การจัดกระบวนการเรียนรู้
&
วิธีการวัดและประเมินผู้เรียน

รศ ดร นวลวรรณ สุนทรภิษัช

Constructive Alignment

PLO/CLO

กิจกรรมเสริมหลักสูตร
Co-curriculum activities

Source: EdTech Enthusiast
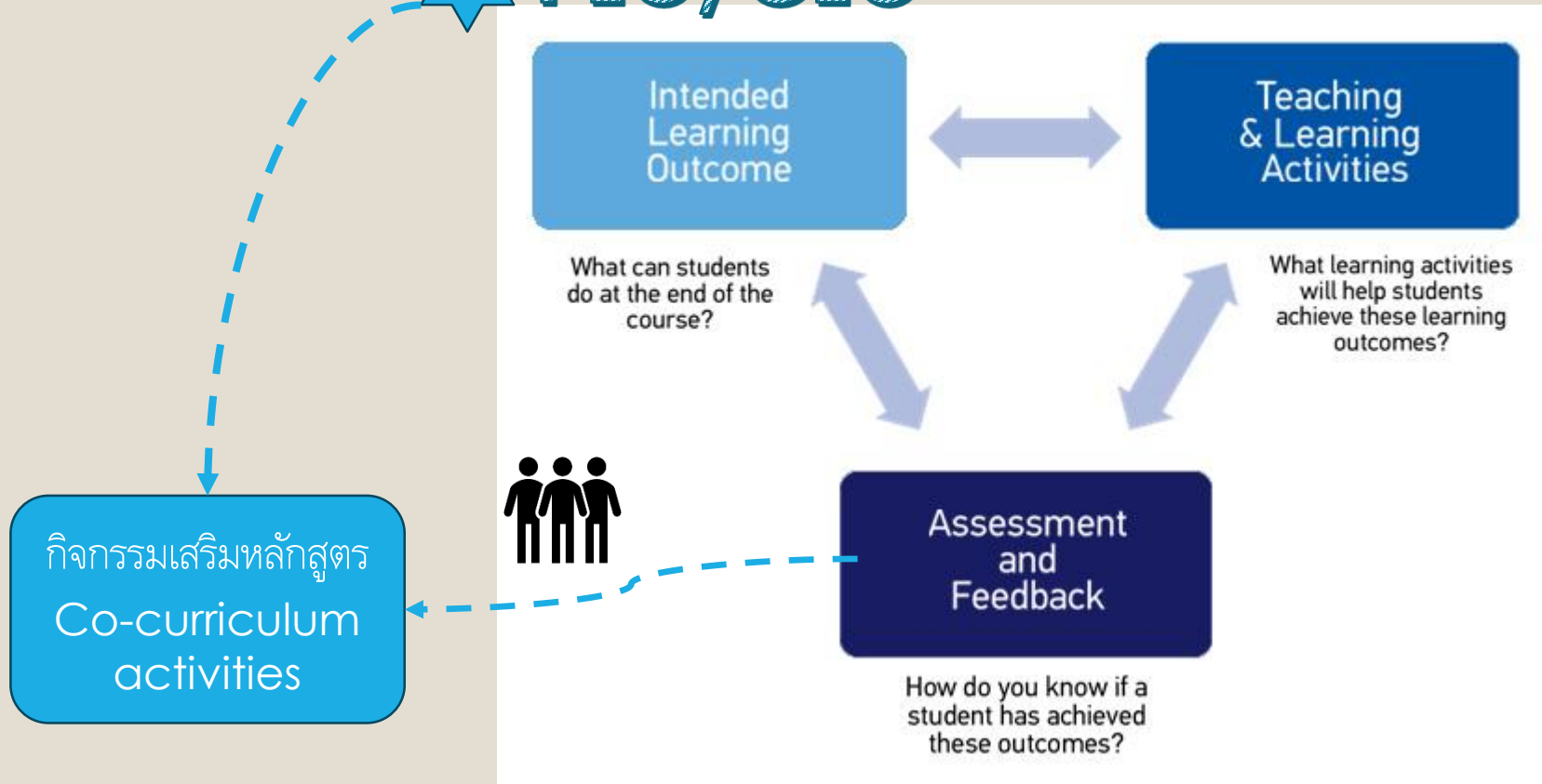
**การออกแบบ
กระบวนการเรียนรู้**

1. เกิดกรอบคิดแบบเติบโต (Growth Mindset)
2. นำสิ่งที่เรียนรู้ไปใช้กับโลกการทำงานจริงได้   **PLO/CLO**

2.1 ตอบสนองความต้องการและความคาดหวังของผู้มีส่วนได้เสีย

2.2 สอดคล้องกับผลลัพธ์การเรียนรู้ที่คาดหวัง

วิธีวัดและประเมินผู้เรียน

กระตุ้นให้ผู้เรียนเกิดการเรียนรู้
รู้จักวิธีแสวงหาความรู้ได้อย่างไร

บุคคลที่มี Growth Mindset มีลักษณะอย่างไร

-บุคคลที่เชื่อว่า ทักษะและความรู้สามารถพัฒนาได้ผ่านการเรียนรู้และการฝึกฝน ไม่มีอะไรอยู่เหนือความพยายามและความตั้งใจ

