

**MESYUARAT KETUA JABATAN
POLITEKNIK KPTM
Bi1/2010**

CONSTRUCTIVE ALIGNMENT

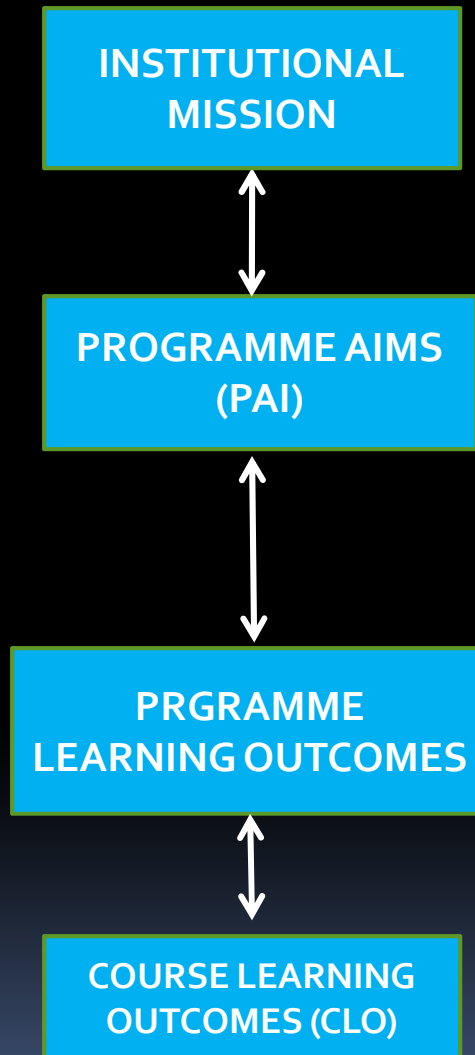
**Royale Bintang, Seremban
29 JUN – 3 JULAI 2010**

Main Aim

To assist educators and curriculum implementers in ensuring a clear alignment between:

- learning outcomes
- teaching and learning methods
- and assessment

in the programmes they design.



Approaches To Curriculum Design

- Traditionally curriculum design has always started with Course Content, which is then used to decide:
 - the teaching method (i.e. how the content will be covered)
 - and subsequently how it will be assessed

Approaches To Curriculum Design

- The 'outcome-based' approach has emerged over the last few decades where the focus is on,
- **NOT** the content that the student should have accumulated,
- **BUT** what they are able to **DO** by the end of the programme/unit or module.

Constructive alignment

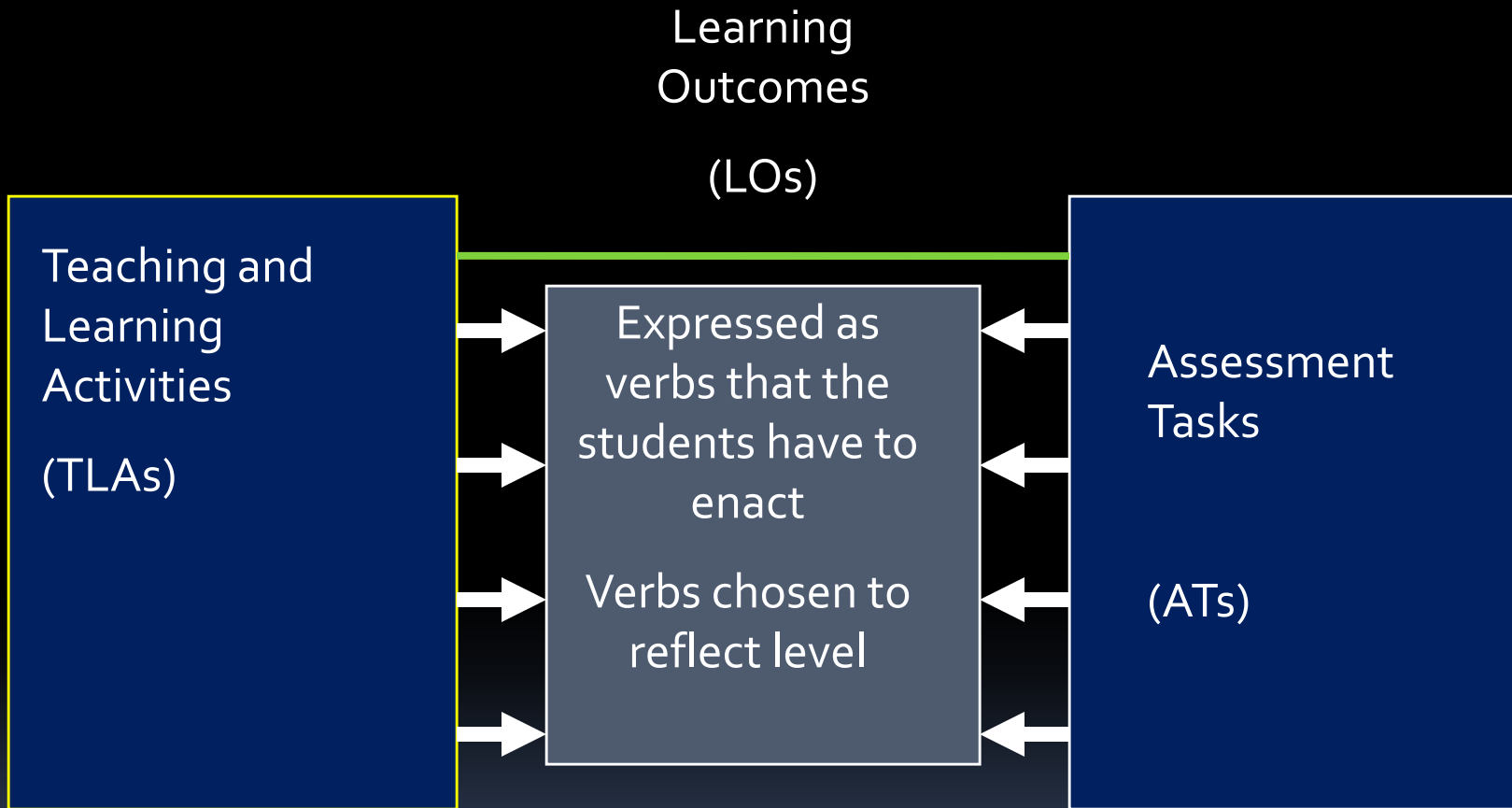
Linking a constructivist learning environment with curriculum alignment
(Biggs, 1999a)

