Active & Experiential Learning

Constructive Alignment

คุยกับเพื่อนข้าง ๆ

1. ท่านวางแผนการจัดการเรียนการสอนอย่างไร ในภาคเรียนที่ผ่านมา
2. ระหว่างที่สอนในภาคเรียนนั้น เป็นไปตามที่วางแผนไว้หรือไม่
3. นักศึกษามีพฤติกรรมอย่างไรบ้าง

Active Learning VS Experiential Learning

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ACTIVE LEARNING

Engages students directly in thinking and problem solving activities

Emphasis on engaging students in manipulating, applying, analyzing, and evaluating ideas

Examples:

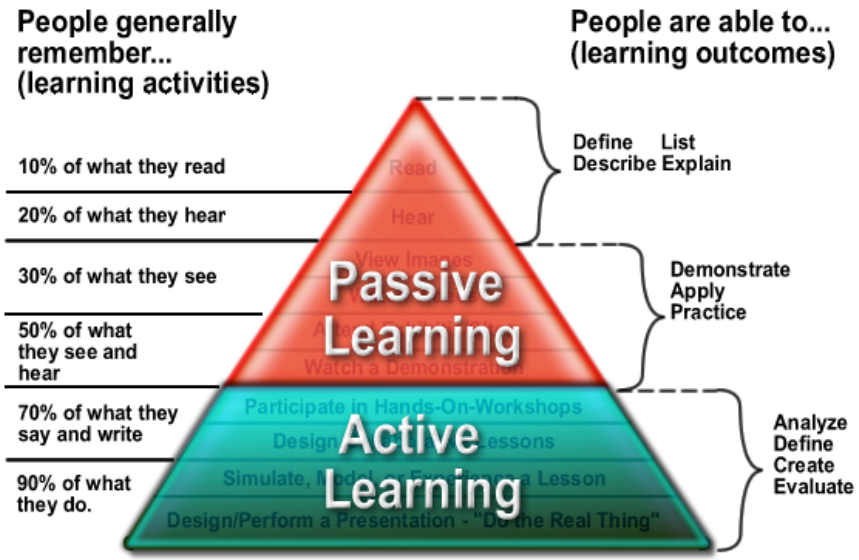
Pair-and-Share
Group discussions
Debates
Concept questions

EXPERIENTIAL LEARNING

Active learning in which students take on roles that simulate professional engineering practice

Examples:

Design-implement experiences
Problem-based learning
Simulations
Case studies



ACTIVE LEARNING FOR EFFICIENT LEARNING

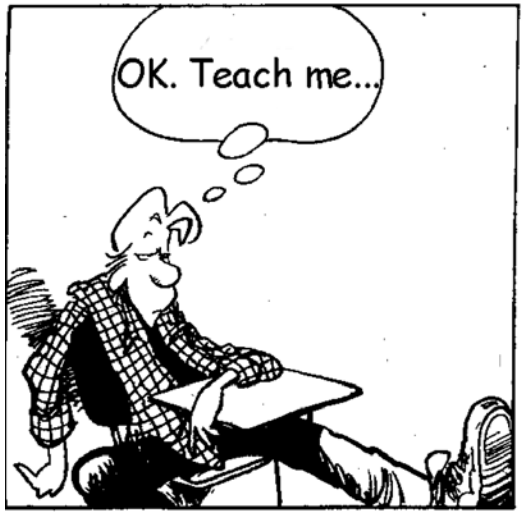
The 2 key factors that underpin effective learning are (Gibbs, 1982):

- the learner **activity**
- interaction with others

Several studies (Biggs, 1999) have shown that there is a strong correlation between extent of **activity** and efficiency of learning.