-มองอุปสรรคว่าไม่ใช่ปัญหา แต่เป็นโอกาสที่จะลอง เรียนรู้ เพื่อแก้ปัญหานั้น

-สามารถวิเคราะห์ความผิดพลาดที่เกิดขึ้น และลงมือทำเพื่อแก้ไขให้ดีขึ้น
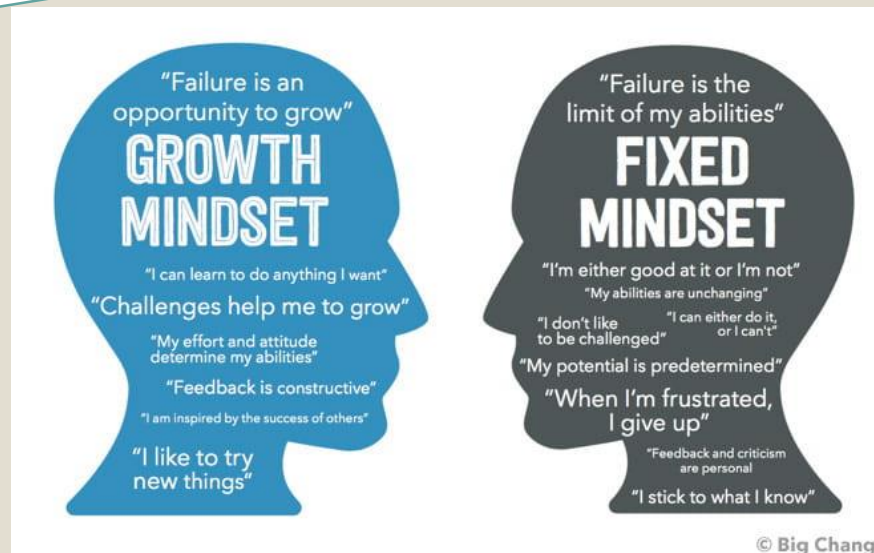
บทบาทผู้สอน

○ ออกแบบกระบวนการเรียนรู้ที่ผู้สอนมีส่วนร่วมในพัฒนาการการเรียนรู้
ของผู้เรียน เพื่อกระตุ้น ให้กำลังใจ คำแนะนำ แก่ผู้เรียนในการพยายาม
ลงมือเพื่อแก้ปัญหา ผ่านการค้นคว้าหรือฝึกฝน

○ ควรทำในหลายๆวิชา เพื่อให้ผู้เรียนผ่านหลายประสบการณ์จนเกิด
ความเชื่อว่า ทักษะและความรู้ที่เกิดขึ้นนั้นมาจากความพยายาม
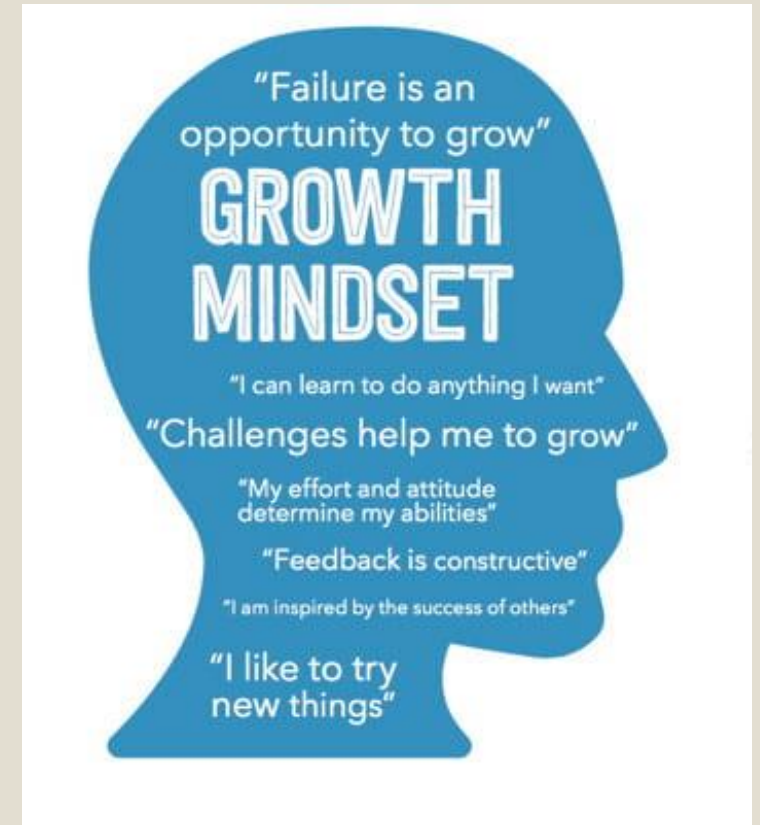
Teaching and Learning activities to create growth mindset

Challenges and Reflections:

-Assign challenging tasks or projects that require students to step out of their comfort zones.

-**encourage** them to **reflect** on their experiences, focusing on what they learned and how they grew from the process.

Goal Setting and Progress Tracking:

-Guide students in setting specific, achievable goals for their academic and personal development.

