



Embedding Outcome-Based Education in Courses

School of Science

24 Aug 2009



Outline

- The Context for OBE
- OBE in your Courses
- Support with OBE



The International Context

- Not new!
- Implemented internally
 - North America
 - Australia and New Zealand
 - UK and other parts of Europe (Bologna Process)
- Required by accreditation bodies
 - Business (AACSB, EQUIS)
 - Engineering (ABET) – n.b. ABET is starting to accredit [Applied Science](#) programs
 - Humanities and Social Sciences (AACU)
 - European Qualifications Framework (EQF)
 - Hong Kong Qualifications Framework (QF)



The HK Context

- UGC's campaign for OBE
- The upcoming QAC Audit – March 2010
- Progress at other local universities



What is outcome-based education?

Outcome-based education

“Outcome-based education means starting with a clear picture of what is important for students to be able to do, then organizing the curriculum, instruction, and assessment to make sure that this learning ultimately happens.”

W. Spady, *Outcome-based Education: Critical Issues and Answers*.
Arlington, VA: American Association of School Administrators
(1994)

A change in perspective

Common 'old' approach

A **teacher's perspective**, concerning:

- input from teacher
- what the teacher *plans* to do

Planning with reference to what

content to teach

Achieving:

- knowledge

Outcome-based approach

A **student's perspective**, concerning:

- output of students
- what the students will do

Planning with reference to what

outcomes to be demonstrated

Achieving:

- knowledge
- skills
- attitudes

The background of the slide features a scenic view of a city built on a hillside, with a bridge crossing a river in the foreground. The sky is bright and sunny, with a large green leaf-like shape arching over the city. The overall color palette is dominated by greens and yellows, suggesting a focus on nature and growth.

Key characteristics of outcome-based education

- Focusing on the **enhancement of learning**
- Building **a culture of evidence** for continuous improvement
- Making learning **explicit** and teaching **public**

OBE @ UST : Internal Developments

- HKUST has developed provisional graduate attributes and learning outcomes for:
 - UG education – ABC LIVE
 - Schools
 - Programs
- Development of the 4Y degree is going forward with OBE to be taken into account

The background of the slide features a scenic view of a city built on a hillside, with a river in the foreground. The sky is bright and green, with a large green leaf-like shape arching over the city. The text is overlaid on this background.

OBE Implementation Project: A wide range of courses

- ~ 50 courses last semester, 50 more this fall, and a further 50 in spring 2010
- All Schools
- Across different levels, with different relations to programs
- Different class sizes

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The Course Pilot Project: Sharing Ideas

- Configuring the link with program ILOs
- Setting up ILOs in course outlines
- Explaining things to students
- Adjusting learning activities and assessments
- Evaluating the impact of changes

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The Course Pilot Project: Reflections & Recommendations

- Assessing the range of experience across courses
- Assessing the problems of “scaling up”
- How far should we carry the OBE idea into courses?
- Sensible timelines for different levels of development
- What can we say about the process for change?

The background of the slide features a scenic view of a city built on a hillside, with a bridge crossing a river in the foreground. The sky is bright and green, suggesting a sunrise or sunset. The city buildings are modern and densely packed.

Embedding OBE in Your Course

- By the end of this section, you should be able to:
 - Describe the broad stages in embedding OBE in your course
 - Construct draft intended learning outcomes for your course
 - Demonstrate the contribution of your course to the Program Intended Learning Outcomes (PILOs)

Learning-centered Design (or learner/student-centered)