'The objectives define what we should be teaching, how well we should be teaching it, and how we could know how well students have learned it' (Biggs, 1999b p. 64)

Constructive Alignment

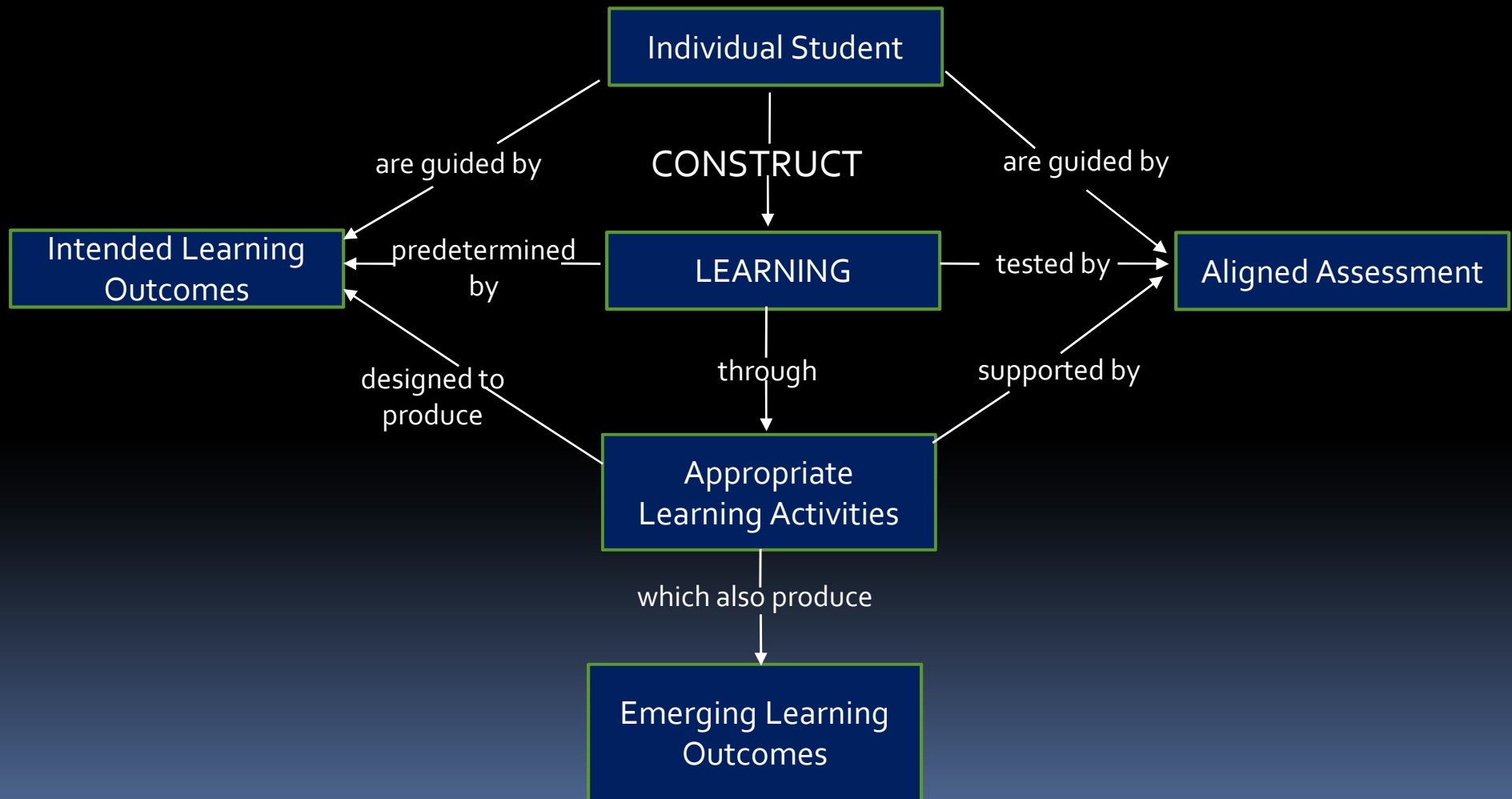
- This approach was developed by Prof John Biggs (Biggs, 1999) as the underpinning concept behind:
 - the development of programme specifications
 - declarations of intended learning outcomes (ILOs)
 - assessment criteria
 - the use of criterion based assessment.

