مركز تطوير التعليم الجامعي
Center for Teaching & Learning Development

EFFECTIVE ASSESSMENT OF STUDENT PERFORMANCE

Prof. Jamila MA. Farsi

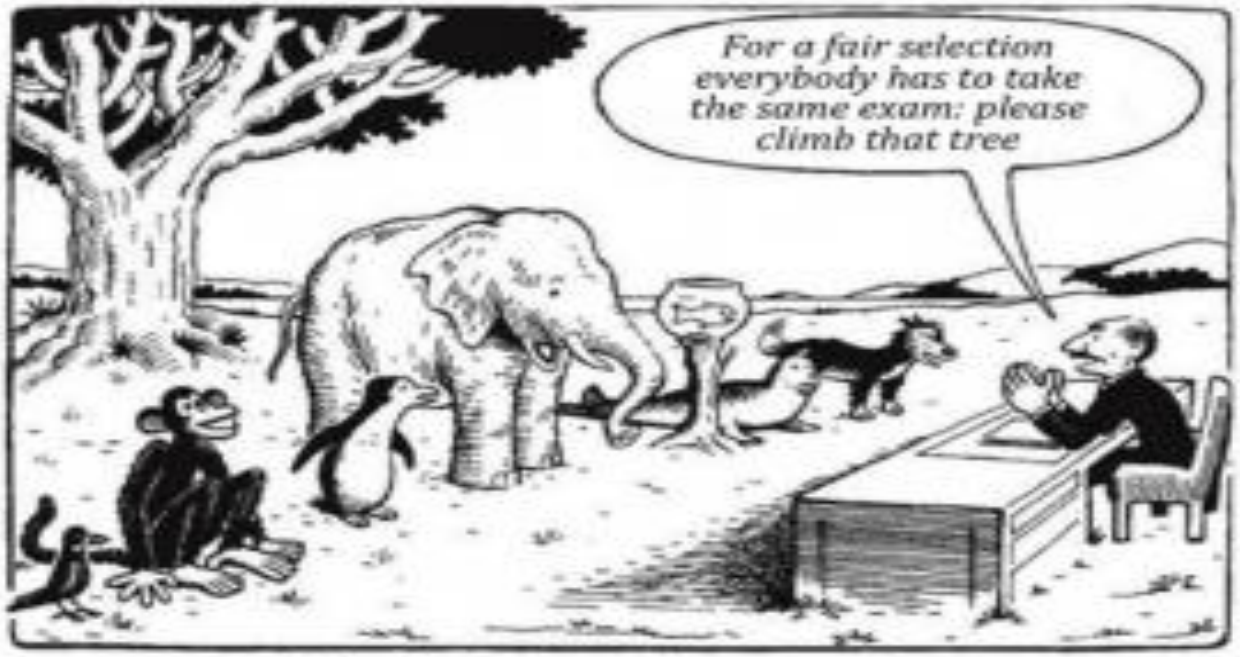
Assessment in Six Parts

- Part I: Principles of Student Assessment
- Part II: Assessment Blueprinting
- Part III: Item Construction in MCQs
- Part IV: Performance Tasks & Rubrics
- Part V: Test Diagnostics
- Part VI: Feedback to Students

What You Should Already Know

- How to write measurable learning outcomes
- Different methods of teaching
- Bloom's Taxonomy
- NCAAA domains of learning
- Program and course specifications

Being a part of a larger training program will give us the privilege of knowing the background of our audience from the previously covered materials in other domains of the workshop.



Our Education System

"Everybody is a genius. But if you judge a fish by its ability to climb a tree, it will live its whole life believing that it is stupid."

- Albert Einstein

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PRINCIPLES OF STUDENT ASSESSMENT

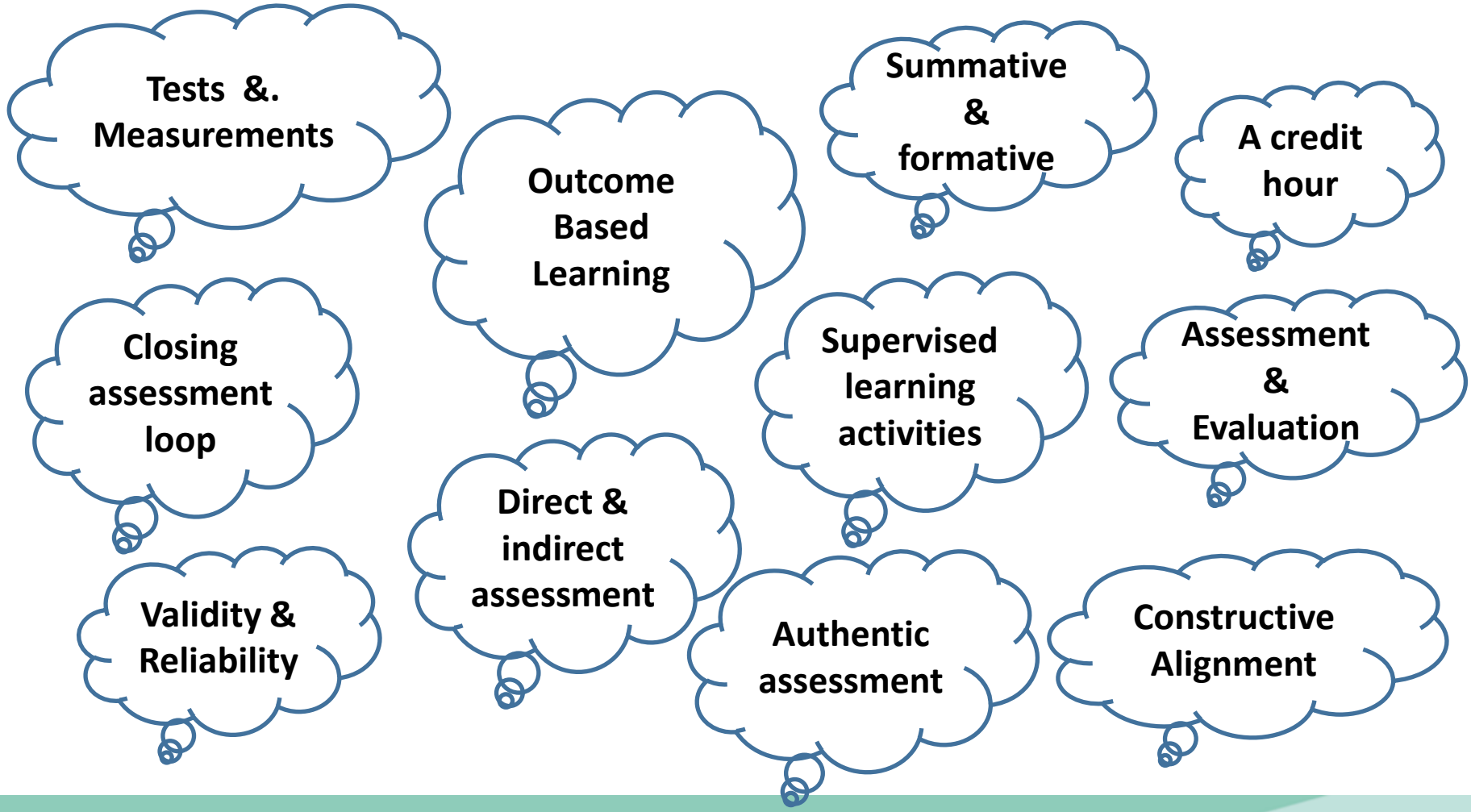
Abeer ALkhouli

Session Outcomes

By the end of this session, participants will be able to:

- define important terms in assessment;
- explain outcome-based education (OBE);
- explore various types of assessment;
- explain the concept of constructive alignment;
- Illustrate the meaning of validity and reliability;
- articulate the elements of effective assessment.