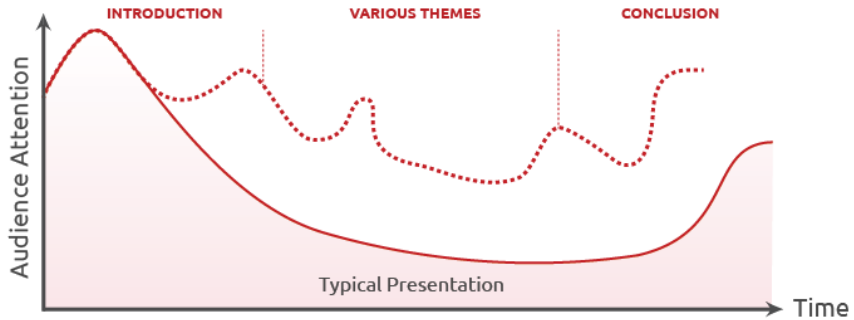
Glasser (Biggs, 1999) suggests that most people learn:

- 10% of what they read
- 20% of what they hear
- 30% of what they see
- 50% of what they see and hear
- 70% of what they **talk over with others**
- 80% of what they **use and do in real life**
- 95% of what they **explain to someone else**



What makes a student sit like this?

Structured Lecture



Tips: Time on task !
Instant feedback!
Intrinsic motivation (Purpose, autonomy, mastery)
Noise level

Concept Question

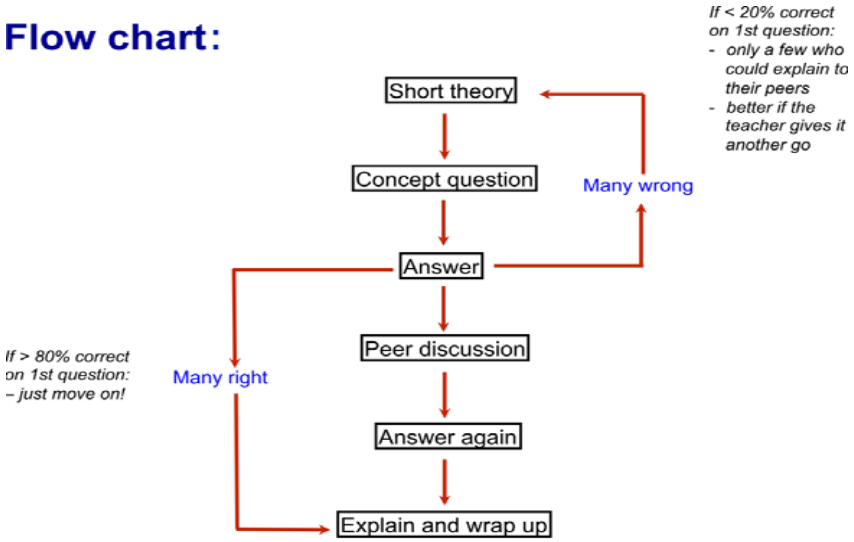
Aiming for conceptual understanding by making students active and interactive in class.

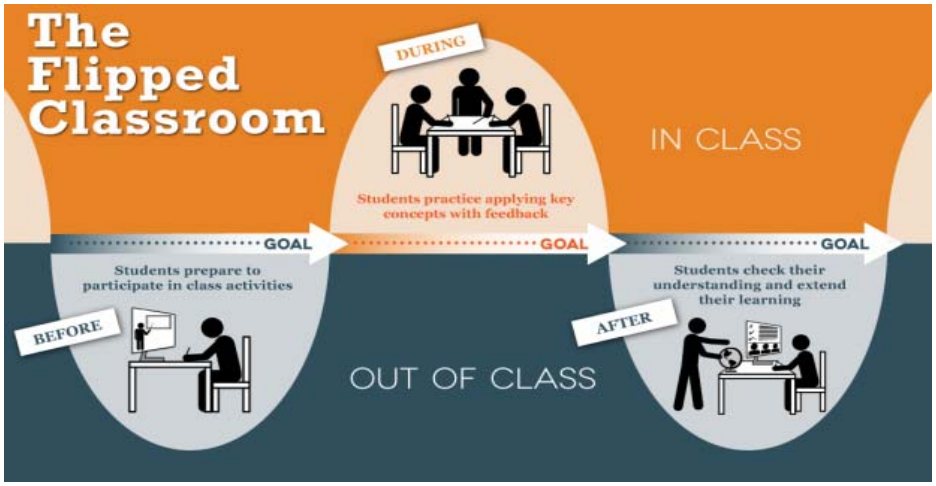
1. Little on theory
2. Concept question is posed
3. Probe answer