Constructive Alignment

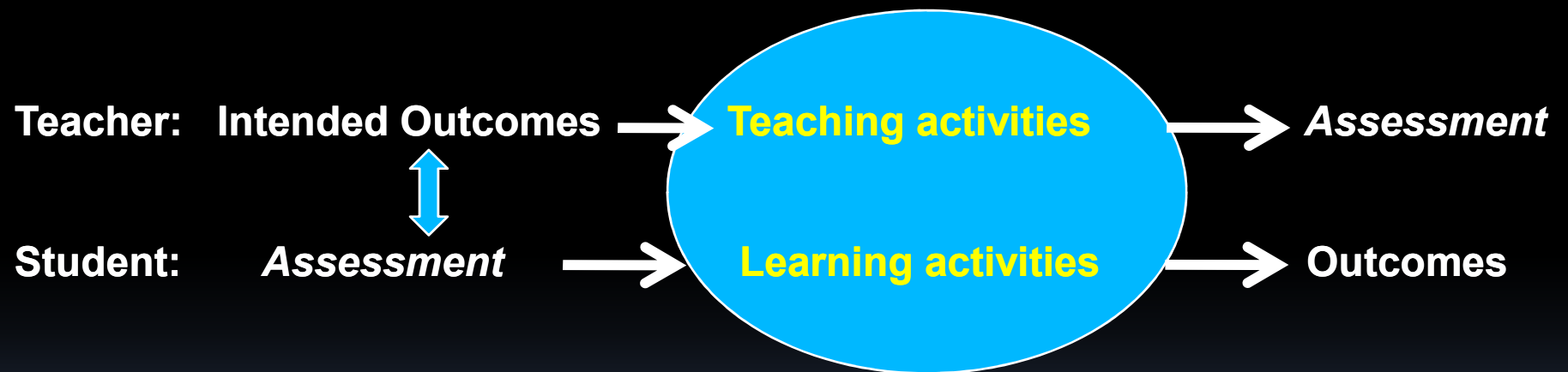


Adapted from Biggs, J (1999) Teaching for quality learning at University OU Press

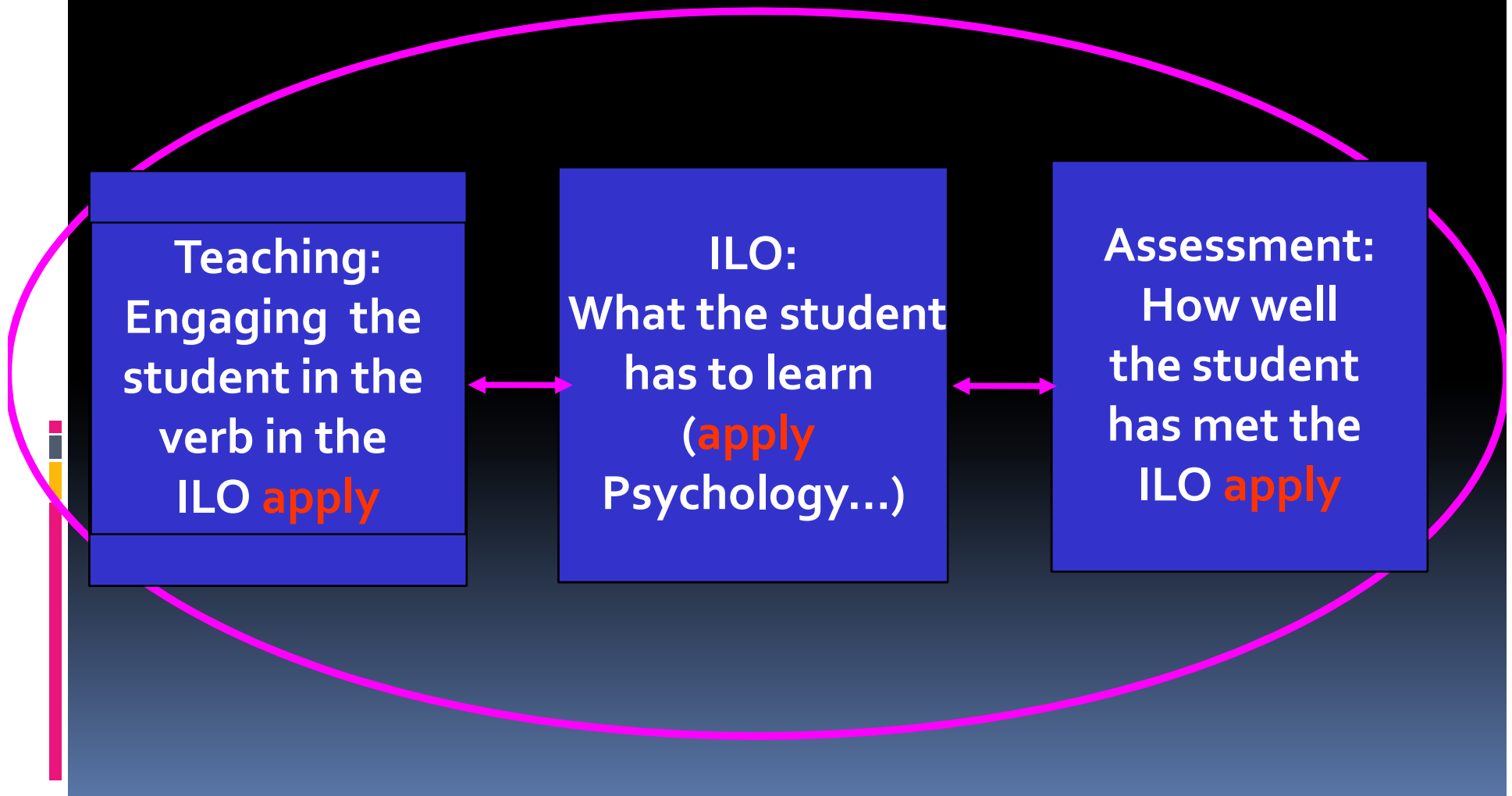
Concept Map Illustrating The Main Ideas Put Forward By Biggs And The Relationships Between Them In The Curriculum Design Process



