areTrianQuad or not. Student starts to see pattern and create hypothesis and then theory or definition.

- Singapore have the best Mathematics classes in the world use this inductive reasoning method.

Trianquad Activities

Defining a Trianquad:

Purpose of the activity:

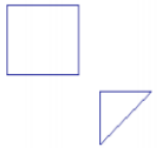
- Geometry is a definition-heavy content area.
- Teachers often think they must provide definitions, or have students look up definitions, prior to doing activities.
- Definitions can be developed through various hands-on activities (a "trianquad" isn't an actual geometric figure, but provides an example of how a definition can be developed, rather than "told.")
  Big ideas:
  - Definitions do NOT have to come first
  - Definitions can be derived from activities
  - The teacher labels the students' thinking with the correct word (definition): For example, when students are discussing "corners" of polygons in the context of an activity, the teacher might say, "Mathematicians call that a vertex."
  - Definitions need to be precise (cover all possibilities)

Trianquad Activities

#1

This is a trianquad!

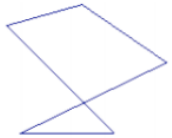
#2



Is #2 a trianquad? Yes/No

#2 is not a trianquad.

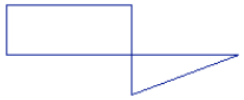
#3



Is #3 a trianquad? Yes/No

#3 is a trianquad.

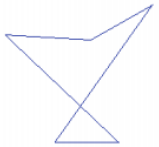
#4



Is #4 a trianquad? Yes/No

#4 is a trianquad

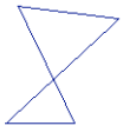
#5



Is #5 a trianquad? Yes/No

#5 is a trianquad.

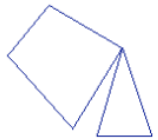
#6



Is # 6 a trianquad? Yes/No

#6 is not a trianquad.

#7



Is #7 a trianquad? Yes/No

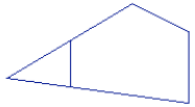
#7 is a trianquad.

#8

Is #8 a trianquad? Yes/No

#16 is a trianquad.

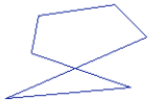
#17



Is #17 a trianquad? Yes/No

#17 is a trianquad

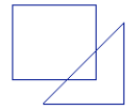
#18



Is #18 a trianquad? Yes/No

#18 is not a trianquad.

