Hong Kong Baptist University
Centre for Holistic Teaching & Learning (CHTL)
Teaching And Learning Experience Sharing
TALES 2009-2010 Seminar Series

TALES 4:
Revisiting ILOs, TLAs & AMs

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22 April 2010

Intended Learning Outcomes (ILOs)

• The participants should be able to:
  – **Understand** the different learning models, such as Bloom’s Taxonomy and John Biggs’s Structure of Observed Learning Outcome (SOLO) taxonomy, and the **contrast** between these.
  – **Construct** a succinct ILO using suitable “action verb”.
  – **Construct** a TLA that can facilitate the achievement of such “action verb” ILO/s.
  – **Describe** different forms of AM that can be used to assess the competency of students in their achievement of such “action” ILO/s.
Background

- With the UGC push for Outcome-Based Education at Hong Kong Universities, most (if not all) local universities are now implementing Outcome-Based Teaching and Learning (OBTL) in their programme offerings.

OBTL implementation

- Co-curricular activities
- Classroom learning
- TLAs & AMs
  - Design engaging learning activities
  - Select appropriate assessments
- Constructive alignment
  - micro
  - macro

"improvement and enhancement in student learning and teaching quality"
Micro-framework of OBTL

- Part of the implementation of OBTL is to have courses with ILOs, Teaching and Learning Activities (TLAs) and Assessment Methods (AMs) explicitly defined and are in constructive alignment with one another.

ILO’s
- What the students have to learn.

TLA’s
- Engaging students in activities to achieve the ILO’s.

AT’s
- How well have the students met the ILO’s.

What is a succinct and suitable ILO?

- An intended learning outcome is what a student can do as a result of a learning experience. (What a student will learn as opposed to what a teacher wants to teach.)
- To do what?
- To perform a specific task at a given level of competence under a certain situation.
- ILOs are designed from the student’s perspective.
**Activity: Our first try at an ILO**

- **Context:** An introduction course in Movie Appreciation 101
- **ILO**
  - On completion of this course, a student will be able to:
    - **Understand** the different genres of movies in both the Western and Eastern societies.
- **Your task:**
  - Please elaborate what the above ILO means to you. (Hint: Think of what the word “understand” means to you.)

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**Your answers**
What are the differences between **Objectives** and **Outcomes**

**Objectives vs. Outcomes**

Specific intentions that indicate the steps to be taken to achieve our aims or goals as teachers. They indicate the teaching intentions.
What the learners will be able to do when they have completed their course or programme.

Outcomes

Test your knowledge

Objectives vs. Outcomes

• To acquire the knowledge of fundamental algorithms.
• Students will be able to describe and apply the principles of fundamental algorithms.
• To develop in students an appreciative attitude to biochemistry of health, diseases and biotechnology.
• Student will be able to apply the knowledge of biochemistry of health, diseases and biotechnology in sustaining good health.
• To understand functions of biomolecules and biochemical reaction.
• Student will be able to analyze the relationship between the functions of biomolecules and biochemical reaction.
What are Intended Learning Outcomes?

- Statements of what students are expected to be able to do as a result of engaging in the learning process (studying a lecture/course/programme).

They are:
- Expressed from the students’ perspective.
- Expressed in the form of action verbs leading to observable and assessable behavior.
- Related to criteria for assessing student performance.

[Ideally no more than THREE/FIVE outcomes per session/course]

Outcomes should be achievable and assessable

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Designing ILOs

1. Select the content to be taught.
2. Decide the **levels of understanding** the students are expected to achieve for the different content topics.
3. Have a **workable number** of ILOs.
4. Decide if all the ILOs are of equal importance.
5. Ensure a clear understanding and agreement of the ILOs within the teaching team and other relevant parties.
6. **Communicate** the ILOs to the students.
Which of the following verb(s) best describe your understanding of OBTL?

- Construct
- Apply
- Outline
- Examine
- Analyse
- Compare
- Evaluate
- Appraise
- Critique
- List
- Identify
- State
- Formulate
- Design
- Create

At the beginning of the semester B, Dr. Chan, the teacher who taught the same course of introductory level in semester A, is annoyed. He notices some of his students become less interested in the subject and his teaching.

I have memorised all the notes and readings. I think I understand well the subject. Why I got only a C grade?

I did a good job in applying the concepts and theories. To my surprise, I only got grade B. I am really upset about this.