-Encourage them to **track their progress** regularly and celebrate small victories along the way.

Mistakes as Learning Opportunities:

Create a classroom culture where mistakes are viewed as valuable learning opportunities.

Encourage students to share their mistakes and what they learned from them, promoting a sense of resilience and growth.

Case Studies and Stories:

Share stories of successful individuals who have overcome challenges through perseverance and a growth mindset.

Analyze case studies of famous scientists, entrepreneurs, or artists who faced difficulties but persisted.

"Failure is an opportunity to grow"
GROWTH MINDSET
"I can learn to do anything I want"
"Challenges help me to grow"
"My effort and attitude determine my abilities"
"Feedback is constructive"
"I am inspired by the success of others"
"I like to try new things"

ประสบการณ์ของผู้เรียนผ่าน Project –based learning

Goal setting → Self-regulation → Self-reflection

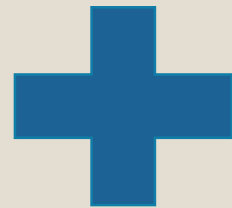Formative feedback

Flipped classroom+Collaborative Learning

Collaborative Learning:

students work together to solve problems and achieve common goals.

Collaboration promotes resilience, teamwork, and the understanding that learning is a shared journey.

อาจารย์ผู้สอนวัดได้อย่างไรว่าผู้เรียนเกิด growth mind set
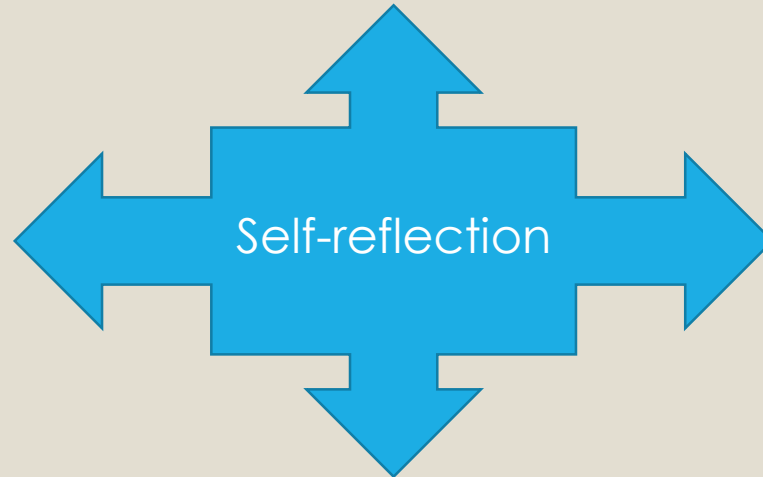
Progress ของงานที่มอบหมาย

Self reflective journal

แบบประเมิน
Growth mindset

Goal setting

Learn from mistakes

Self-reflection

Learning require efforts

Mistake is our progress

การประเมินผู้เรียนมีรูปแบบใดบ้าง

Assessment **of** Learning	Assessment **for** Learning	Assessment **as** Learning

Assessment methods

Summative assessment

It uses to demonstrate the achievement of the learners.

- Written/oral exam
- Quiz
- Homework/ assignment

Final grade/Certificate

Formative assessment

Provide feedback for learners to <u>improve their competency</u> for the next assessment.

Project-based Learning
Problem-based Learning
Experiential learning
Role play/simulation
Skill demonstration

Formative assessment

<u>Learners</u> do self-assess and self –regulate their learning to being an effective independent learner beyond formal education

Flipped classroom
Reflective journal

Formative assessment

♥ <u>วัตถุประสงค์</u> เพื่อให้ผู้เรียนทราบว่าตนเองยังพร่องหรือขาดความรู้ในเรื่องใด หรือต้องปรับปรุงหรือพัฒนาเรื่องใด ต้องไปเรียนรู้จากแหล่งใดเพิ่มเติม

♥ ต้องประเมินเป็นระยะเพื่อเป็นส่วนหนึ่งของกระบวนการเรียนรู้ของผู้เรียน

♥ งานที่มอบหมายแก่ผู้เรียนต้องเป็นโจทย์ที่ท้าทายความสามารถเพื่อบรรลุ CLO ที่มี learning level ที่ค่อนข้างสูง

The Six Steps of Gibbs' Reflective Cycle

REPEAT THE CYCLE

1 DESCRIPTION — Describe What Happened. The Situation you want to Improve.

2 FEELINGS — Reflect on your Feelings. How did you Feel?

3 EVALUATION — Evaluate the Experience. What Worked? What did not?

4 ANALYSIS — Analyze Why something worked or Why it didn't.

5 CONCLUSION — Explain What you have Learned. What could have been done Better.

6 ACTION PLAN — Make a Plan to Improve things and Do things in a different Way.

Source: https://www.consuunt.com/gibbs-reflective-cycle/

ใครที่สามารถให้ feedback แก่ผู้เรียน

อาจารย์ผู้สอนในรายวิชา

อาจารย์ที่ปรึกษาวิทยานิพนธ์

อาจารย์นิเทศสหกิจศึกษา /ฝึกงาน

อาจารย์พี่เลี้ยงที่สถานฝึก

ผู้ทรงคุณวุฒิภายนอก

เพื่อน

Tips on formative feedback

DO

- Positive feedback/be polite
- **Provide recommendations and solutions**
- Motivate your students to create Growth mindset in