Brain stretching activity



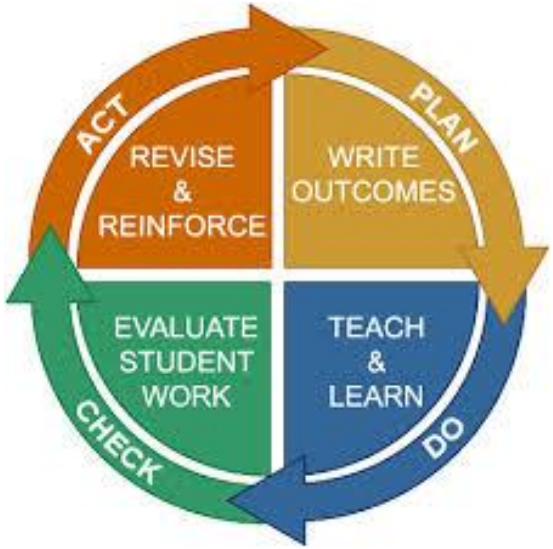
How many clouds do you know?

"Assessment is not an end in itself but a vehicle for educational improvement."

American Association of Higher Education Bulletin (AAHE), 1992

Assessment

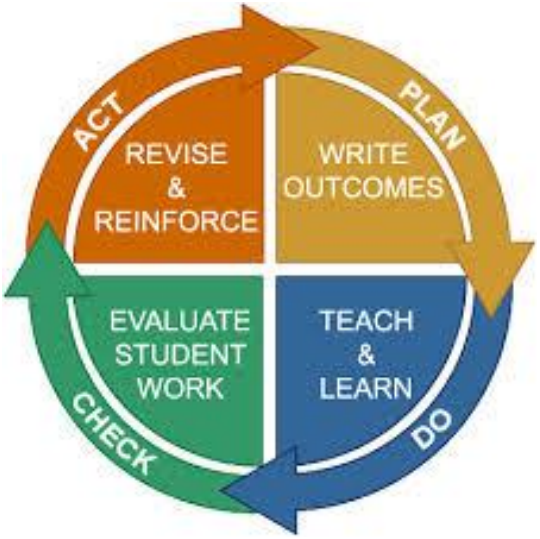
"A systematic process of looking at student achievement within and across courses by gathering, interpreting and using information about student learning for educational improvement."



American Association of Higher Education Bulletin (AAHE)

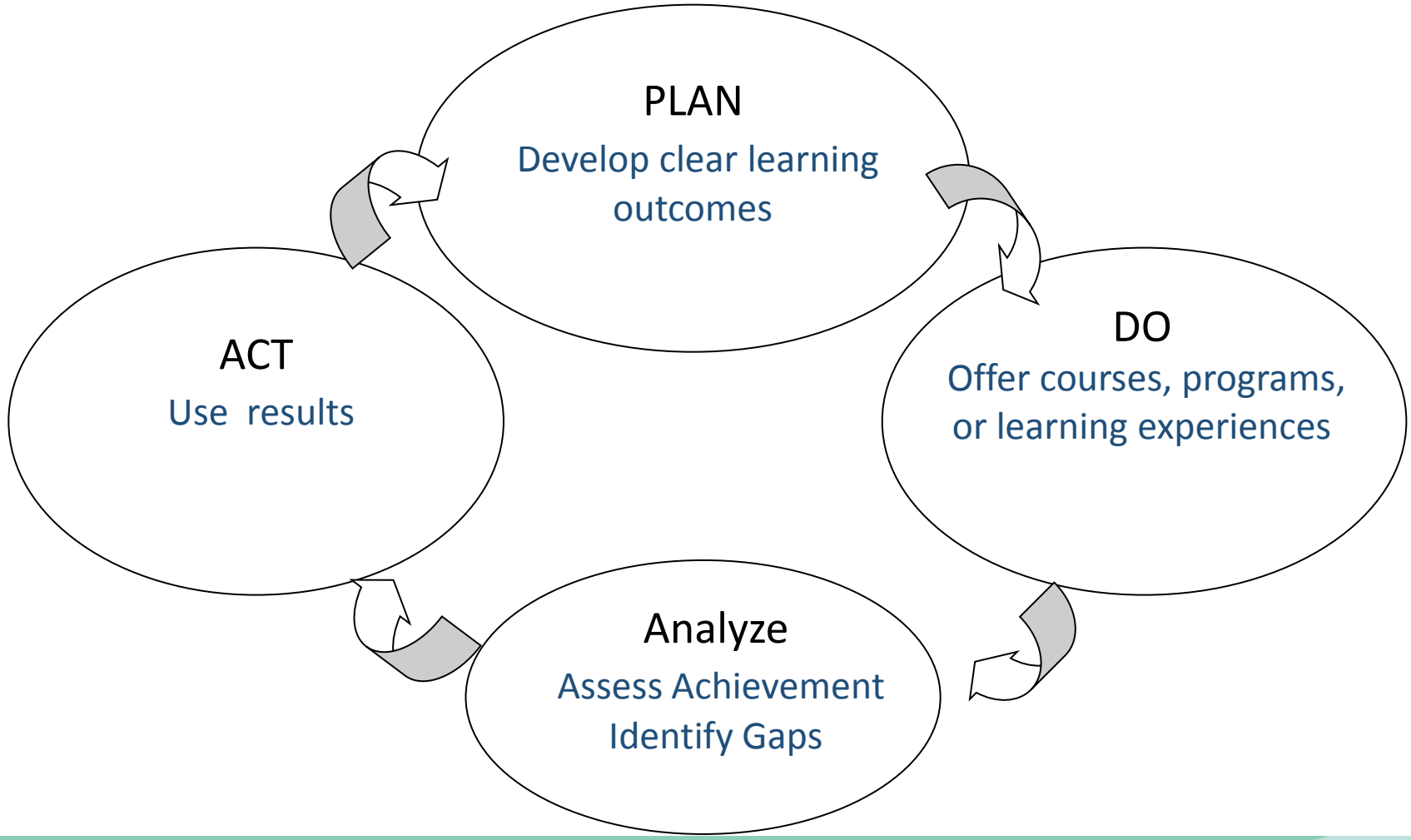
Evaluation

"The process of making a value judgment about the worth of a student's product or performance"



