



Development of a Part-time Engineering Programme: utilising 'Work-Based Learning'

Dr Peter Theobald
Programme Leader

ACED Conference 2012, Portsmouth
Thursday 18th October 2012

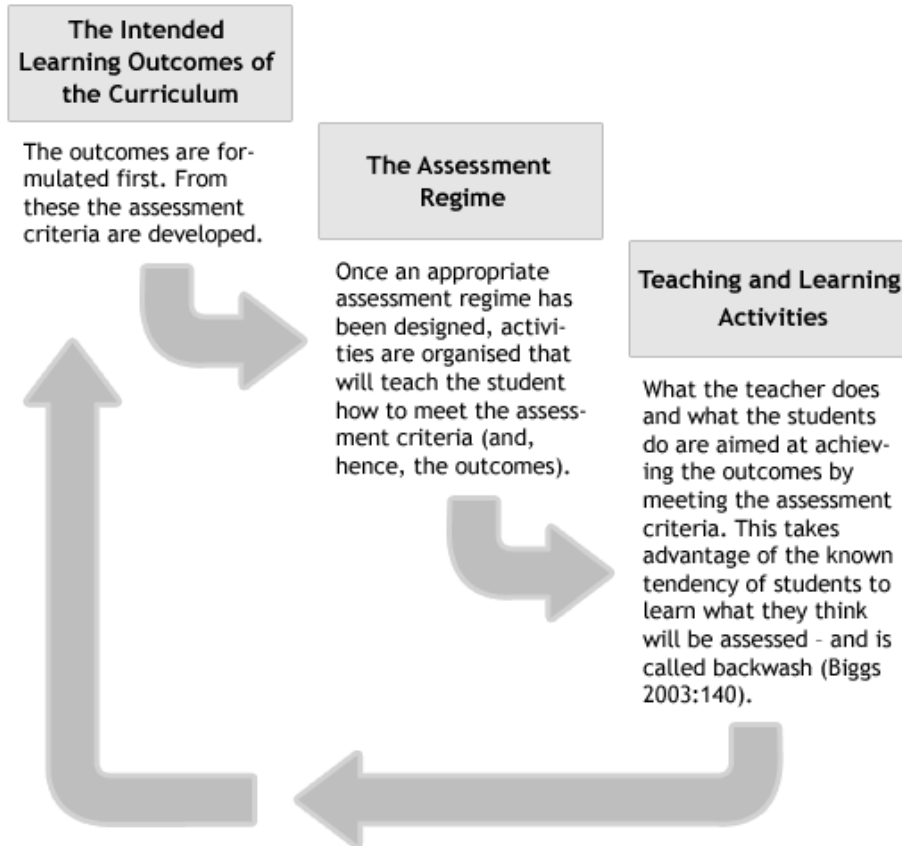
Sector Demands

- UK Government recognised STEM importance for economy
- Greater emphasis placed on up-skilling current work-force
 - Engineering Council (EC) aspired to increase number of ‘Chartered Engineers’
 - Chartered Engineers require academic (MSc +) and professional competencies
 - Need for structured, part-time provision to up-skill employed engineers
- EC launched MSc Professional Engineering concept, delivering an MSc programme with learning outcomes tailored to UK-SPEC
 - Idea: one tailored programme to meet academic and professional competencies
 - Utilising ‘work-based learning’, thereby providing additional credit for demonstrable application of academic principles in workplace

Work-Based Learning (WBL)

- An ideal mechanism to link academic education with the outcomes required by industry
 - Three different routes that WBL can be integrated into education
- Learning for Work: Learners acquiring skill through placement
 - 70% of HEIs; with students seconded to a work-place during study
- Learning through Work: Learners acquiring skill through courses
 - 14% of HEIs; significant front-loading/cost to develop specialist materials
- Learning at Work: Learners acquiring skill through strategic tasks
 - OU (largest HEI); educators to provide bespoke training
 - Identified as most appropriate route to achieve programme aims

Biggs' Constructive Alignment



Biggs' Constructive Alignment

The Intended Learning Outcomes of the Curriculum

The outcomes are formulated first. From these the assessment criteria are developed.