Don't

- Inform only the points earned or what is right/wrong
- Give a fixed answer
- Provide the comment at the END of the course

Example of Learning activities

CLO

K S E C

Group discussion

Think/pair/share
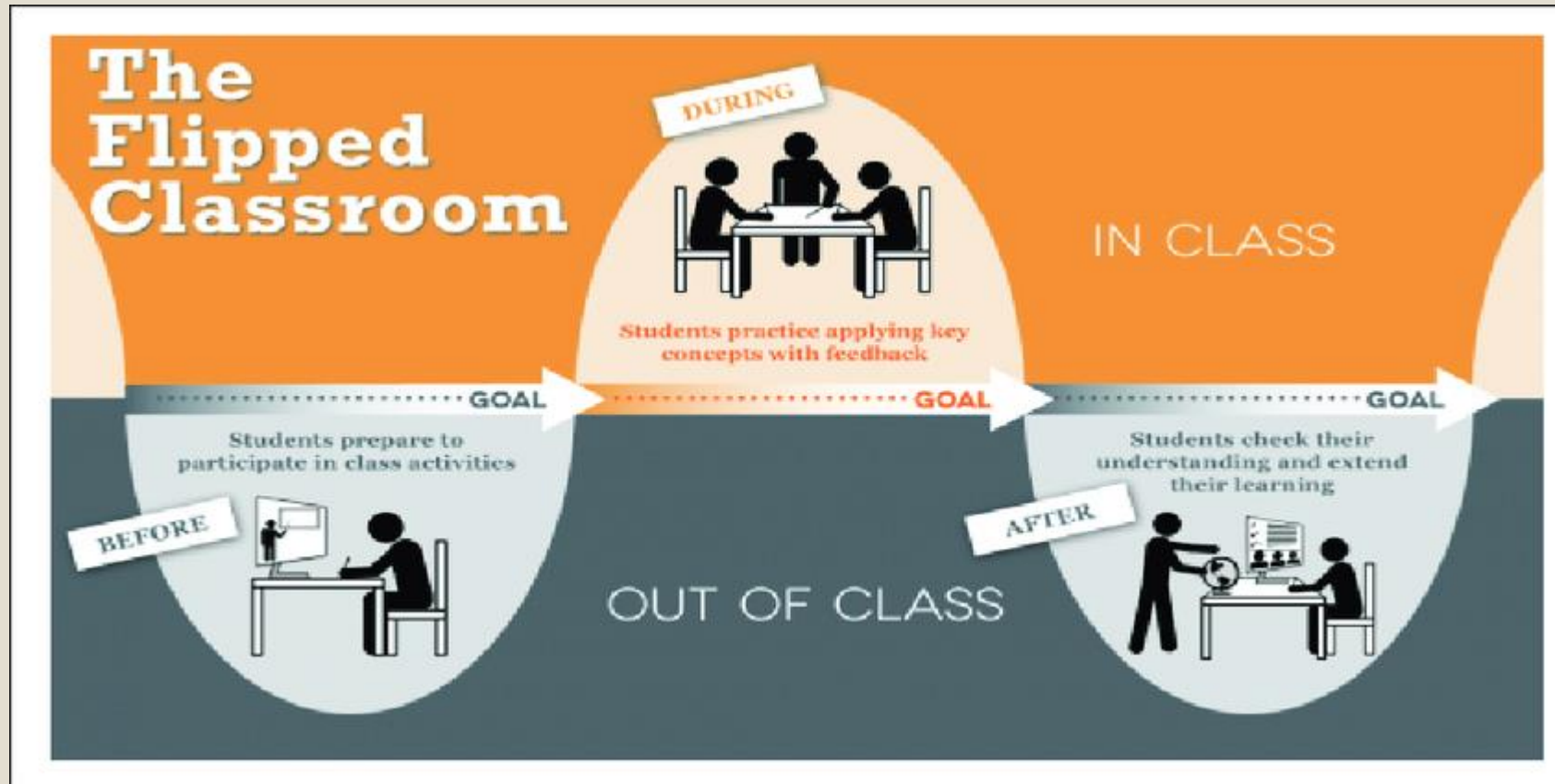
Role playing

Game playing

Laboratory work

Lecture-based learning

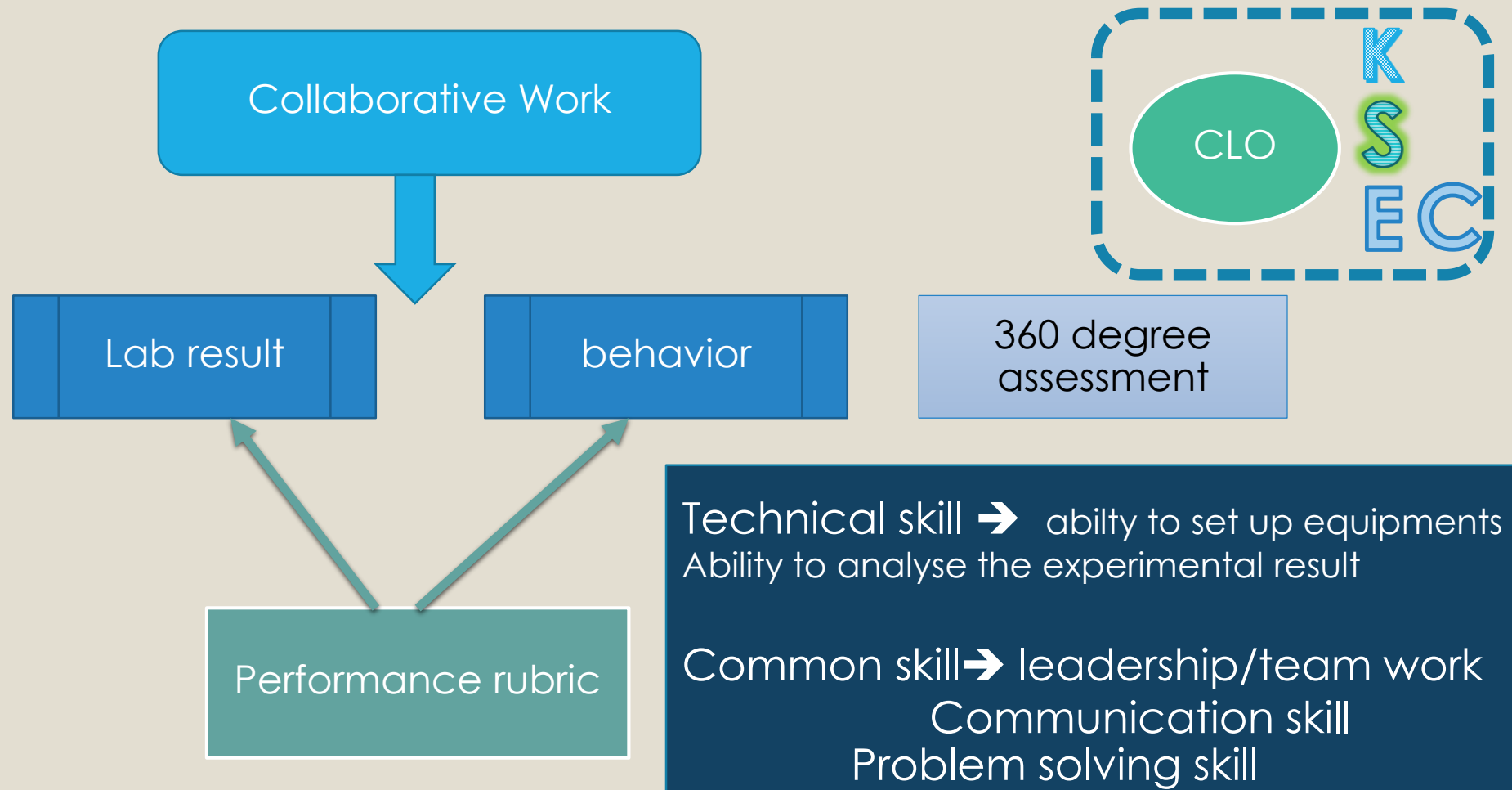Problem-based learning

Flipped classroom

Project-based learning

Assignment

Flipped Classroom

Source: Tourón, Javier & Campión, Raúl. (2015). Flipped Learning model and the development of talent at school. Revista de Educacion. 33-65. 10.4438/1988-592X-RE-2015-368-288.

Laboratory work

Collaborative Work

Lab result

behavior

360 degree assessment

CLO
K
S
E
C

Performance rubric

Technical skill ➔ abilty to set up equipments
Ability to analyse the experimental result

Common skill ➔ leadership/team work
Communication skill
Problem solving skill

Project design Goal

The project is focus on challenging problem
- Open-ended (more than one possible answer)
- Aligned with learning outcomes

- exploration of new ideas to gain an understanding, to generate solutions,

The project is focused on teaching students **specific and important** Knowledge and Skill

Common skill are assessed such as critical thinking, creativity, collaboration.

Project-based learning จะมีประสิทธิผลนำพาผู้เรียนไปบรรลุ Learning outcome เมื่อใด

Key success skills are taught using a variety of tools and strategies
students are provided with opportunities to practice and apply them and reflect on progress.

Each student receives necessary instructional supports to access content, skills, and resources