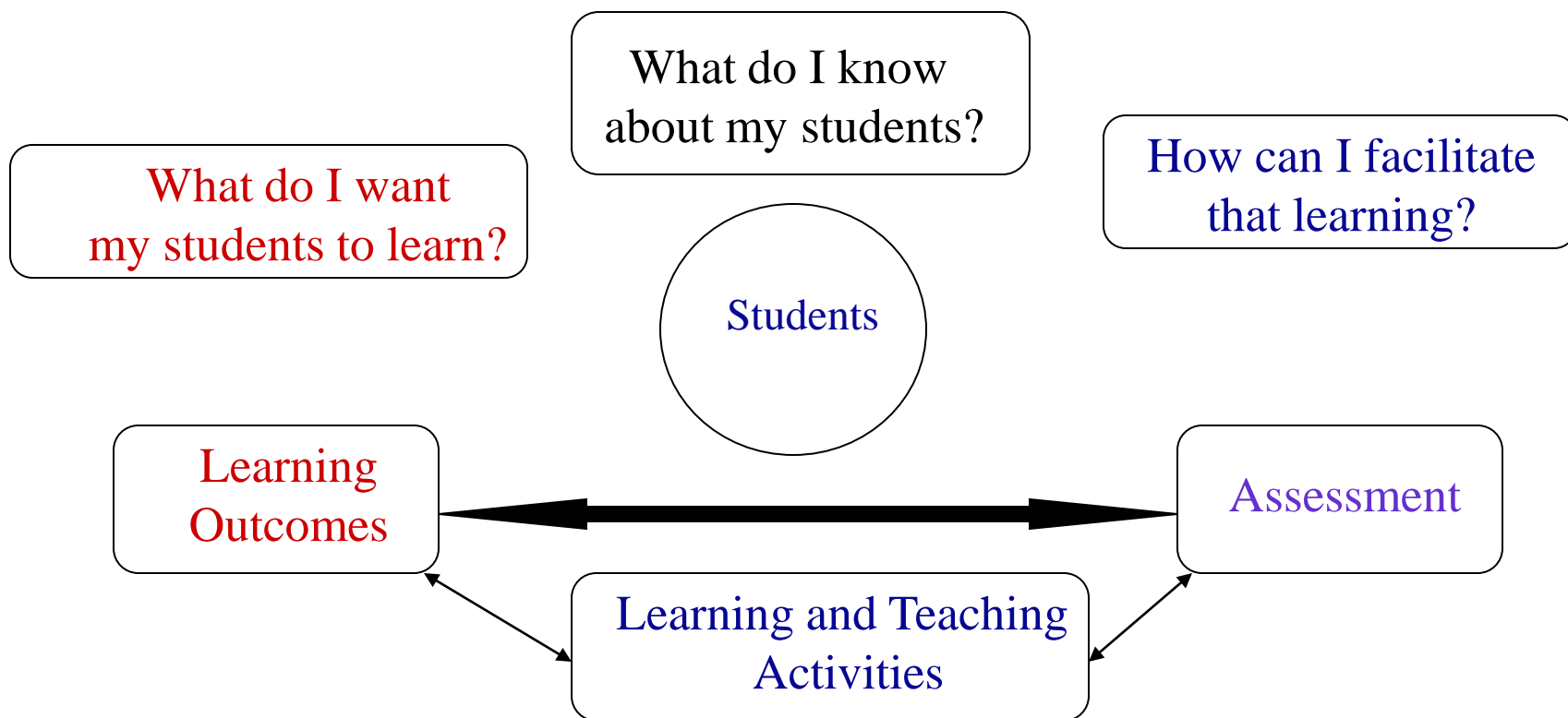
“Placing students first is a simple design principle, but it has great power.”

--- Donald Kennedy
in *Academic Duty*





Putting students in the center



Why? Clear learning outcomes help...

- The Student
 - Clarify personal goals
 - Measure **success**
 - Reduce anxiety
 - Improve studying effectiveness
- The Professor
 - Design relevant classroom material
 - Design **relevant** assignments
 - Design tests/projects

Improve Learning!