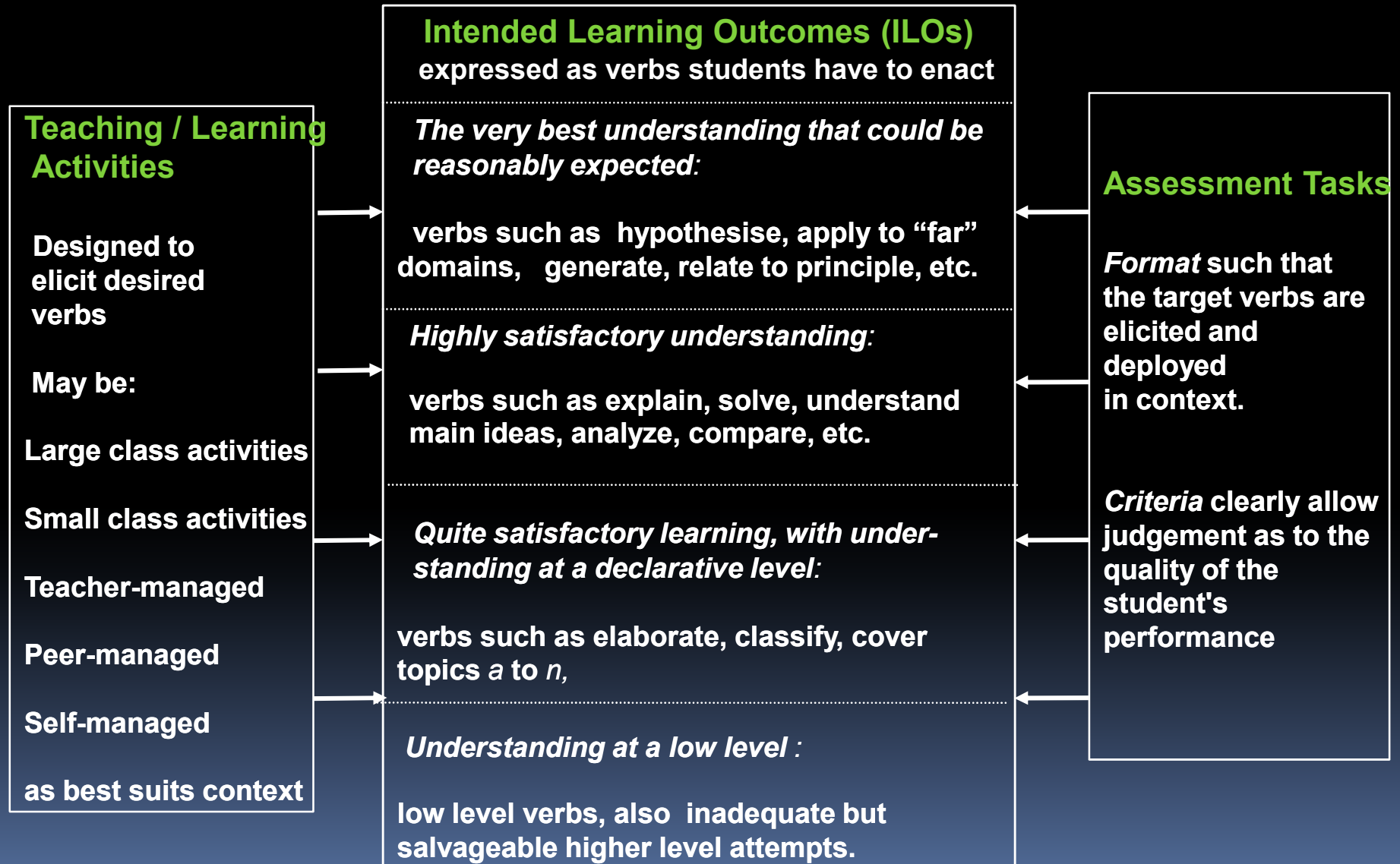
Teacher's And Student's Perspective On Assessment: Outcomes-based Teaching And Learning



Implementing Outcomes-based Teaching and Learning using Constructive Alignment



Constructive Alignment



Institutional, Programme and Course Outcomes

OBE OBTL

Outcomes at the institutional level:

Declarative, Functioning, Value

Outcomes at the programme level:

Above as appropriate to the programme.