I have made very thorough evaluation based on the criteria and standards with a very careful analysis on the data. Why I only got an A-?
Some vague ILO verbs

- Appreciate
- Become aware of
- Familiarise with
- Know
- Learn about
- Understand

How do these verbs manifest themselves in terms of change of behaviour / performance?

Our differences in understanding “understand”

- That is why we need to determine the level of learning and competency desired for our students to attain!

- We often classify different forms and levels of teaching and learning according to models such as Bloom’s taxonomy and John Biggs’s Structure of Observed Learning Outcomes (SOLÖ) taxonomy.
Levels of understanding

- Remembering
- Understanding
- Applying
- Analyzing
- Evaluating
- Creating

Action verbs:
- Remembering: recalling, listing, describing, retrieving, naming, finding
- Understanding: interpreting, summarizing, paraphrasing, classifying, explaining
- Applying: implementing, carrying out, using, executing
- Analyzing: breaking information into parts to explore understandings and relationships
  - comparing, organizing, deconstructing, interrogating, finding
- Evaluating: justifying, selecting, appraising, judging, criticizing, evaluating
  - checking, hypothesizing, criticizing, experimenting, judging
- Creating: generating new ideas, products, or ways of viewing things
  - designing, constructing, generating, producing, inventing

Some additional verbs for writing outcomes (ILOs):
- List
- Identify
- State
The SOLO Taxonomy: Action verbs

Deciding a level of understanding using a hierarchy of verbs

SOLO: Structured of Observed Learning Outcomes

An example from Killan 2004:78:
“Explain why cheetahs have spots.”

- Pre-structural answers:
  - “I don’t know.” (No attempt made at answering.)
  - “So that they are different from lions.” (Irrelevant answer.)
- Pre-structural
  - Give no answer;
  - Rote repeat of given information;
  - Guessing an answer (irrelevant);
Uni-structural

• **Uni-structural answer:**
  – “It makes them hard to see.”
  (True but no explanation given.)

• **Uni-structural:**
  – Simple, often quick answer given without any explanation.

Multi-structural

• **Multi-structural answer:**
  – “The spots are formed by melanin in the skin. The spots camouflaged them while hunting.”
  (True but still no explanation given.)

• **Multi-structural:**
  – Uses more than one explanation but no integration of additional knowledge.
Relational

• Relational answer:
  – “The spots are formed by melanin in the skin which is a chemical reaction during embryonic development. The spots evolved after mutation to camouflage them while hunting.” (Biological explanation and link it to evolution.)

• Relational:
  – Integrates prior knowledge and links ideas to explain information.

Extended abstract

• Extended abstract answer:
  – “The spots are formed by melanin in the skin which is a chemical reaction during embryonic development. The spots evolved after mutation to camouflage them while hunting. Stripes will not be an advantage that is why the ‘king’ cheetah is so rare in the wild. The spots are mathematical patterns that can be described using partial differential equations.” (Extended abstract thought.)

• Extended abstract:
  – Goes beyond what has been taught;
  – Use logical deductions to frame the answer;
Using SOLO

• SOLO is not for labelling under or over achievers.

• It is more for setting the framework for quality learning – to get the desired outcomes:
  – List, name = uni-structural answer
  – Describe = multi-structural answer
  – Analyse = relational answer
  – Predict or reflect = abstract answer

Back to your answers

• What actual outcome and at competency level did you wanted from:
  – On completion of this course, a student will be able to:
    • Understand the different genres of movies in both the Western and Eastern societies.

• Your answers
Activity: Writing your first ILO with Bloom/SOLO

• How will you reword your answer based on your interpretation of the word “understand” and using different levels of learning from Bloom/SOLO taxonomy?

Teaching & Learning Activities

• ILO akin to “Where are you going?”, then TLAs (pedagogy) is “How are you going to get there?”

• So let us look at our example ILO.
Activity: Pedagogy for achieving your ILO

• Please construct one or more TLAs for your reworded ILO form the last exercise.

Your answers?