Nitko & Brookhart, 2007

Department Assessment Plan

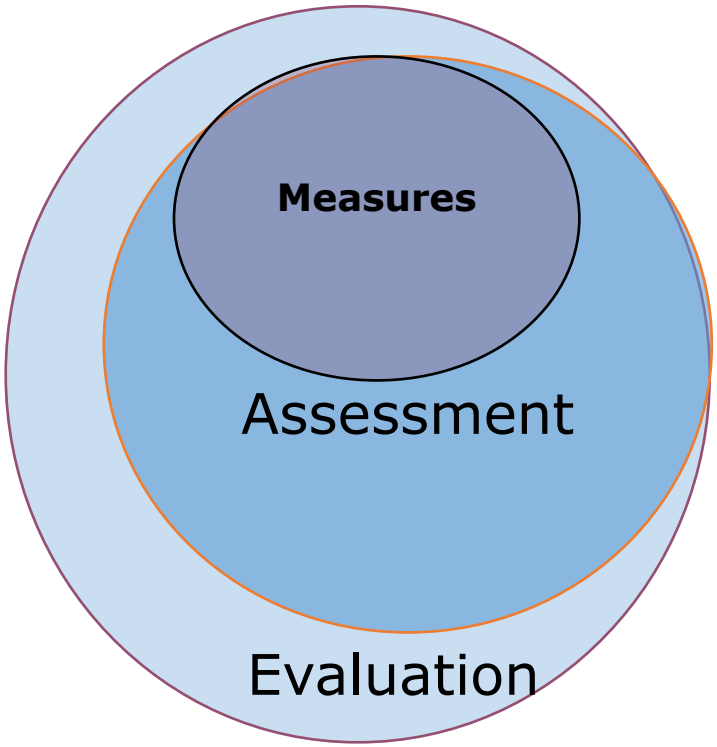


Test

An instrument or a systematic procedure for observing and describing one or more characteristics of a student using either a **numerical** scale or a **classification** scheme.

Nitko & Brookhart, 2007

Measures, Assessment and Evaluation



Measures: could be direct/indirect, qualitative/quantitative, hard/soft evidence.

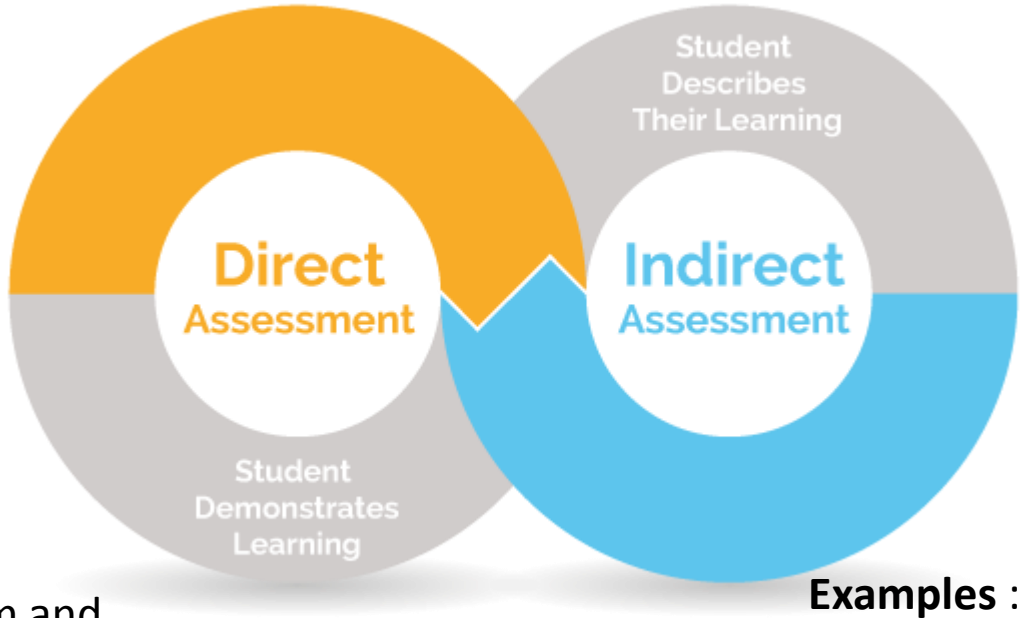
Assessment s the **process** by which you gather information about students' progress in achieving the curriculum's learning targets.(Nitko, 1995).

Evaluation: is the final verdict (judgment based on criteria)

Direct / Indirect Measures

Directly tied to performance

Not directly tied to performance- requires inference



Examples : classroom and homework assignments, examinations and quizzes, capstone courses, student portfolios, and artistic performances.

Examples : exit surveys, student opinion surveys, alumni surveys, **grades not based on scoring guidelines**, retention and graduation statistics, and student activities.

Assessment vs. Evaluation

Assessment	• A systematic way of obtaining data(information) • Measures
Evaluation	• Decision making about: • Student achievement • Outcomes attainment
Closing the loop	• What's happening? How far? What's wrong? • What's next? • Action plan: What? – Why? -Who? –When?

Summative and Formative Assessment

Summative assessment ***(quantitative- marks)***

For certifying purpose, an absolute measurement which allows a judgment of student achievement of criteria (outcomes), a judgment of the efficacy of the program.

Ex. Tests-performance tasks, production tasks

Formative assessment ***(on going- no/few marks)***

For diagnostic purposes, , feedback vehicle to continuously measure progress and identify gaps, identify the level students have reached, not reached and how to improve. Adjust teaching and learning, prep for summative.

Ex: pretest, quizzes, assignments, oral questioning, discussion, one minute paper.

Outcome-based Education (OBE)

It is the collection of knowledge, Skills, Abilities and attitudes that students have attained by the end of the **streamlined** course/courses/college experience, that they can **demonstrate** to others through **effective assessment**.

Evaluating those assessments shows how successful the learning experience has been.

Student Learning Outcomes (SLOs)

The knowledge, skills, values, attitudes, and habits of mind that students take with them from a course or a learning experience .

(Suskie, 2004)

Habits of Mind

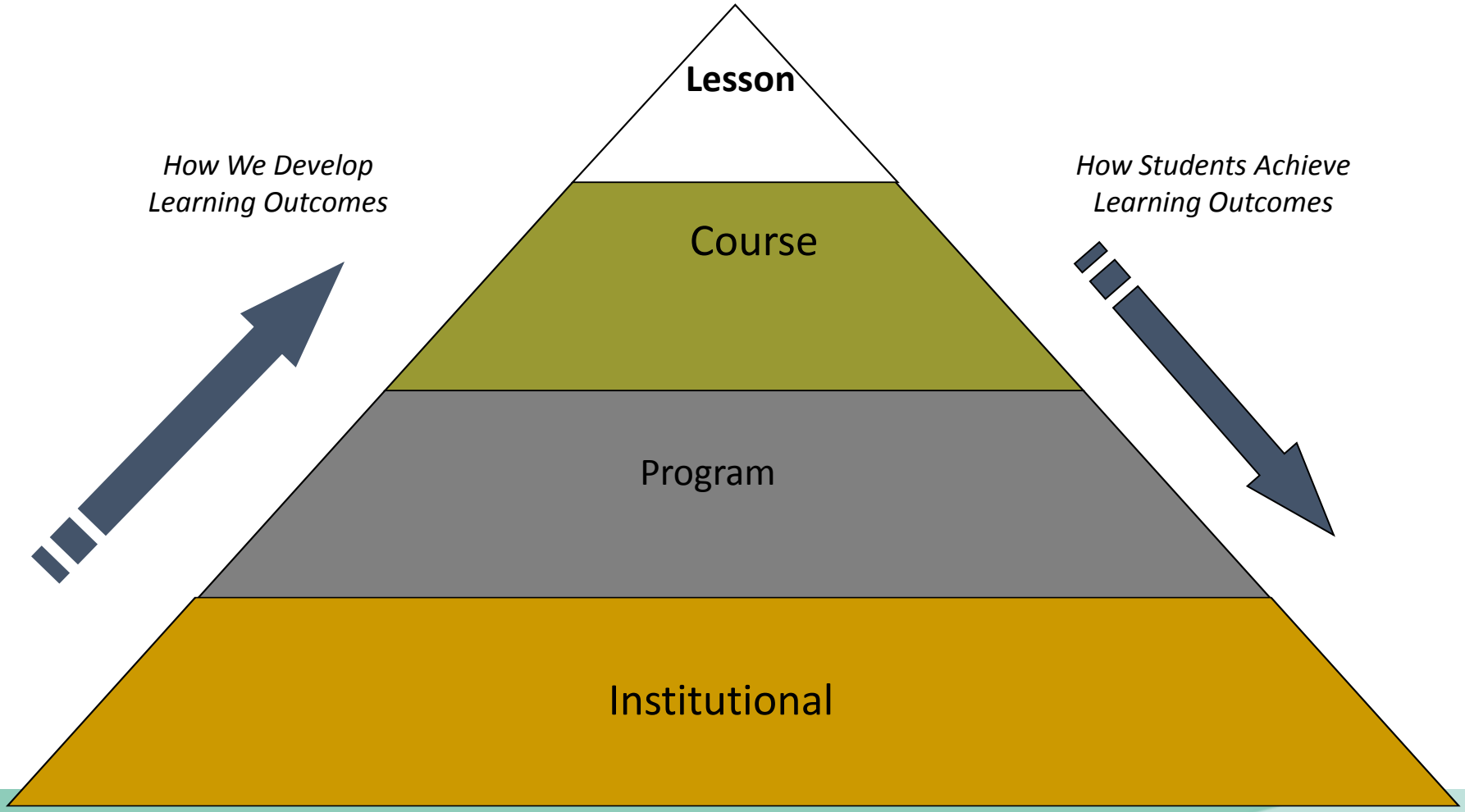
"Habits" are traits successful people demonstrate and continually develop.