Formative assessment must be done during the project progression

Problem-based Learning

Source: http://www.faridyoussef.com/problem-based-learning
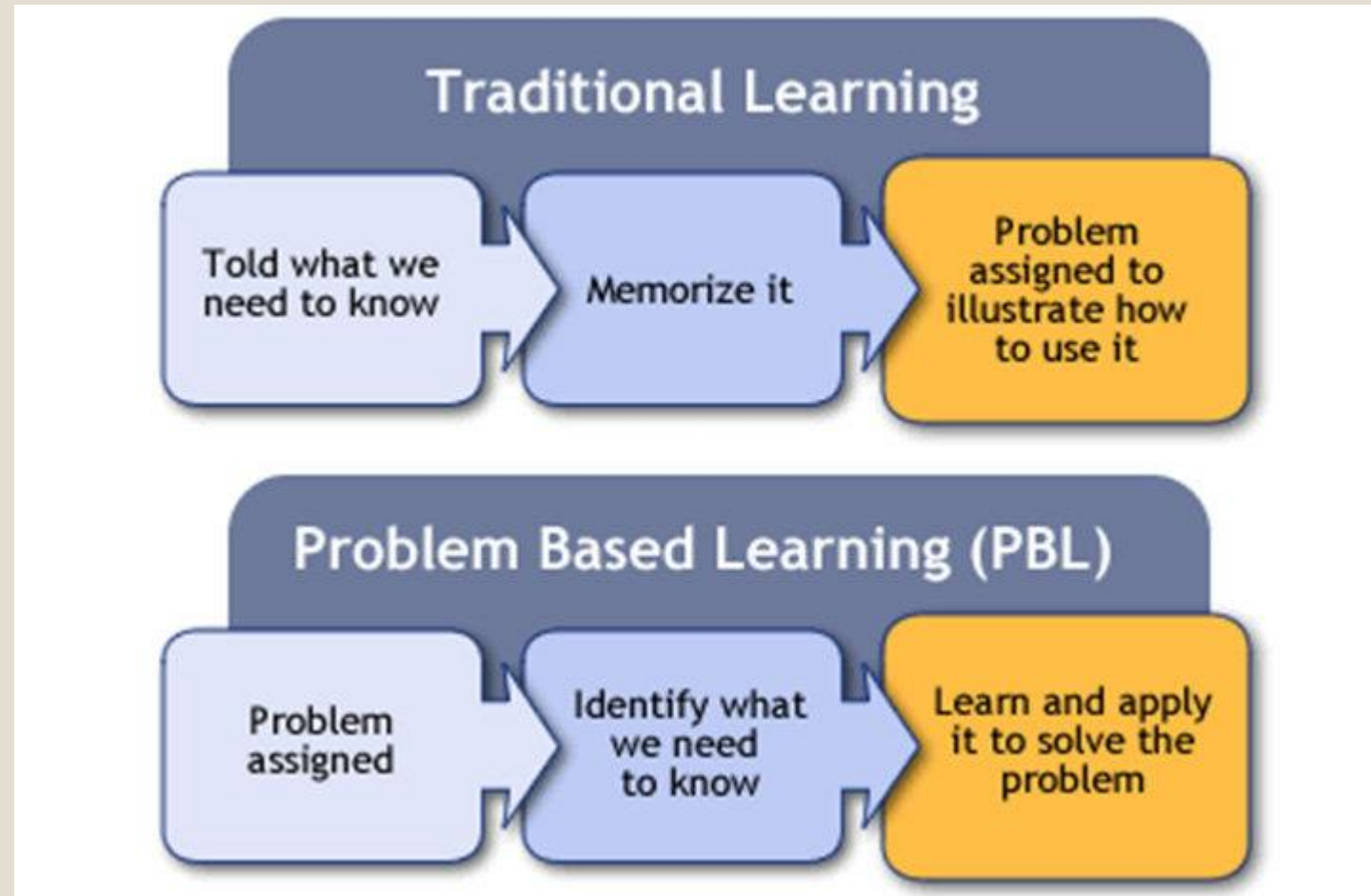
Problem-based Learning
Outcomes ➔ theory building
Main activity ➔ inquiry of problematic situation

Engage students in real-world tasks

Student-center, small group work

Self-directed learning

Teacher as facilitator for learning and resource guide

Project-based Learning
Outcomes ➔ prototype/solution
Main activity ➔ producing applicable results

Formative assessment + peer evaluation

ตัวอย่าง หลักสูตร Aeroscape Engineering

Learning Outcome
develop solutions for practical ATM problems by applying theory and knowledge of Air Traffice Management

Teaching and Learning Activities
1) Computer-based simulations
2) Group Work

Assessment
Laboratory Report (20%)

Intended Learning Outcomes (LO)	Assessment	Teaching & Learning Activity
Apply theory and knowledge of Air Traffic Management (ATM) to develop solutions for practical ATM problems	**Laboratory Report (20%)** During the laboratory session, you will conduct simulation, modelling and evaluation of a real-world problem and/or of various concepts that you have learned during the lecture. This is a team-based activity where a team of two/three students carries out laboratory work and document their findings. This report is a part of the formative assessment for the course.	**Computer-Based Simulations** This will allow you to develop realistic solutions to complex problems and will facilitate creative problem-solving. **Group Work** This will provide the opportunity for you to learn from one another and to become active participants in the learning. With group-based work, students will develop skills valued by employers (such as problem-solving, negotiation, conflict resolution, leadership, critical thinking and time management).

In this example, one of the outcomes is that students are able to "develop solutions for practical ATM problems by applying theory and knowledge of Air Traffic Management"

In order to measure this outcome, students, working as a team, will have to produce a laboratory report as part of their assessment which involves conducting simulation, modelling and evaluation of real-world problems.