Outcomes at the course level:

Programme ILOs embedded where appropriate as Course ILOs, to which TLAs and ATs aligned.



Intended Learning Outcomes (ILOs)

Higher Education Institutes

What are the HEI Learning Outcomes an ideal graduate of the institution should achieve?

Programme level

What are the intended learning outcomes for students enrolled in the diploma programme?

Course level

What are the intended learning outcomes for students taking a particular course at a particular level within the programme?

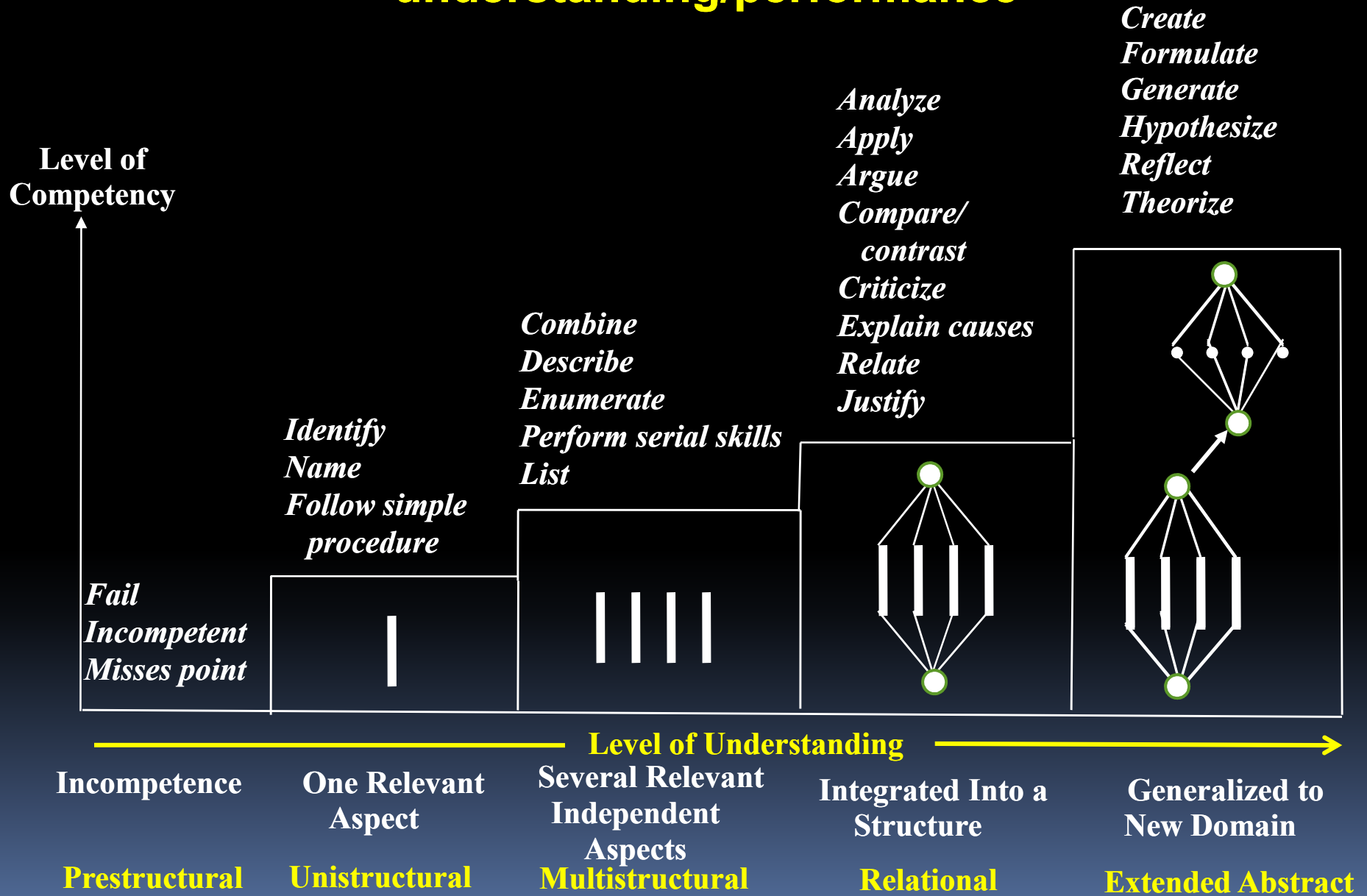
Course Intended Learning Outcomes (ILOs)

- **Statements of what students are expected to be able to do as a result of engaging in the learning process (studying a course).**
- **ILOs should reflect the level of the course.**
- **Expressed from the students' perspective (as different from *objectives*).**
- **Expressed in the form of action verbs leading to observable and assessable outcomes.**
- **Related to criteria for assessing student performance.**