Fix it ⟵ ⟶ Proceed

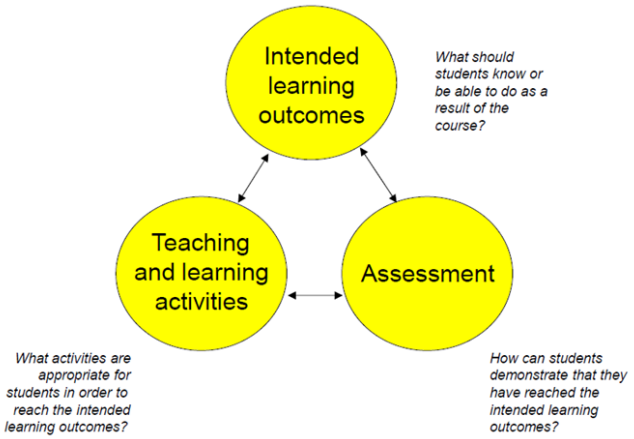
Concept Question

Flow chart:

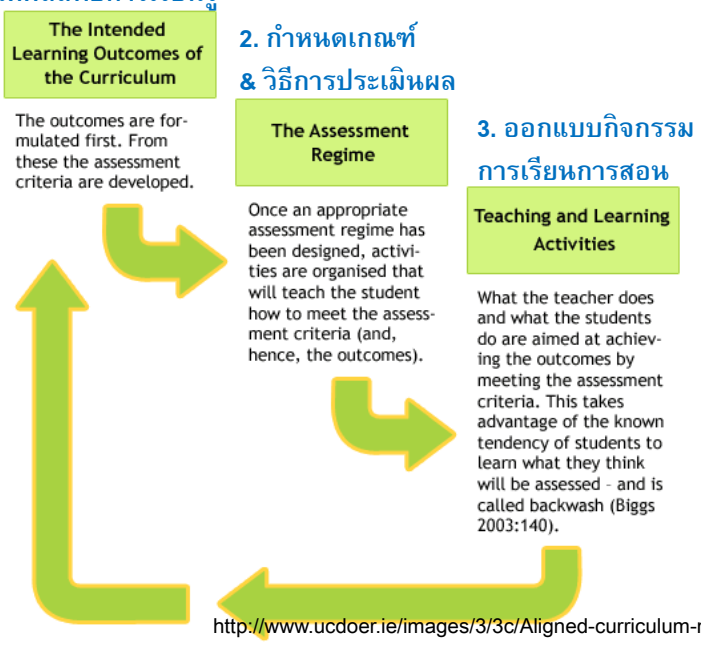




Learning Outcome – Learning Activities – Assessment Linkage



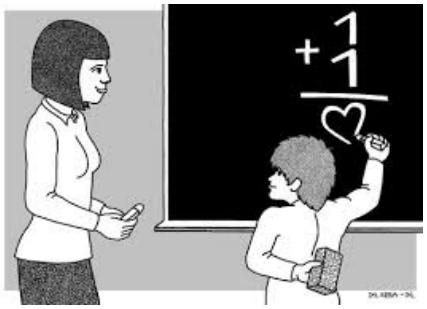
1. กำหนดผลลัพธ์การเรียนรู้



http://www.ucdoer.ie/images/3/3c/Aligned-curriculum-model.gif

Learning objectives should be student-centered

"At the end of the course, students should be able to _____."



Learning objectives should break down the task and focus on specific cognitive processes.