Source: NTU

Assessment of Teamwork

○ **อาจารย์จะประเมินจากสิ่งใด**

1.Product related outcomes will assess the quality of the final product.
  (e.g., presentation, report, research paper)

2. Process related outcomes
will assess how well the team worked together and how each member contributed
to the team. (e.g. ability to meet deadlines, contribute fairly, communicate
effectively)

วิธีการประเมินการทำงานร่วมกับผู้อื่น teamwork

	Instructor-Led Assessment	Peer Assessment	Self-Reflection
Nature of task	The instructor will grade a student's contribution to the teamwork based on set criteria	Team members will grade each other's contribution	Each student will submit a self-reflection piece on their learning as a team
Ownership	Instructor	Students	Student and instructor
Effort	Scores to be tabulated by the instructor	Instructor to coordinate and tabulate scores from peer feedback	The instructor will grade all the self-reflection pieces
Time required	Short – Marks can be allocated during presentation / grading of group work	Medium – Scores will need to be tabulated after submission by the student	Long – Every reflection essay will need to be graded

ประเมินโดยผู้สอน

◦ **Best for:**
When we have the opportunity to observe students in their teams, this may be the quickest way to assess their contribution.

◦ For example, in some long-term project-oriented courses, instructors have several consultation sessions with students.

◦ It is thus possible to have a good sense of how the teams are working together as well as the contributions of individual members.

ตัวอย่าง rubric

รายงานโครงงาน		คะแนน				รหัสนิสิต ชื่อนามสกุล
criteria		1	2	3	4	นาย รักเกษตร ตั้งใจเรีย
เนื้อหาที่นำเสนอ	การออกแบบการทดลอง	ออกแบบการทดลองไม่ครอบคลุมกับวัตถุประสงค์ของโครงงาน	ออกแบบการทดลองครอบคลุมกับวัตถุประสงค์ของโครงงาน	ออกแบบการทดลองครอบคลุมกับวัตถุประสงค์ของโครงงาน โดยมีกระบวนการ validate ผลการทดลอง	ออกแบบการทดลองครอบคลุมกับวัตถุประสงค์ของโครงงาน โดยมีกระบวนการ validate ผลการทดลอง	3
	การสร้างสรรค์แนวคิดใหม่	ไม่พบการใช้เทคนิควิธีการใหม่ในการแก้ไขปัญหา	มีการใช้เทคนิควิธีการใหม่ในการแก้ไขปัญหาแต่ผลลัพธ์ยัง	มีการปรับปรุงเทคนิควิธีการเล็กน้อยและได้ผลลัพธ์ที่ดีขึ้น	มีการนำเทคนิควิธีการที่คิดค้นด้วยตนเองมาประยุกต์กับโครงงานและ	4
คุณภาพรายงาน	การใช้ภาษา	สะกดผิดหลายจุด จัดรูปแบบไม่เหมาะสม	สะกดผิดเล็กน้อย จัดรูปแบบเหมาะสม	ไม่พบคำสะกดผิด จัดรูปแบบเหมาะสม เรียบเรียงหัวข้อได้เหมาะสม	ไม่พบคำสะกดผิด จัดรูปแบบเหมาะสม เรียบเรียงเนื้อหาในแต่ละหัวข้อ	4
	รูปภาพ ตาราง	พบว่ามีชื่อรูปภาพ/ตารางไม่เหมาะสมกับเนื้อหา	ชื่อรูปภาพ/ตารางสอดคล้องกับเนื้อหา	ชื่อรูปภาพ/ตารางสอดคล้องกับเนื้อหา มีการอ้างอิงที่มาของรูป	ชื่อรูปภาพ/ตารางสอดคล้องกับเนื้อหา	3
คะแนนรวม						14

ประเมินโดยสมาชิกในกลุ่ม

1) Teamwork Evaluation Criteria

Criteria (Weighs)	Score from 1 to 9[1,2] (1: Never; 3: Rarely; 5: Occasionally; 7: Frequently; 9: Always)				
(For 6-members team)	Member A	Member B	Member C	Member D	Member E
Member name					
a. Fulfilling one's responsibilities duly (15%)					
Behaved responsibly—such as attend meetings punctually and regularly; participate in discussion; complete assigned tasks/roles punctually.	Score from 1 to 9				
	Qualitative comments/reasons				
b. Fulfilling one's responsibilities effectively (25%)					
Behaved and contributed effectively—such as quality of work produced; creativity of ideas; extensiveness of research and thinking.	Score from 1 to 9				
	Qualitative comments/reasons				
c. Managing interpersonal relationships (30%)					
Listened attentively to and sought inputs from others; helped team resolve conflicts and achieved common understanding to function effectively; promoted respect for others and differences; fostered camaraderie.	Score from 1 to 9				
	Qualitative comments/reasons				
d. Providing support to others to achieve goals (30%)					
Behaved fairly and ethically—such as sharing responsibilities and giving credits. Exhibited group citizenship behavior—such as helping others to learn and complete their work through guidance and encouragement; standing up for others when needed.	Score from 1 to 9				
	Qualitative comments/reasons				

[1] Score of 1 should be given only when a team member does not really deserve to be awarded any mark for the team assignment (i.e., zero mark) because the member either has not or has barely participated and/or contributed to the team assignment in any meaningful manner.

[2] See detailed score descriptions for each criterion in Appendix 3b.