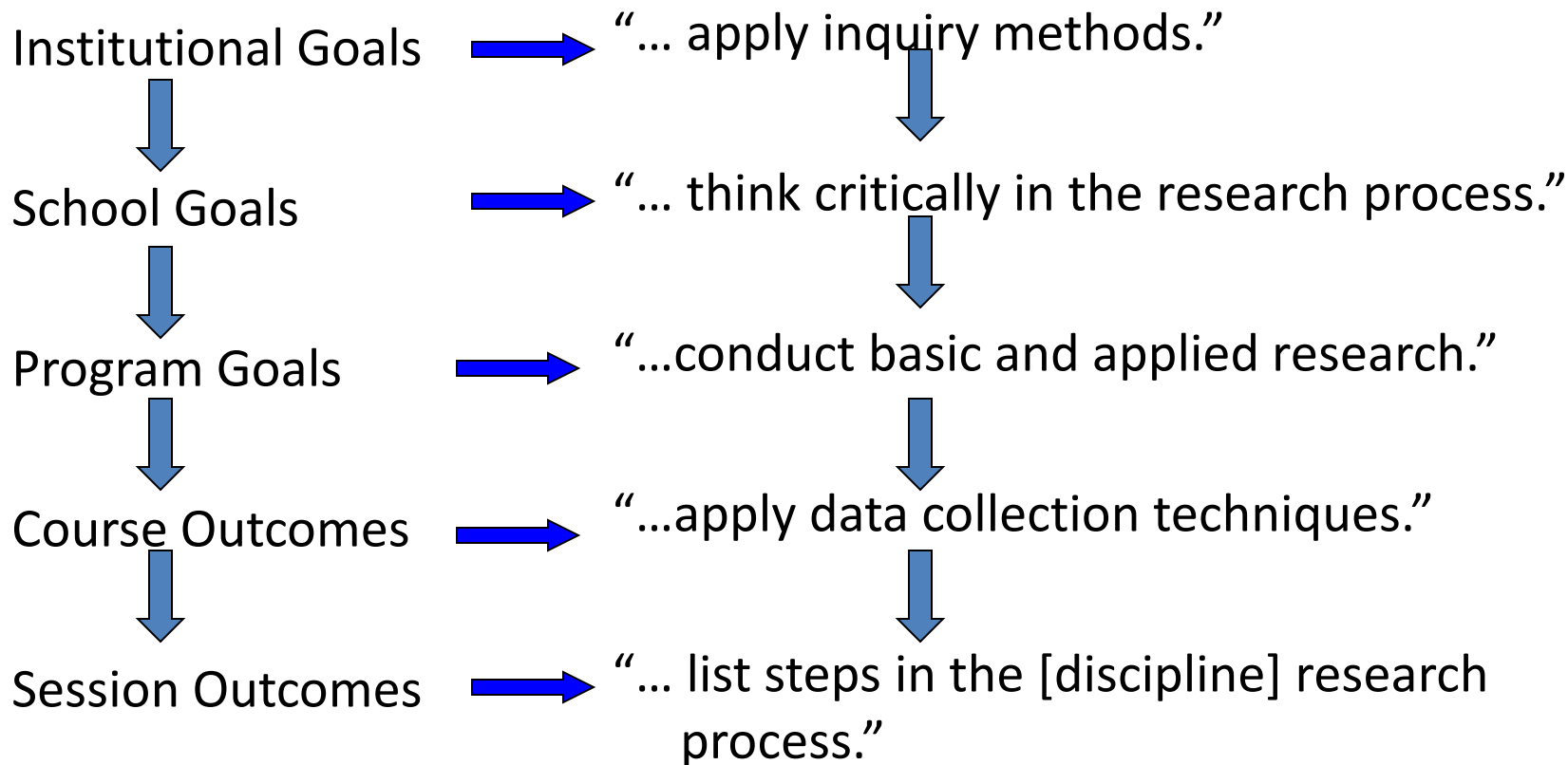
Improve Teaching!

Review & Tune Course Syllabus

- Review Program ILOs and Program Mapping documents
 - Today
- Review your Course objectives and from these create intended learning outcomes (ILOs)
 - Today ... partially
- Review the teaching and learning activities for alignment with the course ILOs
 - Now to end Aug
- Review the assessment tasks you have students engage in for alignment with ILOs and teaching and learning activities
 - Now to end Aug



Hierarchy of Goals & Outcomes



Is this course syllabus review & tuning a lot of work?

- See for yourself
 - Examples - handouts
- Producing Course ILOs
 - Before and After: 3 comparisons
 - Review and compare the differences between the two
 - Share your thoughts with a colleague – similar / different?
 - Share with group – key points to note



Effective Learning Outcomes

- Express them in terms of observable and measurable behavior
 - Facilitates assessment of learning
- Outcomes should answer these questions:
 - What must students **do** to show that they have learned.
 - What should students be able to **do** as a consequence of their learning.

