

2nd International Conference on Higher Education Advances, HEAd'16, 21-23 June 2016,
València, Spain

Written exams: How effectively are we using them?

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Abstract

In an outcomes-based education model, syllabi, learning activities and assessment tasks have to be aligned with the intended learning outcomes. This approach is known as Constructive Alignment. One of the major challenges in constructive alignment is the design of assessment tasks that are manageable, authentic, multi-dimensional, inclusive, equitable, valid and reliable. Trade-offs are inevitable; hence assessment tasks usually focus on particular aspects of the expected learning outcomes, while ignoring others. There is no such thing as the “silver bullet” assessment task. In this paper the use and format of assessments will be analysed and some ideas on how to design their effectiveness will be presented. The intention is to engage readers into reflecting on the effectiveness of the assessment methods they use, in particular: written exams.

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Peer-review under responsibility of the organizing committee of HEAd'16

Keywords: Assessment; Constructive Alignment; Outcomes-Based Education.

Nomenclature

Unit	The collection of structured learning activities students do over a fixed period of time (semester, trimester, etc.) to learn about one particular subject. Also known as class, subject and course in different institutions.
Course	Collection of units students need to complete in order to graduate. Also known as program, degree or syllabus in different institutions.

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Unit Coordinator	Person responsible for the design of a unit and, in most cases the delivery of lectures. Unit coordinators are accountable for the quality and effectiveness of a unit, as well as the students' experience in it.
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1. Introduction

Curtin University in Western Australia follows an outcomes-based educational model. The design of new courses and units starts with the declaration of what students will be able to demonstrate at the point of completion in terms of knowledge and skills, and at what level. These statements become the course and unit learning outcomes (CLOs and ULOs). Learning outcomes inform the selection of content, learning activities and assessments in every unit. This way of designing courses and units is known as Constructive Alignment (Biggs & Tang, 2011). In constructive alignment all learning experiences must be related to at least one learning outcome, and the objective of assessment items is to determine to what extent students have achieved each one of them. At Curtin University the principles of assessment are (Curtin, 2013):

1. Assessment practices will be subject to quality processes.
2. Assessment aligns with intended learning outcomes.
3. Assessment addresses Curtin graduate attributes.
4. Assessment practices have a substantial impact on student learning.
5. Assessment provides high quality and timely feedback to students.
6. Courses and units include a variety of assessment types
7. Assessment is inclusive and equitable.
8. Assessment is valid and reliable.
9. Information about assessment is readily available.
10. The amount of assessed work is manageable.

Some of these principles are relatively easy to demonstrate by counting or mapping activities to learning outcomes and graduate attributes. However, others are less intuitive. How can we demonstrate that assessment practices have a substantial impact on student learning (principle 4)? How can we measure the extent to which an assessment is valid and reliable (principle 8)? And ultimately, how can we demonstrate that assessments effectively measure students' attainment of the learning outcomes? These questions have been the subject of much research, and no definitive answers have been proposed (Race, 2014)(James et al., 2002).

2. The Purpose of Assessment

In a Constructive Alignment framework, the sole purpose of all assessment tasks is to verify the students' achievement of learning outcomes (Biggs & Tang, 2011). One of the complexities in designing assessment tasks comes from the different categories we use to classify them. Assessments can be formative (for feedback) or summative (for marks); continuous (multiple instances in a period of time) or unique (happening only once), individual or in teams. Blooms Taxonomy is commonly used to classify learning outcomes and teaching activities according to the level of thinking (LoT) students need to demonstrate. Figure 1 shows Bloom's taxonomy and a description of each level of thinking.

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