Teamwork Evaluation Criteria – Score Descriptions

Please use the descriptors in to guide your evaluations. For example, if the peer exceeds the descriptor for "1" but does not yet meet the threshold described in "3", then select "2"

a. Fulfilling one's responsibilities duly (15%)

	1	2	3	4	5	6	7	8	9
	Never		Rarely		Occasionally		Frequently		Always
Behaved responsibly—such as attend meetings punctually and regularly; participate in discussion; complete assigned tasks/roles punctually.	Did not participate actively in team meetings at all (even though he/she might still be present.) Did not contribute any useful ideas that were relevant for getting the project completed. Did not submit any or usable work on time and never did so without prompting.		Rarely participated actively in team meetings. Rarely contributed useful ideas that were relevant for getting the project completed. Rarely submitted work on time and did so rarely without prompting.		Occasionally participated actively in team meetings. Occasionally contributed useful ideas that were relevant for getting the project completed. Occasionally submitted work on time and did so occasionally without prompting.		Frequently participated actively in team meetings. Often contributed useful ideas that were relevant for getting the project completed. Frequently submitted assigned work on time without prompting.		Always participated actively in team meetings. Always contributed useful ideas that were relevant for getting the project completed. Always submitted assigned work on time without prompting.

b. Fulfilling one's responsibilities effectively (25%)

	1	2	3	4	5	6	7	8	9
	Never		Rarely		Occasionally		Frequently		Always
Behaved and contributed effectively—such as quality of work produced; creativity of ideas; extensiveness of research and thinking.	Quality could not be evaluated because nothing relevant or usable was submitted.		Quality of work could be improved vastly; required major revisions before submission. Work reflected superficial effort in completing the project.		Quality of work could be improved; required some revisions before submission. Work reflected some effort in completing the project.		Quality of work was of reasonably acceptable standards; required minor revisions before submission. Work reflected reasonable effort in completing the project.		Quality of work was of highly acceptable standards; required no revision before submission. Work reflected extensive effort in completing the project.

c. Managing interpersonal relationships (30%)

	1	2	3	4	5	6	7	8	9
	Never		Rarely		Occasionally		Frequently		Always
Listened attentively to and sought inputs from others; helped team resolve conflicts and achieved common understanding to function effectively; promoted respect for others and differences; fostered camaraderie.	Never listened to others. Never attempted to help team resolve conflicts. Never attempted to achieve common understanding to function effectively as a team. Never promoted respect for others, with no attempt to foster camaraderie.		Rarely listened to others. Rarely attempted to help team resolve conflicts. Rarely attempted to achieve common understanding to function effectively as a team. Rarely promoted respect for others, with rare attempts to foster camaraderie.		Occasionally listened to others, with occasional attempts to help team resolve conflicts. Occasionally attempted to achieve common understanding to function effectively as a team. Occasionally promoted respect for others, with occasional attempts to foster camaraderie.		Frequently listened to others, with frequent attempts to help team resolve conflicts. Frequently attempted to achieve common understanding to function effectively as a team. Frequently promoted respect for others, with notable attempts to foster camaraderie.		Always listened to others, always attempted to help team resolve conflicts. Always attempted to achieve common understanding to function effectively as a team. Always promoted respect for others and demonstrated consistent attempts to foster camaraderie.

D. Providing support to others to achieve goals (30%)

	1	2	3	4	5	6	7	8	9
	Never		Rarely		Occasionally		Frequently		Always
Behaved fairly and ethically—such as sharing responsibilities, and giving credits. Exhibited group citizenship behavior—such as helping others to learn and complete their work through guidance and encouragement; standing up for others when needed.	Never took on a fair share of responsibilities; never gave appropriate credits to others. Never attempted to help others learn; never provided guidance and encouragement. Never stood up for others when needed.		Rarely took on a fair share of responsibilities; rarely gave appropriate credits to others. Rarely attempted to help others learn; rarely provided guidance and encouragement. Rarely stood up for others when needed.		Occasionally took on a fair share of responsibilities; occasionally gave appropriate credits to others. Occasionally attempted to help others learn; occasionally provided guidance and encouragement. Occasionally stood up for others when needed.		Frequently took on a fair share of responsibilities; frequently gave appropriate credits to others. Frequently attempted to help others learn; frequently provided guidance and encouragement. Frequently stood up for others when needed.		Always took on a fair share of responsibilities; always gave appropriate credits to others. Always attempted to help others learn; always provided guidance and encouragement. Always stood up for others when needed.

การประเมินผู้เรียน

- *Clarity* - has clear task instructions and assessment criteria.
- *Validity* - provides the appropriate level of intellectual challenge and complexity, and enables students to demonstrate their attainment of the intended learning outcomes.
- *Reliability* - is consistent across cohorts of students, and different assessors using the same criteria will come to the same decisions.
- *Equitability* - is fair and equitable.
- *Authenticity* - uses real-life or simulated contexts that engage students in applying knowledge and skills as they might be used in real or future worlds.
- *Variety of assessment types* - ensures the range of learning required in the course is captured.
- *Comprehensiveness* - strikes a reasonable balance between formative and summative assessment, and the frequency of assessment is reasonable and not overwhelming.

ขอบคุณค่ะ