The “Habits” are an important part of the curriculum framework.

Facilitators infuse these sixteen **life skills** in the curriculum so as to better equip students in their journey to become successful citizens.

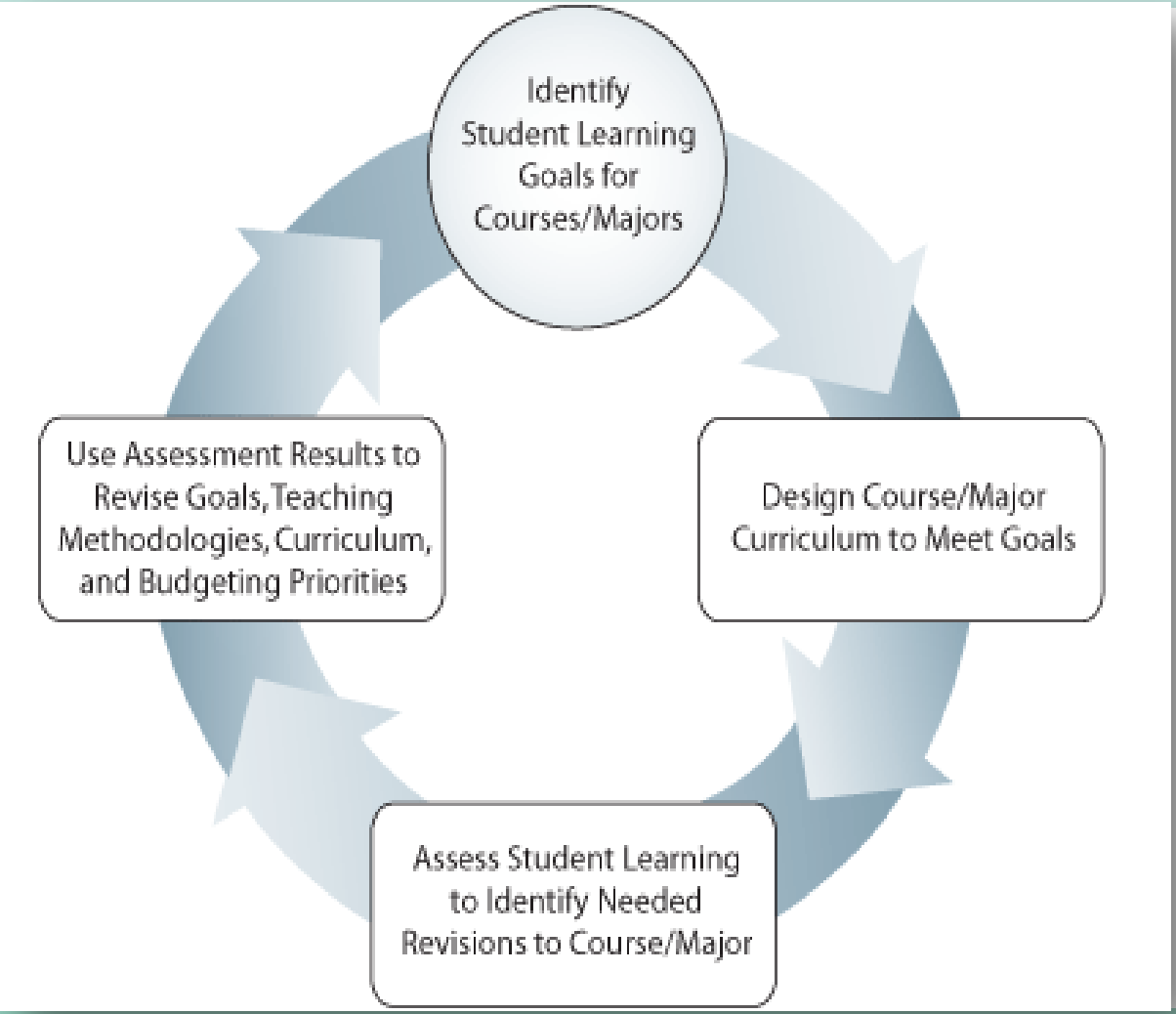
Thinking and communicating with clarity and precision	**Persisting**	**Applying past knowledge to new situations**	**Responding with wonderment and awe**
Thinking about thinking (metacognition)	**Thinking interdependently**	**Managing impulsivity**	**Striving for accuracy**
Remaining open to continuous learning	**Thinking flexibly**	**Finding humor**	**Listening with empathy and understanding**
Taking responsible risks	**Gathering data through senses**	**Questioning and posing problems**	**Creating, imagining, and innovating**

Student Learning Outcomes(SLOs)



Adapted from Huba and Freed (2000), p. 108.