#19



Is #19 a trianquad? Yes/No

#19 is not a trianquad

#20

Define a trianquad: _____

_____

_____

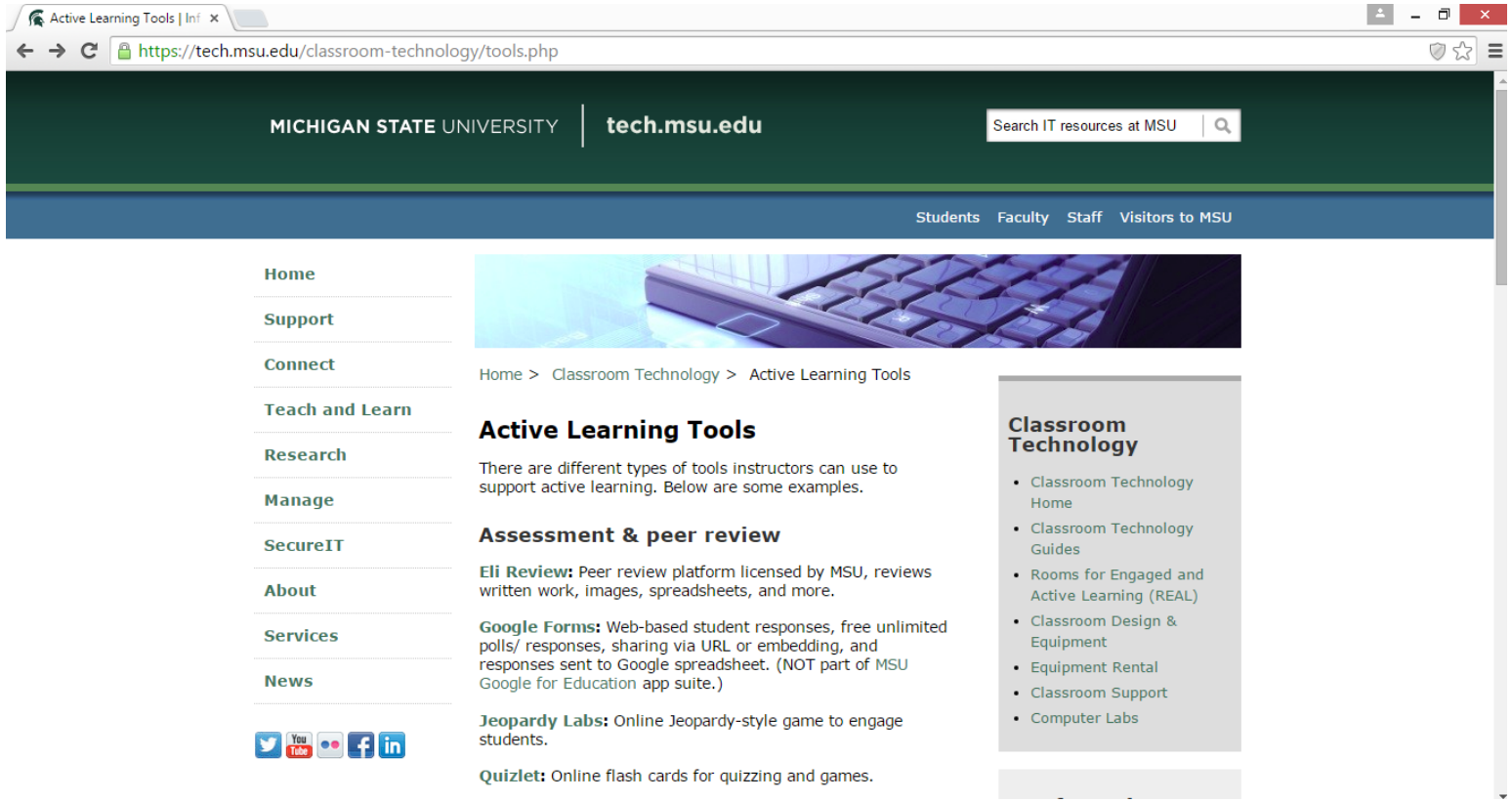
_____

Integration of workplace simulation Model

- It is a form of problem-based learning that can be integrated into the classroom as part of the flipped classroom.
- Involved the use of real problem from the real business partners to motivate the student learning in the subject.
- The problem is carefully chosen and designed to deliver the required learning that instructor wants.
- Involve the use of Technology to help both

1. Assist the learning (i.e. using Skype to connect real business employees into the classroom when simulate the workplace problem if they cannot join the classroom.
2. Part of learning as the tools such as using different kind digital communication forms to teach interpersonal communication skills.

Others sources of learning tools and technology



Please visit.

https://tech.msu.edu/classroom-technology/tools.php

Technology integrated into learning Project proposal Examples

- Contents creator tool to utilize Microsoft Hololens (Augmented-reality headset). Users: Biomedical Engineering students use to study human body by 3D augmentation of human body, organ
- Internet usage monitoring system to monitor students usage of the internet in campus or in the classroom. Users: Teacher to make sure student utilize useful online contents and not spend time on Facebook or inappropriate websites.
- Fab Lab (Maker Space) Open source Management System to help manage parts inventory, TQM (Machine and Instrument maintenance by users), Online training and certification of Fab Lab user, etc.

  Users: Lab Managers and users.

  Source: www.fabfoundation.org Fab Lab is the important tool for project-based learning.
- Neuromarketing for Education engine for Mahidol MOOC

  Users: Mahidol MOOC users.
- Learning Device like littleBits (by MIT students)

  www.littlebits.cc

Integrate Work-readiness skill into Engineering Project Management Classroom

https://www.youtube.com/watch?v=6I3o6OwY5Ps

Building Online Community of Practice

Building Online Community of Practice

Joy Israngkul
February 5 · Bangkok

Hello everyone,

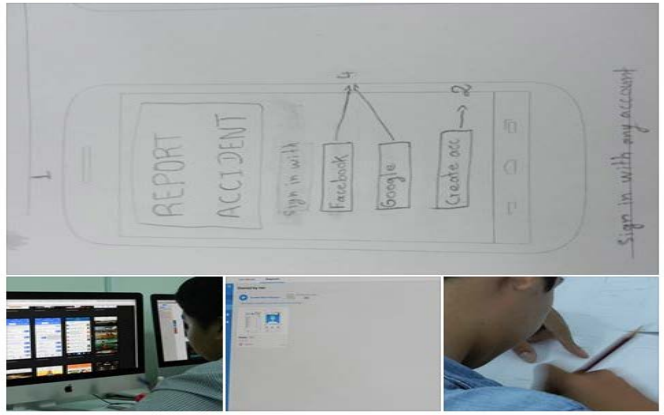
I have started my class in new topics - Computer Aided Design for second year students. I have applied blended learning toolkit, using less lecture time and problem-base learning and let student design things from their imaginations plus give them online video for tutorial. I used social application/community tools such as LINE, Edmodo to enhace their connectivity and activities. On my first 2 weeks, I give them to freely design KIOSK with wheels the outcome ... See More

Myinzu Minn
December 31, 2015

This video was taken for the first year undergraduate students for this academic year 2016.