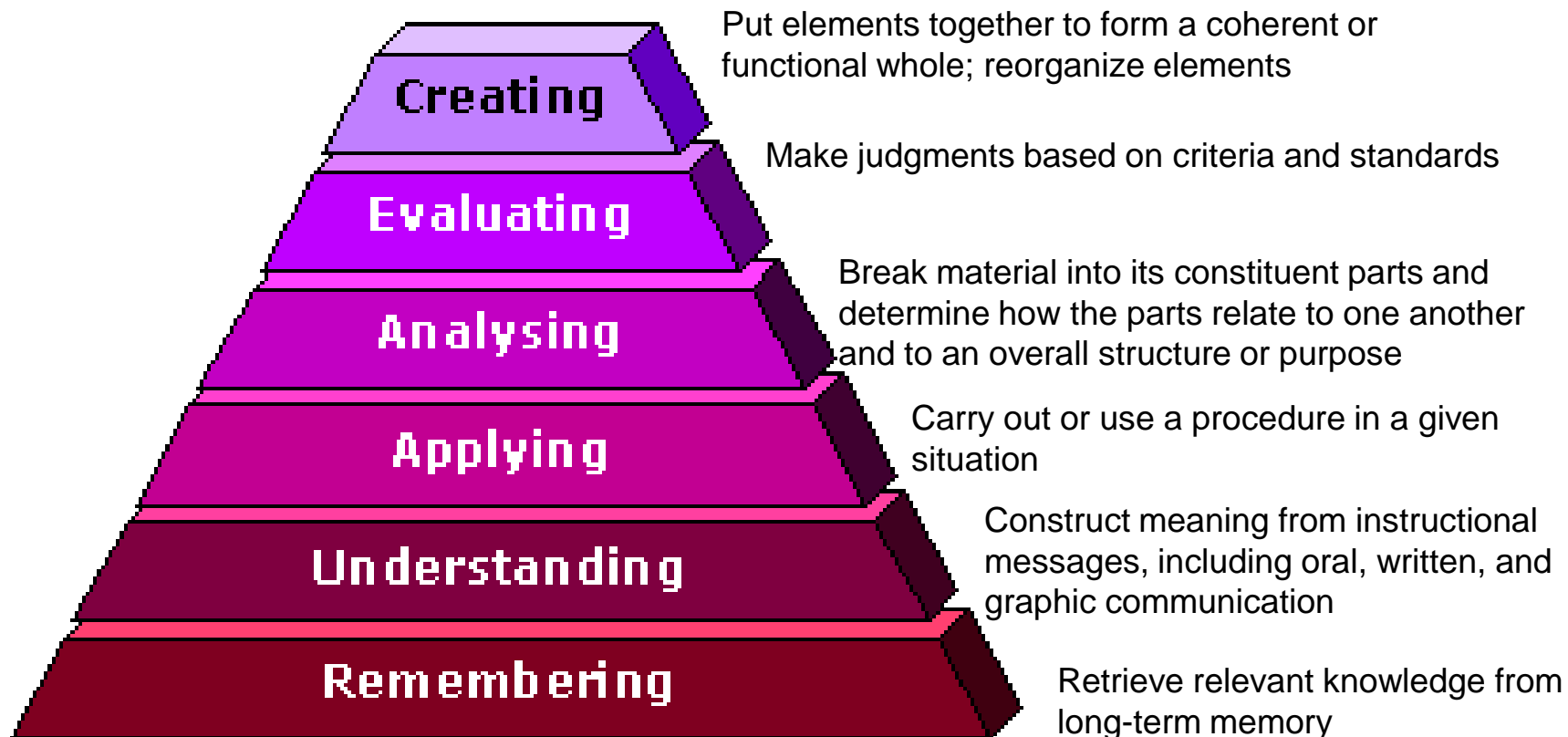
Good learning outcomes address...