Solve a problem → Define parameters
Choose appropriate formulas
Calculate the value
Interpret the result

Verbs for Bloom's Taxonomy

Remember	Understand	Apply	Analyze	Evaluate	Create
Arrange	Classify	Calculate	Combine	Appraise	Arrange
Define	Describe	Construct	Figure	Argue	Assemble
Locate	Identify	Demonstrate	Find	Assess	Compose
Recall	Indicate	Estimate	Sketch	Defend	Create
Recite	Organize	Illustrate	Solve	Estimate	Design
Describe	Interpret	Interpret	Predict	Judge	Devise
Repeat	Illustrate	Appraise	Change	Predict	Formulate
Identify	Reorganize	Contrast	Survey	Qualify	Invent
Select	Translate	Criticize	Compare	Rate	Manage
Quote	Paraphrase	Diagnose	Diagram	Support	Modify
Label	Summarize	Identify	Examine	Critique	Organize
Copy	Transform	Classify	Test	Recommend	Plan
List	Discuss		Modify		Prepare
Name	Explain				Produce
State	Defend				Propose
	Compare				Set Up
	Report				Verify
	Restate				Construct
	Review				Develop
	Rewrite				

Type of learning objective	Examples of appropriate assessments
Recall **Recognize** **Identify**	fill-in-the-blank matching Labeling multiple-choice questions

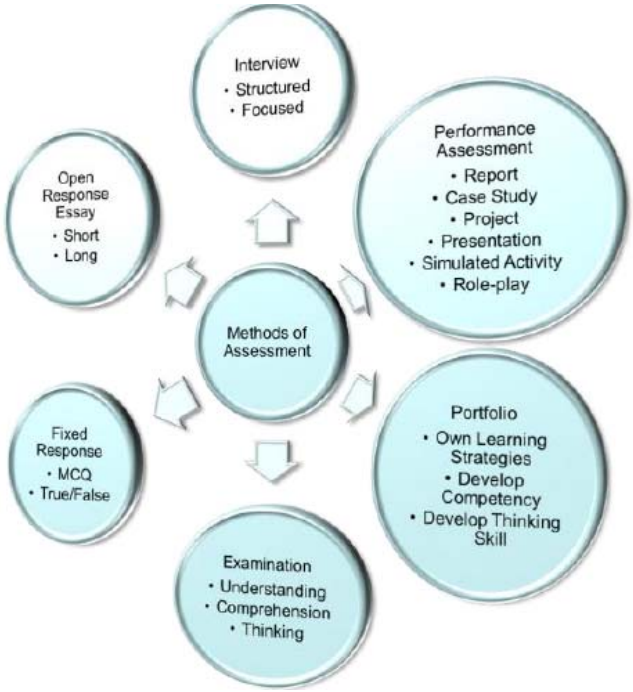
Type of learning objective	Examples of appropriate assessments
Interpret **Exemplify** **Classify** **Summarize** **Infer** **Compare** **Explain**	Papers Exams problem sets class discussions concept maps

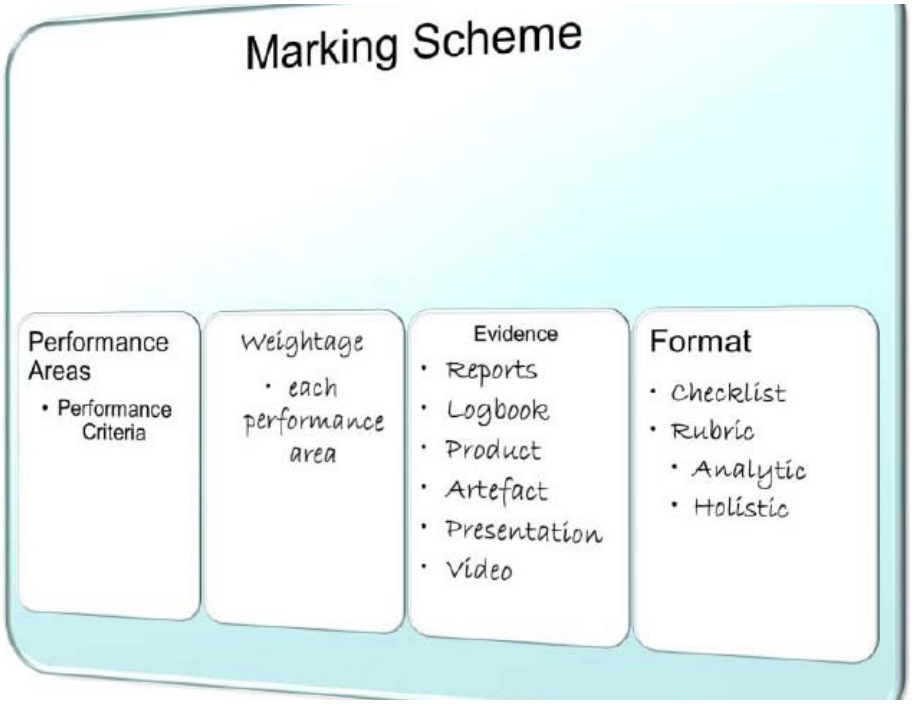
Type of learning objective	Examples of appropriate assessments
Apply **Execute** **Implement**	problem sets Performances Labs Prototyping simulations •use procedures to solve or complete familiar or unfamiliar tasks •determine which procedure(s) are most appropriate for a given task