The Assessment Regime

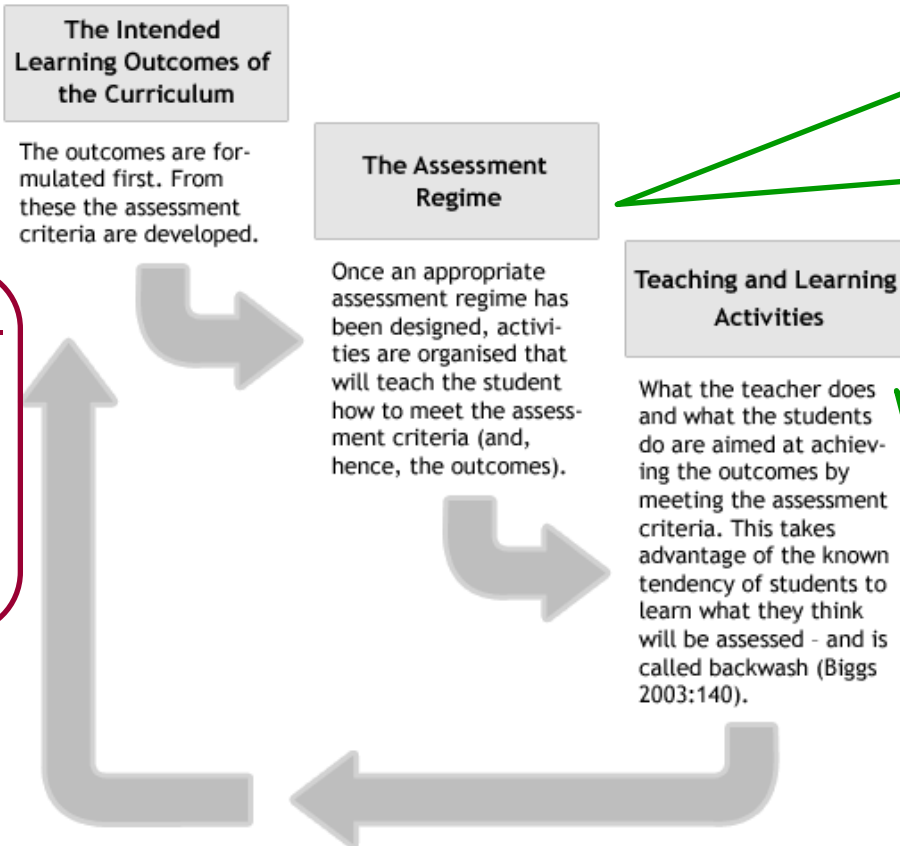
Once an appropriate assessment regime has been designed, activities are organised that will teach the student how to meet the assessment criteria (and, hence, the outcomes).

Teaching and Learning Activities

What the teacher does and what the students do are aimed at achieving the outcomes by meeting the assessment criteria. This takes advantage of the known tendency of students to learn what they think will be assessed - and is called backwash (Biggs 2003:140).

Defined by UK-SPEC, which details EC professional competencies

Biggs' Constructive Alignment



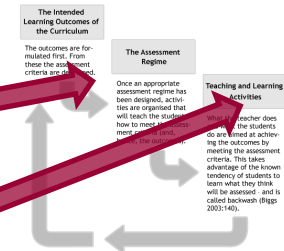
Defined by UK-SPEC, which details EC professional competencies

Opportunity to draw upon wide range of assessment strategies/ assignments

WB setting provides broader spectrum of learning opportunities

Programme Structure

- Learning outcomes defined by UK-SPEC i.e. Sector-wide criteria
 - Learning for work – inappropriate as already working x
 - Learning through work – too constraining x
 - Learning at work – sufficient flexibility ✓
- SoE teaching multiple employers common content? Inefficient
 - Participants attend sessions at CU; minimally disruptive to work – life cycle
 - Weekend format, adopting support from ENGIN distance-learning programmes
- Constructive Alignment – completion of process
 - Assessment – theory applied in relevant context
 - Learning – seminar-based, drawing on practical examples



Learning Framework

- Professional Development Audit
 - Provides retrospective mapping of APL/APEL vs UK-SPEC
- Learning contracts used to guide learning
 - Prospective mapping of potential learning opportunities vs module descriptors
- Evaluative Review
 - Summary of above two documents to provide projected graduating experience
- Quality Assurance assured via multi-step procedure
 - e.g. Supervisory visits, Line-manager sign-off; Blinded double assessment
- Provides opportunity to raise local, national and international profile

Conclusions

- WBL requires:
 - Significant adaptation of regular administrative procedures
 - ‘Robust assessment strategies
 - Buy-in’ from academic staff
- However, WBL provides:
 - Additional opportunities for academic-industrial engagement
 - Additional opportunities for establishing new part-time markets in provision of new UG/PGT programmes

Further Discussion?

- Peter Theobald:
 - TheobaldPS@Cardiff.ac.uk
 - 02920 874726