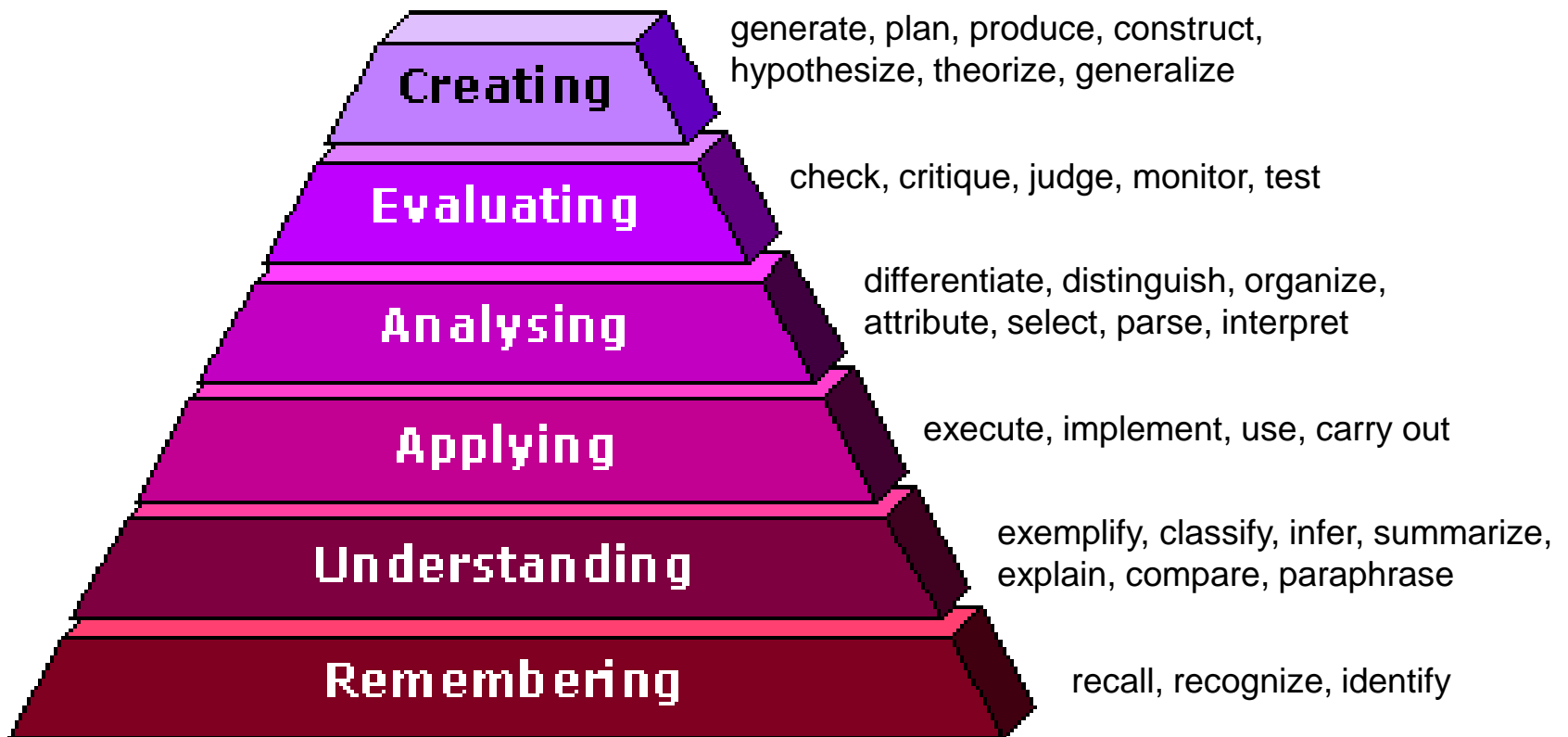
Basic Elements

1. What the student is expected to do after learning. (performance)
2. The circumstances under which the student will be able to perform.(condition).
3. The level of acceptable performance. (standard)