• Lecture/in-class movies viewing – to impart the knowledge required…
• Short answer in-class quizzes/discussions – to explain/describe the different genre of movies …
• Written assignments – to organise (sorting knowledge) using words the different genre of movies …
• Projects/group work – further information gathering and analysis for reflection by students …
Examples of TLAs’s

- 1- or 3-minute paper
- Assignment
- Case-study
- Concept Map
- Create ‘product’
- Experiment
- Field trips
- Group discussion
- Group project
- Individual project
- Lecture

- PRS
- Question & Answer
- Reflective diary
- Role Play
- Set reading
- Simulation
- Site visits
- Think-Pair-Share
- Tutorial
- Video
- Written essay

TLAs

- There is no one set pedagogy on how to facilitate the achievement of your ILOs, but literatures dictated some general characteristics of good TLA contexts:
  - Appropriate motivational context;
  - Well-structured knowledge base;
  - Relevant learner activity;
  - Formative feedback;
  - Reflective practice and self-monitoring;
Appropriate motivational context

- **Theory Y**: Learners learn best when they feel trusted, can make decisions and be responsible for their own learning;
- Tasks provided must be valued by the students – not seen as trivial or irrelevant – less a case for TLA aligned to ILO;
- Tasks must be achievable with a reasonable probability of success with reasonable effort from the students;

(John Biggs & Catherine Tang: 2007)

Well-structured knowledge base

- Students learning is often better facilitated by building on the known – in deep learning, new learning connects with old – should emphasize the interconnectedness of topics.
- We should help students *re-conceptualize* - not just making horizontal interconnections with prior knowledge but also draw powerful vertical or hierarchical interconnections – e.g. *relational/extended* abstract structure in SOLO.

(John Biggs & Catherine Tang: 2007)
Relevant learner activity

- Students learning is often better facilitated by relevant multi-dimensional activities, e.g. activities involving more than one sensory input and/or modality. (Hearing, touch, sight, speech, smell, taste etc.)
- The more one modality reinforces another, the more effective the learning. Like accessing a book in the library ....

(John Biggs & Catherine Tang: 2007)
Formative feedback

- One of the most powerful factor leading to good learning.
- Effective feedback requires students to have baseline knowledge of where they are and the knowledge of where they are heading – the ILOs.
- Can be provided by the teacher, peers or self – each providing a different aspect to their self-knowledge.

(John Biggs & Catherine Tang: 2007)

Reflective practice and self-monitoring

- Learner can keep a watching brief over their learning: How am I doing? Am I making mistake here? Any pattern in my errors? If so, what it is and how can I avoid it in future? Is there a more effective approach for me to learn?
- Skills to self-monitor are important attributes for life-long learning.
### Checklist for effective TLAs

<table>
<thead>
<tr>
<th>Motivational Climate</th>
<th>Does it build on or require</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory Y Value Success</td>
<td>Prior knowledge? Learner activity? Reflection?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TLA1</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>TLA2</td>
<td></td>
</tr>
<tr>
<td>TLA3</td>
<td></td>
</tr>
</tbody>
</table>

### Assessment methods

- An OBE model

![Diagram](https://via.placeholder.com/150)
Assessment Tasks?

Before designing any Assessment Tasks, an important first step is to decide what performances would represent evidence that a particular learning outcome has been achieved.

A second step is to ensure that there is an alignment between the learning outcome and the evidence.

[The key to achieving alignment mainly rests with the action verbs that we choose which identify what it is a learner can do after successfully completing the Teaching and Learning Activity]

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Formative and Summative Assessment

<table>
<thead>
<tr>
<th></th>
<th>Formative</th>
<th>Summative</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time</strong></td>
<td>During a learning activity/unit</td>
<td>At the conclusion of a learning activity/unit</td>
</tr>
<tr>
<td><strong>Goal</strong></td>
<td>To improve learning</td>
<td>To make a decision</td>
</tr>
<tr>
<td><strong>Feedback</strong></td>
<td>Return to material/ learning issues</td>
<td>Final judgement</td>
</tr>
<tr>
<td><strong>Frame of reference</strong></td>
<td>Always criterion (evaluating all students according to the same criteria)</td>
<td>Sometimes normative (comparing each student against the others) Sometimes criterion (evaluating each student according to the same criteria)</td>
</tr>
</tbody>
</table>
### Some possible Ideas!

<table>
<thead>
<tr>
<th>ILO’s</th>
<th>TLA’s</th>
<th>AT’s</th>
<th>Learning Theories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will be able to identify 3 learning theories.</td>
<td>Reading, Lecture</td>
<td>Multiple choice quiz &amp; examination question</td>
<td>Behavioral – feedback on quiz will change exam performance</td>
</tr>
<tr>
<td>Students will be able to construct a table with key features of learning theories.</td>
<td>Practice creating tables of differences in theories as a small group activity</td>
<td>Homework assignment or exam questions where key features of LT’s are filled in</td>
<td>Social Cognitive – increase self-efficacy through practice.</td>
</tr>
<tr>
<td>Students will be able to generate examples and implement a teaching session in which ILOs are aligned with TLAs based in specific learning theories.</td>
<td>Class brainstorming discussion followed by individual choice in type of teaching session to implement. Peer consultation/review</td>
<td>Assessed delivery on topic of own choice</td>
<td>Increase motivation through social engagement</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>social cognitive (peer review)</td>
</tr>
</tbody>
</table>