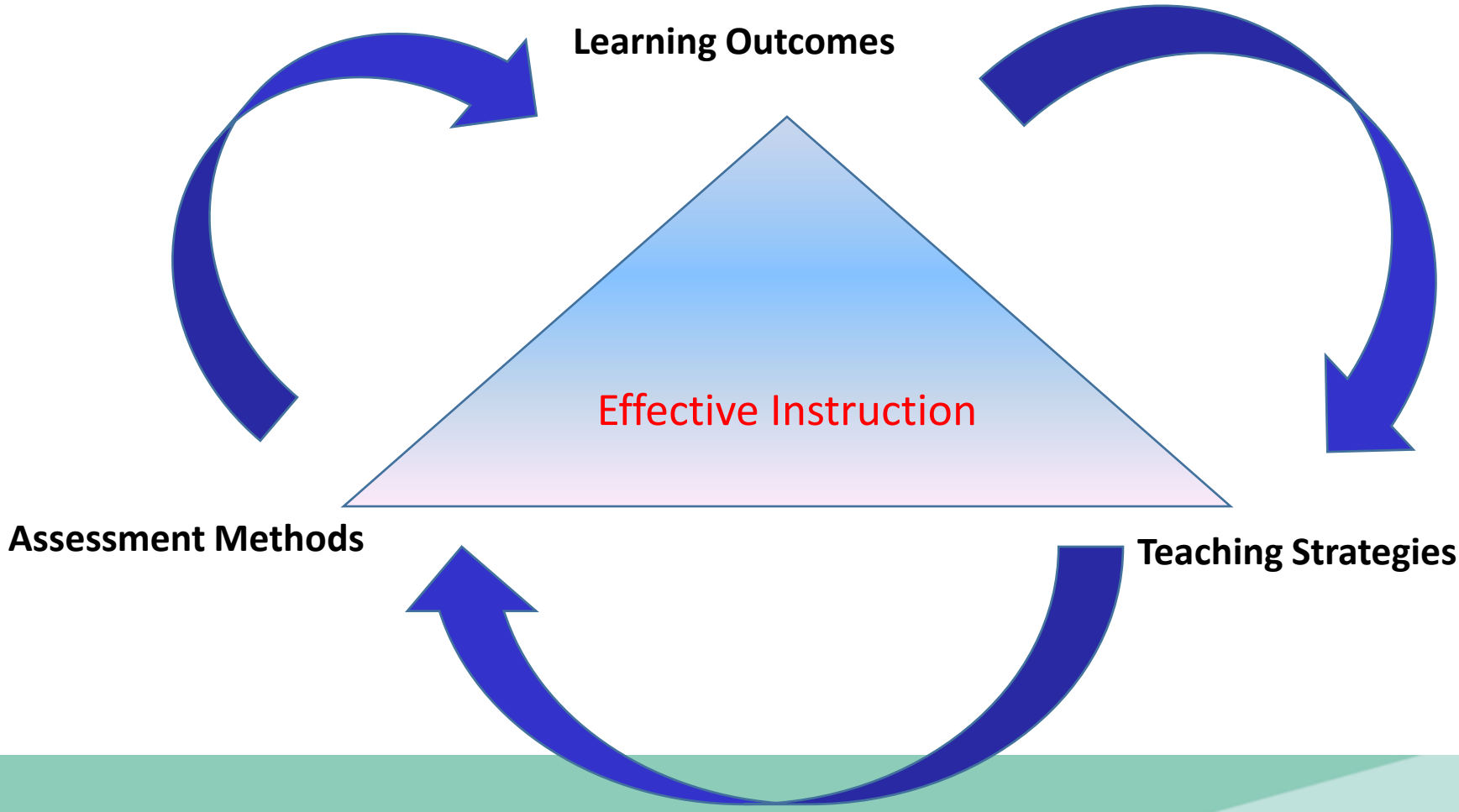
Program Assessment Plan



Planning,
Designing,
Alignment,
Mapping
Reflection,
Feedback,
Analysis,
Documentation
Improvement,

http://depts.washington.edu/learning/

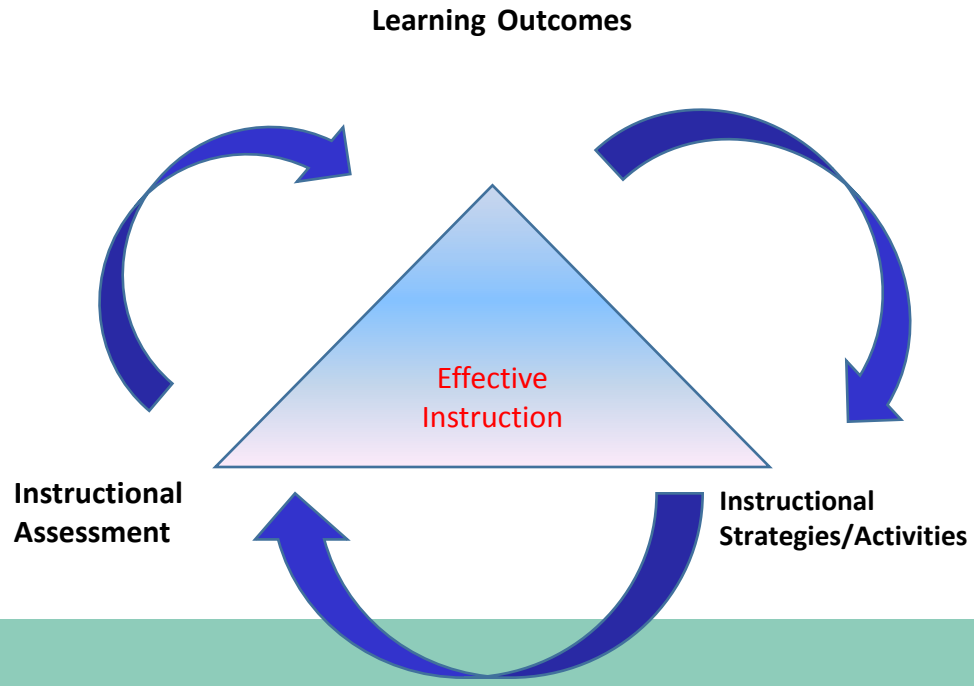
Course Assessment Plan

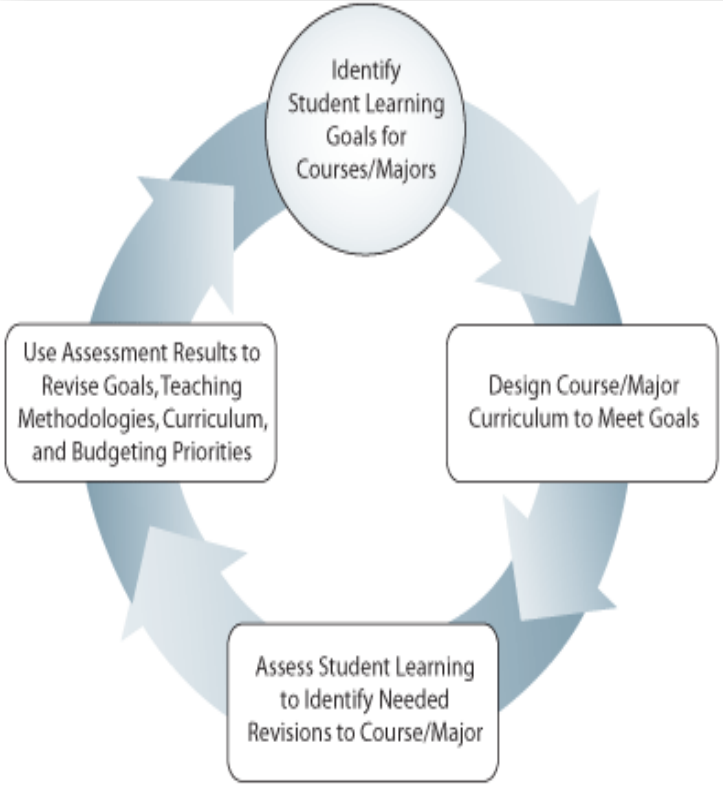


Aligned & streamlined course(s)

Within a course

Across courses





Assessment Methods

- **Formal examination (objective, essay, Oral)**
- Structured Essays
- Assignments, Quizzes