Chun Thavorac
December 29, 2015

They are drafting their idea on creating a mobile application. They research some existing application on the internet to get some idea and use cacoo.com for collaborative designing.



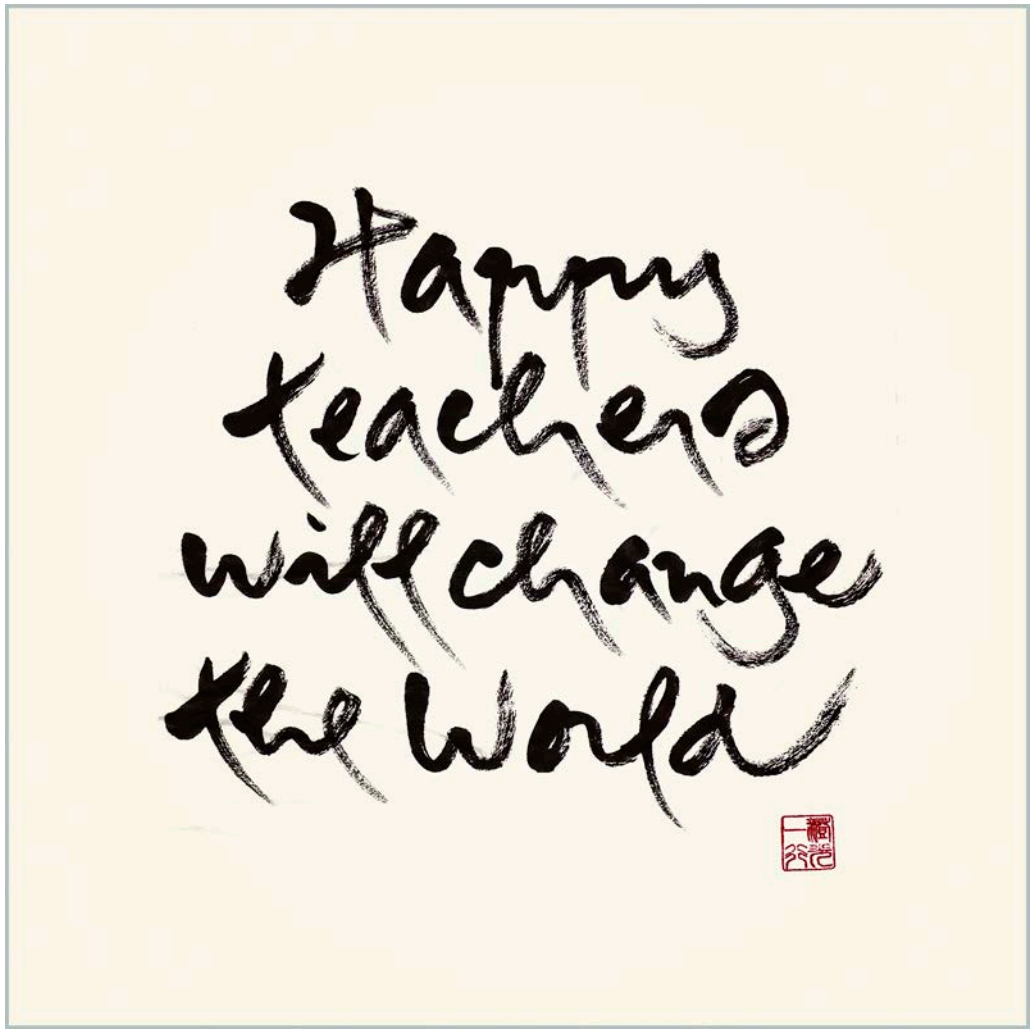
Mahidol University USAID COMET TOT

Summary

- "Education is best seen not as an industrial system, but as an organic one. More specifically, it is what is know as a complex, adaptive system." Creative Schools, Ken Robinson

- Because the complexity of education, we needs community of practice that can help embrace and support continuous improvement of pedagogy and curriculum in order to cultivate skills and talents of each individual student.

- Most important part of education are all about the connecting to students and yourself(Teacher).
- Partnership with stakeholder i.e. industries, business, colleague is critical.


Happy
teachers
will change
the world

Please
Joining our
Community of
Practice