### Grading Criteria

Student performance in assessment tasks should be judged against a set of clear grading criteria defining the quality of performance expected of each of the grades.
Criterion vs. Norm Referenced

<table>
<thead>
<tr>
<th></th>
<th>Criterion</th>
<th>Norm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>• During a learning activity/unit</td>
<td>• At the conclusion of a learning activity/unit</td>
</tr>
<tr>
<td></td>
<td>• at the conclusion of a learning activity/unit</td>
<td></td>
</tr>
</tbody>
</table>
| Goal           | • To find out if a student has reached a certain criteria on a skill, ability and behaviour  
                 | • To find out the characteristic of the individual                      | • To compare the students in relation to their peers  
                 |                                                                 | • To find out a student’s ability in relation to others |

Constructive Alignment – Definition

- **Constructive**
  Constructivist theory – learners use their own activity to construct their knowledge or other outcome.

- **Alignment**
  Reflects the fact that the learning activity in the intended learning outcomes needs to be activated in the teaching if the outcome is to be achieved and in the assessment task to verify that the outcome has in fact been achieved.
Constructive Alignment

An alignment of:

• Intended Learning Outcomes  
  – Where you are going?
• Teaching and Learning Activities  
  – How are you going to get there?
• Assessment Tasks (both as a motivation for learning and a measure of learning effectiveness)  
  – How do you know you are there?

Some Common Mis-Alignments
Constructive Alignment

Three Steps:

1. **Describe** intended outcomes in terms of what the students are supposed to be able to perform after learning.

2. **Engage** students in learning activities that bring about the intended outcomes.

3. **Judge** if and how well students performances meet the criteria.

**Activity: Directed Paraphrase**

Using non-technical, layman’s terminology, what does constructive alignment mean?

Please write your answer on the index card.
### Constructive Alignment of ILOs and TLAs

<table>
<thead>
<tr>
<th></th>
<th>TLA1</th>
<th>TLA2</th>
<th>TLA3</th>
</tr>
</thead>
<tbody>
<tr>
<td>CILO1</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CILO2</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CILO3</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>CILO4</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>CILO5</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

Consider if: all ILOs are being addressed? There is a balanced coverage of the ILOs?

### Example: Constructive Alignment of ILO’s and TLA’s – CHTL1001

<table>
<thead>
<tr>
<th></th>
<th>PRS</th>
<th>In-class discussion</th>
<th>Online discussion</th>
<th>Reading</th>
<th>Assessed Delivery</th>
<th>Reflective Journal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Describe the context for learning and teaching at Hong Kong Baptist University.</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Apply learning theories to the preparation of teaching and learning activities.</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Deliver a high quality teaching and learning activity.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create a personalized and reflective teaching portfolio.</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>
Constructive Alignment of ILOs and Assessment Tasks

<table>
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<th>AT2</th>
<th>AT3</th>
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<tbody>
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<td>✓</td>
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<td>CILO4</td>
<td>✓</td>
<td></td>
<td></td>
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<tr>
<td>CILO5</td>
<td></td>
<td></td>
<td>✓</td>
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Consider if: all ILOs are being addressed? there is a balanced coverage of the ILOs?

Example: Constructive Alignment of ILO’s and AT’s – CHTL1001

<table>
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<th>Assessed Delivery</th>
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</table>
Feedback on Constructive Alignment

Exercise: Assessment Methods

• Take one of your ILO’s from your current course, and an associated, aligned TLA and identify a ‘constructively aligned’ Assessment Method which demonstrates achievement of the outcome?
Acknowledgement:
Selected materials adopted from course SG8001 offered at CityUHK

Thank you

Please be reminded of our next TALES session:
Assessment: The Secret Ingredient of an Effective Pedagogy
Speaker:
   Dr. Ahmar Mahboob
   Visiting Fellow (EDO, City University of Hong Kong)
   Senior Lecturer (Linguistics, University of Sydney)
Date: 5 May 2010
Time: 12:30-2:30 pm (A light lunch will be provided from 12:30pm - 1:00pm)
Venue: WLB 205