Type of learning objective	Examples of appropriate assessments
Analyze **Differentiate** **Organize** **Attribute**	case studies critiques, labs, papers, projects, debates, or concept maps that require students to: •discriminate or select relevant and irrelevant parts •determine how elements function together •determine bias, values, or underlying intent in presented material

Type of learning objective	Examples of appropriate assessments
Evaluate **Check** **Critique** **Assess**	Activities such as journals, diaries, critiques, problem sets, product reviews, or studies that require students to: •test, monitor, judge, or critique readings, performances, or products against established criteria or standards

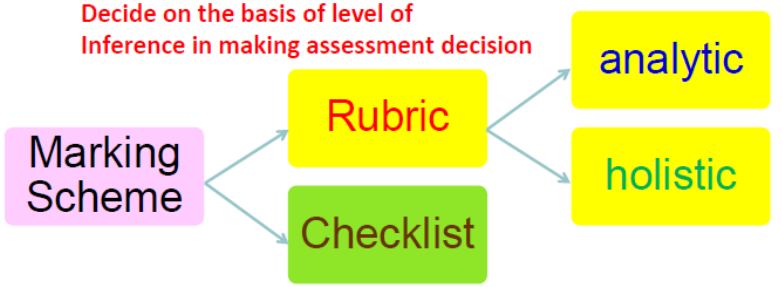
Type of learning objective	Examples of appropriate assessments
Create **Generate** **Plan** **Produce** **Design**	Activities such as research projects, musical compositions, performances, essays, business plans, website designs, or set designs that require students to: •make, build, design or generate something new





Marking Formats for performance assessments

Decide on the basis of level of Inference in making assessment decision



analytic or holistic rubric – what's the difference, and on what basis would you decide?

CATEGORY	LEVEL OF OUTCOME			
	4	3	2	1
Oral Presentation	Presentation is very clear, organised and communicates all aspects of the experiment to the specific audience. Body language fully supports the oral presentation.	Presentation is generally clear, organised and communicates most aspects of the experiment to the specific audience. Body language supports the oral presentation.	Presentation is limited in clarity, organisation with few aspects of the experiment communicated to the specific audience. Body language is only marginally supportive of the oral presentation.	Very poor oral presentation. Theme is not clear, disorganized. Members not well prepared.
Memo Writing	Memo is clear, concise and fully communicates all relevant information. All linguistic conventions are met (e.g., style, grammar, spelling and punctuation).	Memo is clear, concise and communicates most of the relevant information. Most linguistic conventions are met (e.g., style, grammar, spelling and punctuation).	Memo lacks clarity, conciseness and communicates little of the relevant information. Few linguistic conventions are met (e.g., style, grammar, spelling and punctuation).	Very poorly written memo. Poor grammar, style, mistakes in spelling, etc.

Exercise

สำหรับรายวิชาที่ท่านจะสอนในภาคการศึกษาที่ 1 ปีการศึกษา 2559 ท่านวางแผนอยากจะปรับปรุงอะไรบ้าง ? เพราะเหตุใด ?