Indicating Level in Learning Outcomes



Indicating Level in Learning Outcomes

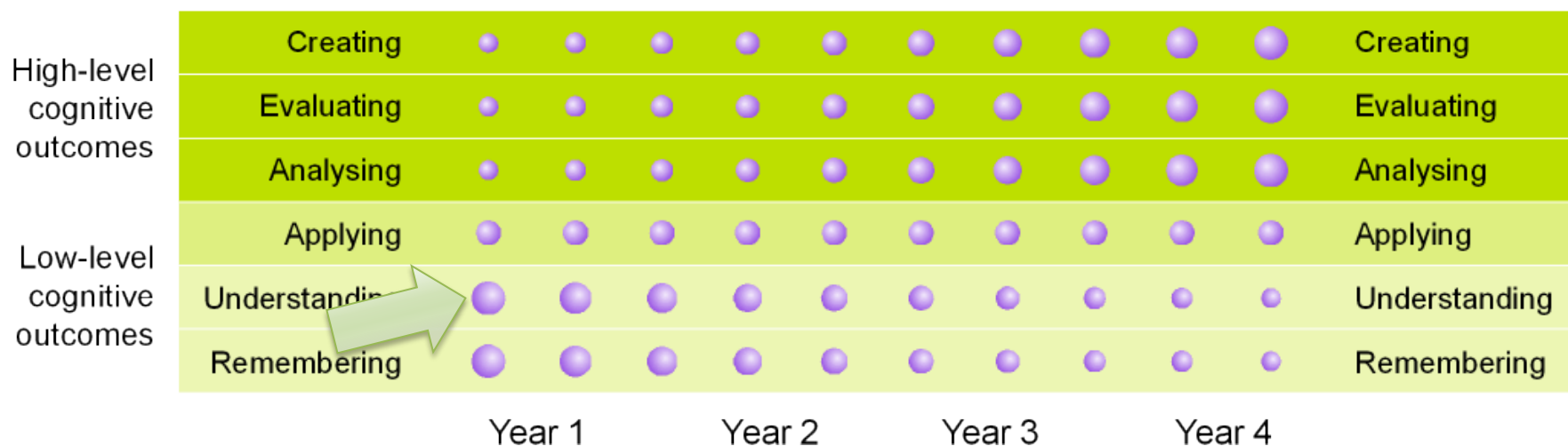


Where's Critical Thinking in this?

- Critical thinking is broadly associated with the higher order thinking levels: analyze, evaluate, create
- Dimensions that impact on the cognitive challenge/learning level when solving problems that we, as teachers, intuitively juggle depending on student development, i.e. their stage in the program and their stage in the course:
 - Familiar to Unfamiliar
 - Simple to Complex
 - Concrete to Abstract
 - Close-ended (convergent) to Open-ended (Divergent)
 - Information sufficient to Information deficient
 - Time sufficient to Time deficient
- ... this list is not exhaustive



Developmental Progression



Embedding progressive achievement of intended learning outcomes over four years



Developing ILOs

Watch out for ...

- Understand
- Demonstrate
- Recognize
- Demonstrate awareness of...
- Show an appreciation of ...

Why? Unanswered questions

- At what level? If Understanding level , then will students “explain”, “state”, etc
- At what level? How?
- What will students do that will make their ‘recognition’ observable to you as an indicator of their learning?
- What could students observably do to indicate they possess this awareness?
- What could students observably do to indicate they possess this appreciation?

Hands on: With your course syllabus

- Review the PILOs and the PILO/Course mapping documents
- Review the Course Objectives/Goals (whatever heading you have used) and for each of these produce one or more learning outcomes (for today just choose at least one course goal/objective)
- When done share and review with a colleague from your department and with someone outside your department; return the favor

Course Syllabus Tuning: Next Steps

- Finish ILOs for your course
 - [CELT OBE Syllabus Builder](#)
- Check the appropriacy of the learning levels to students' expected level for year?
- Review learning activities and assessment and revise as needed
 - Assessment [resources](#) and [example rubrics](#)
- Finalize course syllabus

Project Timelines

- A Sharing session around challenges and successes (twice during semester – see good practices from 1st round handout)
- Evaluation of student and instructor response (near the end of the semester)

Support?

- Your OBE pioneer colleagues from the previous semester
- If you need help at *any* point, then please contact me by email - ctnick or tel - 6809
- View previous workshops organized by your School (http://www.bm.ust.hk/staff_pg/workshop_brightman.html)
- Please visit the OBE web site at <http://celt.ust.hk/obe> – this is continually updated