Exam-related Tasks

Workplace-based observation

- Direct observation of procedural skills (DOPS)
- Clinical evaluation exercise

- Discussions, Participation, Debates
- Research papers or projects (process-product)
- Oral Presentation and Demonstration
- **Simulation**
- **Case study and investigation**
- Practicum, lab work , **OSCE, OSPE,…**
- Internship, clinical experience
- Student portfolio- **Log book**

Performance /production Tasks

Assessment Methods

- Objective Tests
- Case Studies
- Essay Questions
- Projects
- End-of-Chapter Type Problems
- Reflective Journals and Critical Incidents
- Seminar Presentation
- Practicum and Clinical
- Portfolio
- Examinations
- Peer and Self-Assessment

Keep asking the following questions about your assessment plan:

1. What outcomes (level of understanding/ performance) are assessed?
2. How authentic is the task?
3. What kind of learning is promoted?

http://www.polyu.edu.hk/obe/08_3_2.php

Course Teaching Plan

NCAAA- CS Table 1

1. Topics to be Covered		
List of Topics	**No. of Weeks**	**Contact hours**

NCAAA- CS Table 2, 3

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours						
Credit						

3. Additional private study/learning hours expected for students per week.

Course Assessment Plan

NCAAA- CS Table 6

6. Schedule of Assessment Tasks for Students During the Semester			
Assessment	Assessment task (eg. essay, test, group project, examination, oral presentation, etc)	Wk. due	Proportion of Total assessment
1			
2			
3			
4			
5			
6			
7			

Course Assessment Plan

A very important part of each course syllabus

Introduction to Statistics 110

• Exam 1	30%	week 6
• Exam 2	30%	week 11
• Final	40%	week 16

Example 2

Course: Research Methods

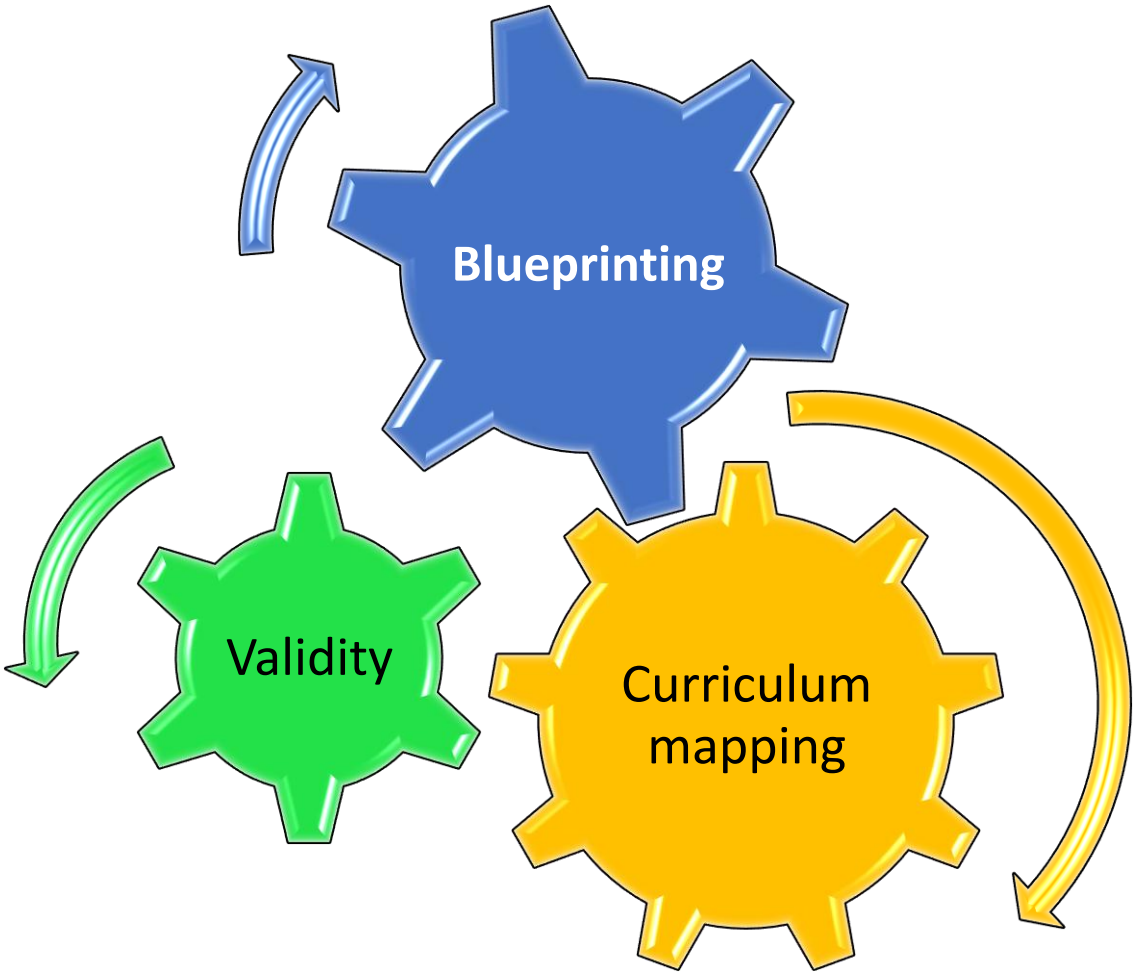
Assessment Procedure	Weight
1. Assignment 1: Accumulation of Sources	10%
2. Assignment 2: Literature Review Paper	10%
3. Quiz One	5%
4. Assignment 3: Formulating research questions/hypotheses	10%
5. Mid-term	10%
6. Assignment 4: Design	10%
7. Quiz Two	5%
8. Final Paper: Research Pre-Proposal	15%
9. Presentation on the Proposed Research Study	10%
10. Final	15%
TOTAL SCORE	**100%**

Example 3

Course: Survey design and analysis

Assessment Task	Week Due	Weight
Discussions (3)	3, 6, 9	5%
Assignments (2)	4, 10	5%
Project I	11	10%
Project II	16	10%
Lab Work	13	20%
Midterm (in-class, closed-book)	7	20%
Final Exam (in-class, open-book)	17	30%
TOTAL		**100%**

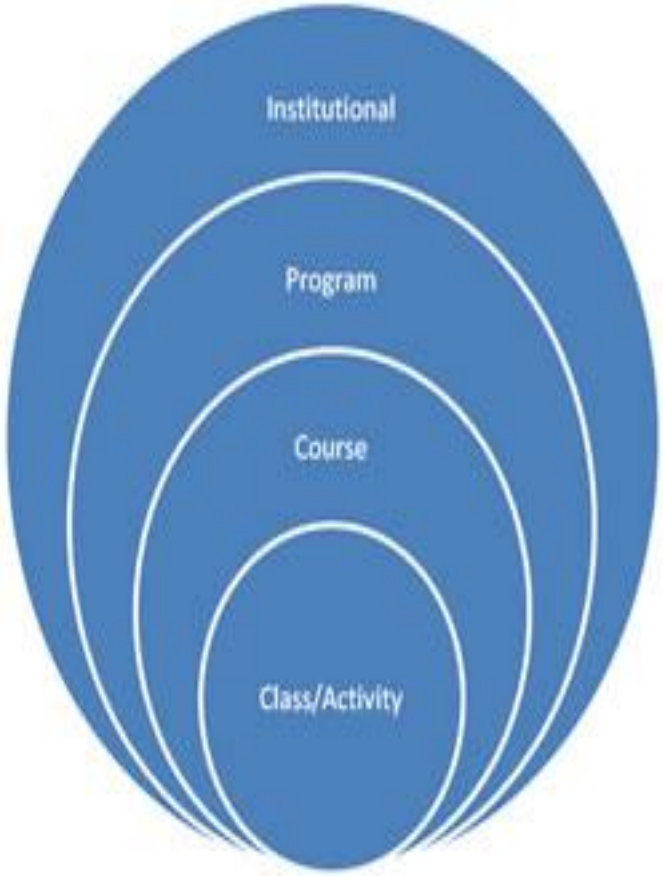
Elements of Effective Assessment



Curriculum map

Alignment of curriculum, teaching activities, assessment with outcomes (institution, programs, courses):