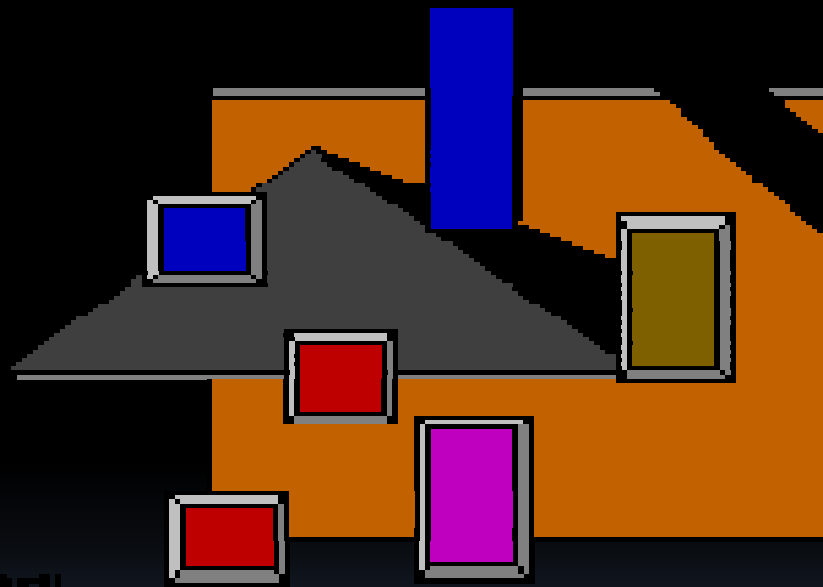
The Verbs in the ILOs

- Write ILOs by using appropriate *verbs*.
- Teaching is aimed at *activating* those verbs.
- Students should be unable to complete the assessment tasks unless they enact the same verbs that are in the ILOs (criterion-referenced).
- Generic high level verbs include: *apply, conceptualise, reflect, create original insights, solve unseen problems, generate new alternatives, critically review*. Such verbs might typically be used to define an A grade in meeting the ILOs, depending on the subject. Low level verbs such as *describe, identify*, would be more frequent in defining C and D.

The SOLO Taxonomy with sample verbs indicating levels of understanding/performance



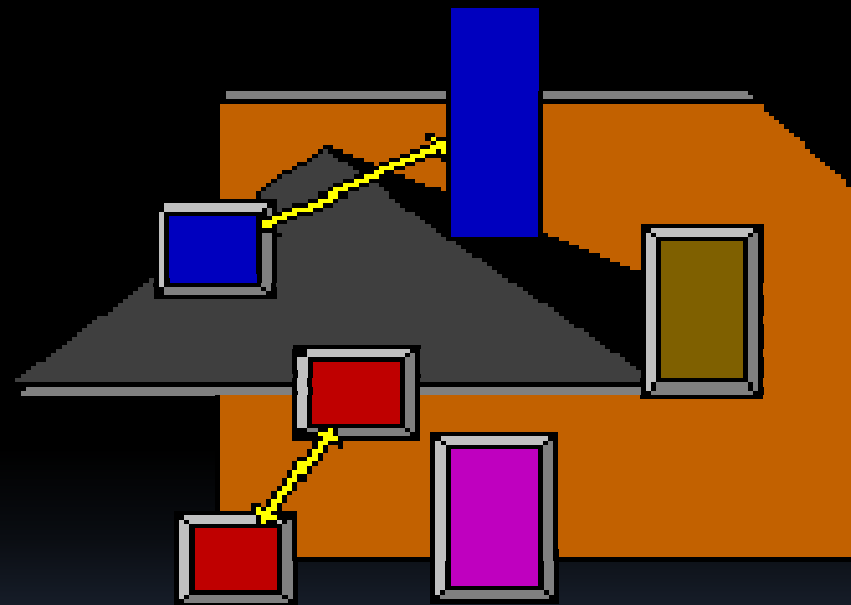
Structure of the Observed Learning Outcome (SOLO)



Pre-structural

Students are simply acquiring bits of unconnected information, which have no organisation and make no sense.

Structure of the Observed Learning Outcome (SOLO)

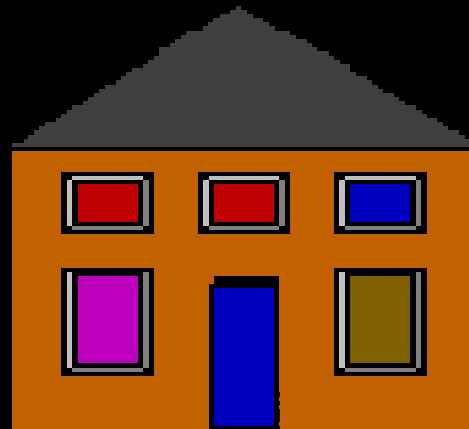


Multistructural

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A number of connections may be made, but the meta-connections between them are missed, as is their significance for the whole.

Structure of the Observed Learning Outcome (SOLO)



Relational

Student is now able to appreciate the significance of the parts in relation to the whole.

