

At the level of a
semester course and
a teacher

How to design a blended learning course

With a mix of traditional
and online learning
experience for students

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Summary

I present a simple method for teachers designing a module and later consider its problems.

1. All methods have educational assumptions, an implicit or explicit theory:

Alignment of (onsite and online) teaching and assessment with the intended learning outcomes

2. A problem-solving method and paper tools

But there are two criticisms:

1. Different educational theories generate other versions of the method
2. The method is simplistic, this is not a *tame* problem.

3

Constructive alignment ¹

What the teacher does

Assessment Tasks

enable students to demonstrate learning in particular contexts, consistent with the verbs in the ILOs

Intended learning outcomes

with active verbs describing the learning to be demonstrated, at threshold level and possibly at higher grades of performance.

Teaching Activities

to encourage students to behave in ways that will promote the learning outcomes.

What the students do

Learning activities

Actual learning outcomes

Educational assumption 1

Outcomes-based curriculum design

with outcomes such as those of the QAA for Programme Specification ²

- Subject specific knowledge
- Subject specific skills
- Cognitive skills e.g. critical analysis
- Key (employability) skills e.g. use of IT

Educational assumption 2

Integration of teaching, learning and assessment:

- Teaching and learning are aligned with intended outcomes and assessment
- Technology uses are aligned with other teaching-learning-assessment activities and hence with intended outcomes
- Mutual support between course components
- A balanced experience of technology for teacher and students

This will *embed* technology.

A method

A decision making method

- 1. Gather information, **analyze** the problem
- 2. Generate **possible solutions**
- 3. Assess the options and **select**, refine the design
- 4. Implement
- 5. Evaluate and modify

Method: analysis

Factors to consider, before we can select and design teaching and assessment methods, include

1. My teaching philosophy and personal goals
2. The learners: knowledge, ability, learning styles
3. Other stakeholders
4. Subject domain and intended learning outcomes
5. Environment, resources available, constraints
6. Aims and evaluation methods needed

E.g. JISC [Effective Practice Planner](#) ³

Method: generating options

Assessment tasks Online/CAA	Assessment tasks Onsite /traditional	Intended learning outcomes	Teaching- Learning Activities Online	Teaching- Learning Activities Onsite /F2F
		1		
		2		
		3		
		4		

The diagram consists of a horizontal line with arrows at both ends, pointing left and right. Below the line, the numbers 1, 2, 3, and 4 are arranged vertically in the center of the table's body rows.

A notional TLA example

Intended learning outcome	Teaching-Learning Activity: Online	Teaching-Learning Activity: Onsite
Recall information X	Web documents & links	Reading a set book, lectures
Perform skill Y	Formative quizzes	Problem sheets in class
Contribute to discussion on Z	Asynchronous text discussions	Tutorials
Apply knowledge and skills to W	Computer simulation	A field trip

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Method: selection tactics

Having identified possible online and onsite TLAs (or assessments), why select one or both?

1. **Deficit**
technology provides missing support for learning activities. E.g. online discussion in distance learning
2. **Substitution**
substitute a traditional element with a technology-based one. E.g. online tutorials replace onsite tutorials
3. **Enrichment**
technology duplicates existing TLAs, giving a choice of media suitable for different learning styles. E.g. lecture handouts on web, podcasts

A simple tool

Intended learning outcome	Teaching-Learning Activity: Online	Teaching-Learning Activity: Onsite

Method: refine the blend

- Will the innovation improve
 - efficiency (e.g. reduce costs) and/or
 - effectiveness (for learning)?
- Costs are mostly time: preparing and during learning/teaching/assessment. ⁴
 - For staff: workload this year and time investments recouped in later years
 - For students: the total learning hours available
 - Total time must not increase for either!
- Effectiveness: initially teacher judgement, then evaluation of learner experience and outcomes

A TLA tool with costs

ILOs	TLA online	TLA onsite	Online costs before + during		Onsite costs before + during	
			Teacher	Student	Teacher	Student

Hours:

The diagram shows two arrows originating from the 'Hours:' label. One arrow points down to the word 'workload' located under the 'Teacher' column of the 'Online costs' section. The other arrow points down to the text '150 learning hours' located under the 'Student' column of the 'Onsite costs' section.

And for assessment ...

Intended learning outcome	Assessment: online, CAA	Assessment: onsite, traditional

Assessment criteria

(i.e. summative assessment, grading)

- Three tactics: deficit, substitution, enrichment
- Effectiveness
 - Validity of testing outcomes
 - Reliability of result
 - Utility for impact on learning
- Efficiency
 - Time costs beforehand (staff and student preparation) and during (student time and staff marking)

... with costs and combined

ILOs	Assess ment: CAA	Assess ment: Tradit.	CAA costs before + during		Traditional costs before + during	
			Teacher	Student	Teacher	Student
Hours:			↓	↘	↗	↓
			workload			150 learning hours

Alternative educational theories

Three overlapping families of learning theories ⁸

1. Associationist /empiricist perspective (*behaviourist*); learning as behaviour, activity, observable performance
2. Cognitive perspective; learning as constructing understanding and meaning; the *constructivist* approach
3. Situative perspective; learning as social practice, sense of identity; *Community of Practice*

Another educational theory

The outcomes-based method above is arguably rather behaviourist.

An example of a more explicitly constructivist theory is *Rich Environments for Active Learning (REALs)*.^{5,6}

It has 5 themes.

Constructivism: REALs

Constructivist Principle	Online TLAs	Onsite TLAs
Student responsibility & initiative		
Active learning by making things		
Authentic learning contexts		
Authentic assessment		
Cooperative support		

Tame & wicked problems ⁷

“Rittel expounded on the nature of ill-defined design and planning problems which he termed "wicked" (ie. difficult) to contrast against the relatively "tame" problems of mathematics, chess, or puzzle solving. Wicked problems have incomplete, contradictory, and changing requirements; and solutions to them are often difficult to recognize as such because of complex interdependencies. Rittel and Webber stated that while attempting to solve a wicked problem, the solution of one of its aspects may reveal or create another, even more complex problem.” (Wikipedia: Wicked problem)

Wicked problems

The method described above is a tame problem solving procedure but course design, especially blended learning course design, is a wicked problem:

- Every problem is unique, and cannot be exhaustively formulated
- Every formulation of the problem is a statement of the solution
- There is no exhaustive list of possible solutions
- No stopping rule, no ultimate test of truth, and no single best answer, only good ones
- Every problem is a symptom of another problem
- Wicked problems require inventive solutions.

Conclusion

- Different educational theories give different criteria than ILOs but the tabular method for selecting a blend of options seems robust.
- But this is a tame method for a wicked problem
 - It is not a problem to be “solved” but a design opportunity in which we need “design wisdom”⁹
- However, such simple tools can get us started, recognizing their limitations by revising and enriching our design solution
- At least they raise the issues of
 - The Wickedness of the problem
 - Making the underlying educational theory explicit

References

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