1. Mapping program outcomes and graduate characteristics with courses/learning experiences.
2. Integrating assessment with instruction
   a. Aligning SLOs with teaching strategies/activities
   b. Aligning SLOs with assessment methods



Allocation of Responsibilities for Learning Outcomes to Courses

Learning Outcomes	Courses																			
Course Code and Number																				
Knowledge Facts Concepts, theories Procedures																				
Cognitive Skills Apply skills when asked Creative thinking and problem solving																				
Interpersonal Skills and Responsibility																				
Responsibility for own learning																				
Group participation and leadership																				
Act responsibly-personal and professional situations																				
Ethical standards of behavior																				
Communication IT and Numerical Skills																				
Oral and written communication																				
Use of IT																				
Basic maths and statistics																				
Psychomotor Skills																				

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**								
	1.1	**1.2**		**2.1**		**3.2**		**4.1**	
1.1									
2.1									

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1			
1.2			
2.0	**Cognitive Skills**		
2.1			
2.2			
3.0	**Interpersonal Skills & Responsibility**		
3.1			
3.2			
4.0	**Communication, Information Technology, Numerical**		
4.1			
4.2			
5.0	**Psychomotor**		
5.1			
5.2			

Allocation of Course Activities and Assessment to Learning Outcomes

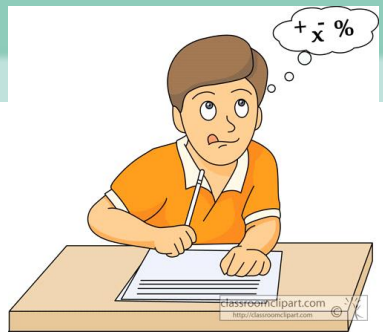
Learning Outcomes	**Course Activities and Assessment**														
COURSE Info:	**In-class Activities**			**Out-of-class Activities**				**Assessment Tools**							
By the completion of this course, the student should be able to:	Whole-parts thinking activity	Lectures	Problem solving tutorial	Discussion forum	Programming exercises	Textbook exercises	Empirical study project	Test 1	Test 2	Final exam	presentation	report	Case studies	Lab	
1-Explain……															
2- Relate…															
3- Write…															
4- present…															
5- Apply…															
6- Diagnose															

Constructive Alignment (CA)

It is a principle used for devising teaching and learning activities as well as assessment tasks that directly address the intended learning outcomes in a way not typically achieved in traditional lectures, tutorial classes, and examinations.

(Biggs and Tang, 2011).