Structure of the Observed Learning Outcome (SOLO)



Extended Abstract

Student is making connections not only within the given subject area, but also beyond it, able to generalise and transfer the principles and ideas underlying the specific instance

Alignment With Teaching And Assessment Is Created By The Verbs In The ILOs

- For example: “*Explain* the historical evolution of nursing science”
- **Teaching is specifically aimed at *activating the verb*** –for example the students do the explaining to each other, providing feedback from rubrics defining aspects of a good explanation (at end of this presentation). They don’t just listen to the teacher doing the explaining.
- **Students should be unable to complete the assessment tasks unless they enact the same verb that is in the ILO.** For example, students could individually explain to the class how they see the historical evolution of nursing. The teacher, perhaps using peer assessment too, assess each explanation with the same rubrics.

Typical ILO

Describe
Explain
Integrate
Apply
Solve problem
Design, create
Hypothesise
Reflect

Possible TLAs

reading/lecture followed by presentation
tutorial, written essay, peer assessment
project, assignment
project, case study, work-based learning
PBL, case study
project, creative writing
experiment, project
reflective diary

The point is not how you are going to teach but how and what you want your students to learn.

NOTE! Many of these TLAs can be assessments tasks as well. Then you have excellent alignment.

Learning & Teaching Strategy

- Strategy might involve:
 - work based learning
 - supported distance learning
 - combination of large & small group sessions
 - problem-based learning
 - visits
 - field study
 - independent group work

Key Aspects In Choosing A Strategy

- What is important, is that the teaching strategy is fit for its purpose.
- For example, if the learning outcomes include demonstration of skills (e.g. problem solving), then the teaching strategy must provide the opportunity for the student to learn about the skill, practice the skill (ideally receiving formative feedback) and demonstrate it.

Key Aspects In Choosing A Strategy

- The teaching strategy needs to pay attention to resources available for teaching the programme (staffing, accommodation, equipment, etc)
- The teaching strategy needs to relate to the level of the student, encouraging greater independence in learning as students progress up the levels.

(e.g. significant contact with staff is likely to aid retention of students at level 1 and courses may wish to determine their teaching strategy for different modules across a programme with that in mind)

Designing Teaching/Learning Activities to Align to Intended Learning Outcomes

Having designed course ILOs, we now need to activate the verbs or learning activities embedded in the ILOs by designing suitable Teaching/Learning Activities (TLAs) that will facilitate students achieving the ILOs.

Remember:

There are many alternatives to lectures and tutorials, even in large classes.

Four Common Teaching Situations And Associated Teaching And Learning Activities

Situation	Teaching Activities	Learning Activities
LECTURE	Talk, explain, clarify	Listen, take notes, accept, query, discuss with peers, one-minute paper
TUTORIAL	Set/answer questions provide feedback	Pre-read, prepare questions, learn from peers, critique, analyse
PROJECT	Set brief, provide ongoing feedback	Apply, create, self-monitor, communicate, teamwork
PBL	Set problems provide feedback	Set learning goals, design, apply, access desired content and skills, integrate, solve problems

What teaching /learning activities will best facilitate your ILOs?

Using SOLO Taxonomy to Assess Learning

- Using SOLO taxonomy to assess learners, it is logical that we should also use it to report learners' achievements (and should not be done by arbitrarily assigning marks to different levels of the taxonomy).
- It would be meaningless, for example, simply to say that a uni-structural response should always be worth 50 per cent, a multi-structural response 60 per cent, a relational response 70 per cent, and so on.
- Rather, we should report student achievement by describing the things that each learner can do - descriptions that will resemble the SOLO level descriptors given earlier in this article.

Choice of The Assessment Tasks

- The methods of assessment need to be those **that best provide evidence of the learning you are trying to assess.**
- If, for example, you want to assess **uni-structural understanding in the concrete-symbolic mode** then **multiple-choice questions** may be appropriate.
- However, if you want to assess **relational-level understanding in the formal mode**, it is most unlikely that **multiple-choice questions** will provide the evidence you need.

Choice of The Assessment Tasks

- Also, educators must have a clear idea of what they want students to learn
- Educators who use appropriate means of assessing learning can be confident that the assessment results they report are meaningful.
- Adopting rubrics based on the SOLO taxonomy enhance the reliability and fairness of marking and improve the validity of the inferences drawn about student learning.

<i>Common ILOs</i>	<i>Possible Assessment Tasks</i>
Describe	essay question, exam, oral presentation (peer assessment)
Explain	assignment, essay question exam, oral, letter-to-a-friend
Integrate	project, assignment
Analyse	case study, assignment
Apply	project, case study, experiment
Solve problem	case study, project, experiment
Design, create	project, experiment
Reflect	reflective diary, portfolio, self-assessment
Communicate	a range of oral, writing or listening tasks, e.g. presentation, debate, role play, reporting, assignment, precis, paraphrasing, answering questions etc.

***Assessing Quantitatively By Using
Marks
Or
Qualitatively By
Using Rubrics?***

Assessing by Marks

For:

- . Used to it.
- . Seems to be the logical way to assess in certain courses.
- . Logistically easy.

Against:

- . Defines quality in terms of accumulating small quantities.
- . Measurement error also accumulates, thus invalidating fine discriminations. E.g. there is no valid difference between 74 and 75, yet to the student it can make a BIG difference - an A or a B, or worse, a pass or fail.
- . Sends undesirable messages to students (backwash).