What is constructive

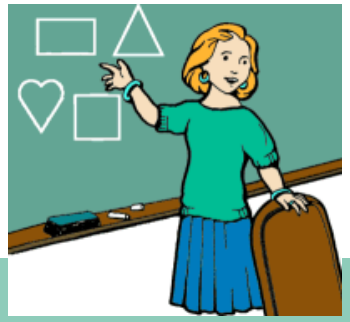


Outcome

- Design a system
- Analyze a program

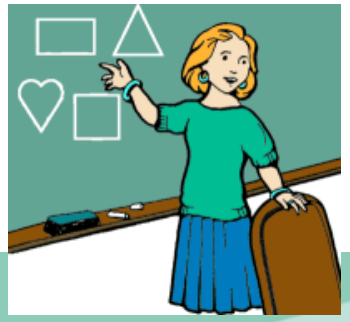
Assessment

- Design a system
- Analyze a program



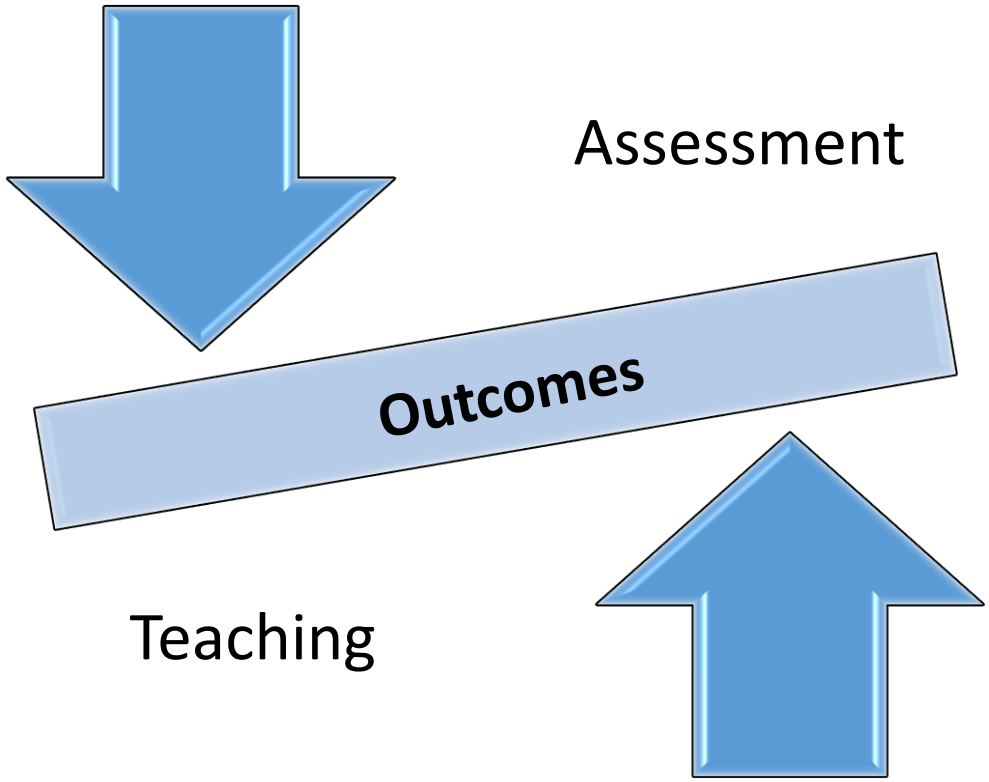
Teaching

- Design a system
- Analyze a program

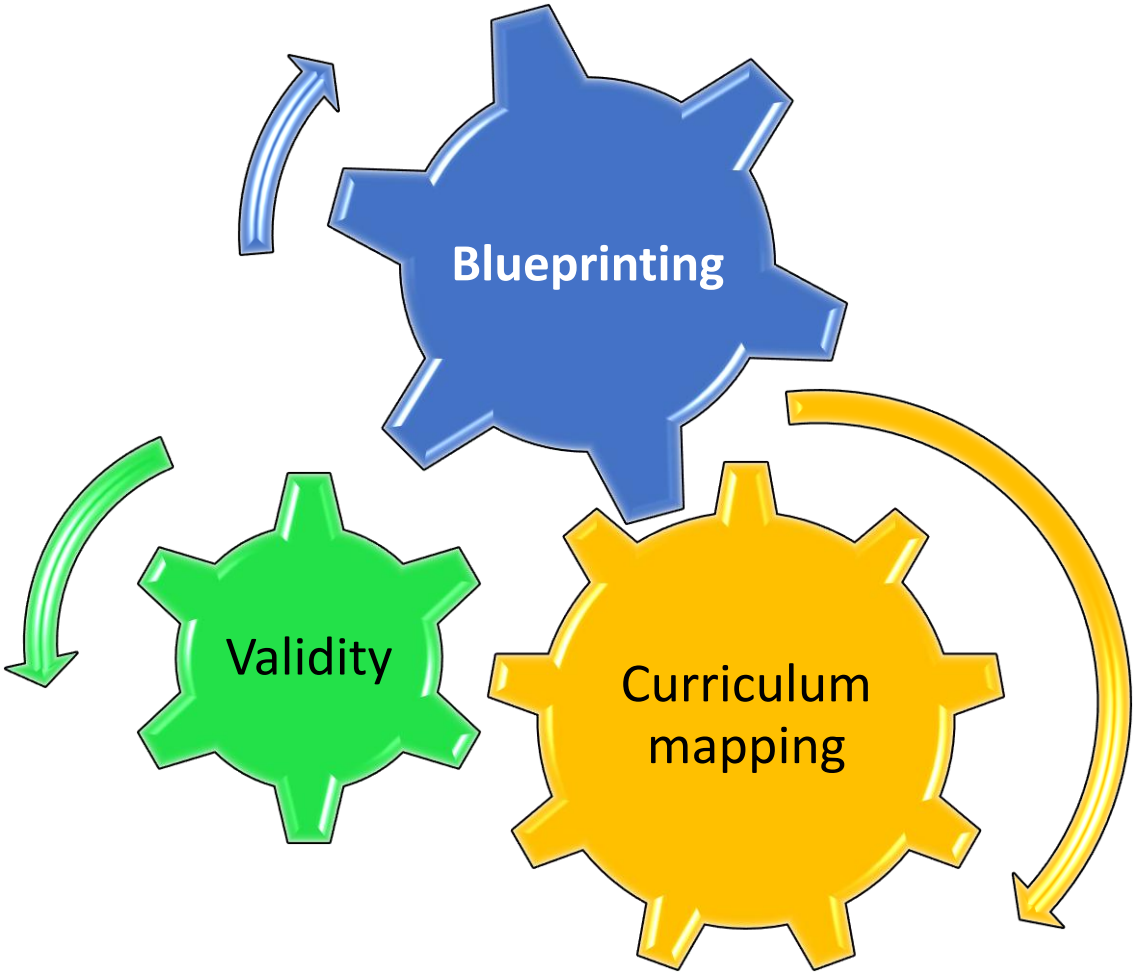


What is alignment

Constructive Alignment



CA principle- 3 in 1



Effective Assessment is

Valid	• Scores reflect what important competencies students can do
Reliable	• Scores resembles the student's true scores as close as possible
Aligned	• With course outcomes, curriculum and teaching strategies/activities
Mapped	• To department, college outcomes and university mission

Validity vs. Reliability

Reliability is a necessary but not a sufficient condition for validity

Validity: How accurate students results /scores are?

How meaningful scores and grades are?

Reliability: How stable/consistent students results /scores are?

Obtained Score = True score + Error

Validity and reliability of assessment

Q: What do you really mean when you say that your student has achieved 90% in the course?

A:It means that out the 100% of outcomes and materials planned for the course, she attained 90% of them. Moreover, I can say that this 90% closely represents her true score.

Validity is about

1. Assessing the “right” SLO at the “right” level
2. Choosing the “right” assessment task
3. Asking the “right” question
4. Proper sampling from learning outcomes and course content

Reliability is about

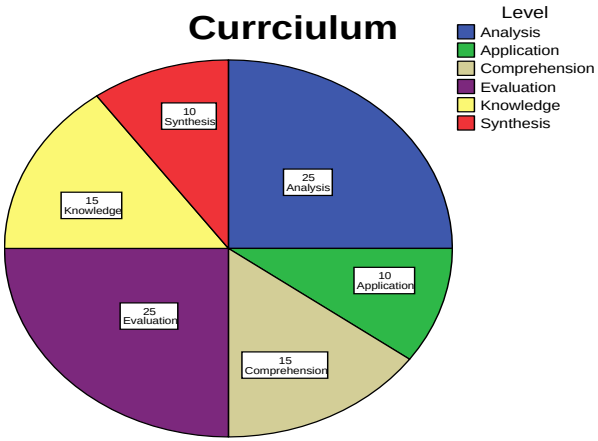
1. Asking the “right” question “concisely”
2. Grading the task “consistently”
3. Enough Sampling (reliability presumes validity)

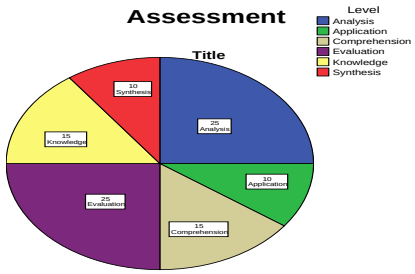
Types of Validity

- Face validity
- **Content validity**
- Criterion-referenced validity
- Construct validity

It is all about:

1. Representative **sampling** from course contents
2. Representative **sampling** from course outcomes.
3. Choosing the appropriate (multiple) assessment method(s).





Factors Affecting Validity

- Item sampling (from the curriculum & outcomes)
- Items are inappropriate to intended outcomes
- **Inappropriate level of items difficulty**
- **Poorly constructed test items**
- **Difficult vocabulary or sentence structure**
- **Unclear directions or ambiguous items**
- **Test is too short**
- Identifiable pattern of answers
- Improper arrangement of items
- Inadequate time limit

Time Requirement

Type of task	Approximate time per task (item)
True-False	20-30 seconds
MCQ (factual)	40- 60 seconds
One –word fill-in	40- 60 seconds
MCA(complex)	70 - 90 seconds
Matching (5 items/6 choices)	2- 4 minutes
Short answer	2- 4 minutes
MCQ(with calculation)	2-5 minutes
Word problems (simple arithmetic)	5-10 minutes
Short essays	15-20 minutes
Data analysis/graphing	15- 25 minutes
Drawing models/labeling	20- 30 minutes
Extended essays	35-50 minutes

Source: Nitko A.J, 2007

Factors Affecting Reliability
(Sources of Errors)

Some factors can induce error and lower reliability.

1. **Test itself**:
   - Ambiguity of test items
   - Difficulty of items
   - Number of questions
2. **Testing conditions**: test administration environment and distractions including **cheating**
3. **Test takers**: Student fatigue, illness, or anxiety
4. **Test scoring objectivity**

Conclusion

- A clear conception of **all intended learning outcomes**. Which domain? which level?
- **Representative sampling** from course contents and course outcomes.
- Choosing the **appropriate** assessment method(s) .
- **Multiple** assessment methods be used.
- Assessment procedures are **mapped** to instructional activities.
- Procedures be **fair** to everyone.
- Specifications of **criteria for judging** successful performance (Rubrics)
- **Feedback** to students that emphasizes strengths & weaknesses of performance.
- Grading is **objective** & results are **reliable**.
- Supported by a comprehensive **grading and reporting system**.

Validity checklist

Final product checklist

NCAAA “good practices”

THANK YOU

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