**Students' Responses to the "Cash and Profit" Exercise
Analysed Using SOLO (Biggs and Collis 1982)**

	Pre- Structural	Uni- Structural	Multi- Structural	Relational	Extended Abstract
TOTAL	9	12	18	13	5
PERCENTAGE	16	21	31	23	9
< Relational	68%				
> Relational				32%	

**Students' Responses to the "Cash and Profit" Exercise
Analysed Using SOLO (Biggs and Collis 1982)**

	Pre- Structural	Uni- Structural	Multi- Structural	Relational	Extended Abstract
TOTAL	9	11	15	4	1
PERCENTAGE	22	27	38	10	3
< Relational	87%				
< Relational				13%	

Assessing By Grading With Rubrics

For:

- **Student's performance is appropriately assessed against what they are intended to learn – *criterion-referenced*.**
- **Backwash is positive.**
- **The final grade tells students what they have achieved and what they need for a better grade.**

Against:

- **Requires a different mind set for some teachers.**
- **Initially more work in designing ILOs, suitable assessment tasks and rubrics, but once established is no more extra work than marking.**

Qualitative Assessment Involves Making Judgments Against Criteria (Rubrics), Not By Counting 'Marks'

- If ILOs are to reflect workplace or 'real world' standards it is not appropriate to state and assess them in terms of marks obtained.
- Assessment tasks should likewise reflect the 'real world' ILOs.

Grading ILOs or Assessment Tasks?

- **Normally we grade the task (assignment, project, etc.) but logically we should grade the ILO directly.**
- **Question becomes: how well did the student do in the ILO (explain ...; reflect ...; create ...), not on how well did the student do in the project, the exam, ...**
- **The student's transcript might then present a profile in terms of learning outcomes, which would probably be of more use to an employer than a GPA, or profile of marks.**

Some Rubrics for Direct Grading of ILOs

	Marginal Pass D	Satisfactory C- C C+	Good B- B B+	Excellent A- A
Grade Pt Percent	1.00 45 - 49	1.70 2.00 2.30 50 - 64	2.70 3.00 3.30 65 - 79	3.70 4.00 80 - 100
ILOs				
Explain	Able to identify and briefly write about limited points. Very little evidence of using these points to provide reasoning to why they are inter-related.	Able to identify a number relevant points with some details. Uses these points to provide a fair reasoning or causality. No evidence of a comprehensive overview of reasoning or causality.	Able to identify a full range of relevant points with details, supported by relevant literature. Points are organized to provide a comprehensive and cohesive reasoning or causality.	As in “Good” but provides views on possible alternative causes and/or results under changing conditions. Able to link current reasoning to situations in real-life professional contexts.
Reflect	Able to use available information to self-evaluate and identify limited aspects of own strengths and weaknesses in a general sense. No evidence of suggestions of ways to improve performance. No evidence of theory being used in self-evaluation.	Able to use available information to self-evaluate and identify more aspects of own strengths and weaknesses in a general sense. Little application of theory in self-evaluation and limited suggestions of ways to improve performance.	Able to use available information to self-evaluate and identify a range of own strengths and weaknesses. Self-evaluation is based on theory. Increasingly able to suggest ways to improve performance in a specific context.	As in “Good”. Able to generalize self-evaluation to beyond existing context. Suggest ways of improving performance to real-life professional contest.

Grading Of Assessment Tasks In A Portfolio (Addressing Whatever ILO Apply)

Marginal D 45% - 49%	Adequate C- C C+ 50% - 64%	Good B- B B+ 65% - 79%	Excellent A- A 80% - 100%
<p>The pieces of evidence are relevant and accurate, but are isolated, addressing one aspect of the course. Demonstration of understanding in a minimally acceptable way. Poor coverage, no originality, weak justification of portfolio items. Inappropriate self-evaluation.</p>	<p>The evidence is relevant, accurate and covers several aspects of the course. Little evidence of an overall view of the course. Demonstrates declarative understanding of a reasonable amount of content. Able to discuss content meaningfully. Good coverage but little application or integration. Fair justification of items. Attempted realistic self-evaluation</p>	<p>The evidence presents a good appreciation of the general thrust of the course. Good coverage with relevant and accurate support. A clear view of how various aspects of the course integrate to form a thrust or purpose. Good evidence of application of course content to practice. Portfolio items well justified. Realistic self-evaluation.</p>	<p>As in "B" but with higher degree of originality and evidence of internalization into personalized model of practice. Good evidence of reflection on own performance based on theory. Generalizes course content to new and unfamiliar real-life contexts.</p>

For OBTL To Work, Impediments To Successful Implementation Must Be Removed

- **all references in policies and procedures to norm-referencing and grading on the curve. ILOs are meant to establish what students know and can perform and at what level of competence. Grading by comparing students is incompatible with constructive alignment.**
- **all references in policies and procedures to quantitative marking, in percentages or anything else.**

Materials are adapted with permission from Prof. Biggs

***Seminar on “Outcome-based Teaching And Learning:
Enhancing Learning Through Constructive Alignment , Kuala Lumpur 24 –
26 Feb 2010***