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LAMS FOUNDATION

Perspectives on learning design

The 3rd International LAMS and Learning Design Conference

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Conceptualising learning design as both an analytical and creative process

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T·L·R·P Technology Enhanced Learning

E·S·R·C Economic & Social Research Council

EPSRC Engineering and Physical Sciences Research Council

Outline

Technology-based innovation should come from teachers

To innovate, teachers need tools for design and planning

→ Tools and representations for a learning design support environment

Teachers as researchers…

- We need to understand how to foster collaborative learning among teachers as *learners about e-learning*
- Teachers need to be more like researchers, researching on *the teaching of their subject* – discovering how best to do it
- But *teachers lack the means and tools* to build on others' work, re-design, experiment, share, reflect, and collaborate

A different model of teaching

- building on the work of others – reusing, adapting, customising
- with support staff, and tools, to design new pedagogies
- treating teaching as an opportunity to innovate and discover
- collaborating and sharing ideas to improve quality and scale

Tools and representations for a learning design support environment

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A Learning Design Support Environment -
cross-institutional, interdisciplinary research project

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A Learning Design Support Environment - LDSE project aims

- Research the optimal model for an effective learning design support environment (LDSE)
- Achieve an impact of the LDSE on teachers' practice in designing technology enhanced learning (TEL)
- Identify the factors that are conducive to collaboration among teachers in designing TEL
- Embed knowledge of teaching and learning in the learning design software architecture
- Improve representations of the theory and practice of learning design with TEL.

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User requirements elicited

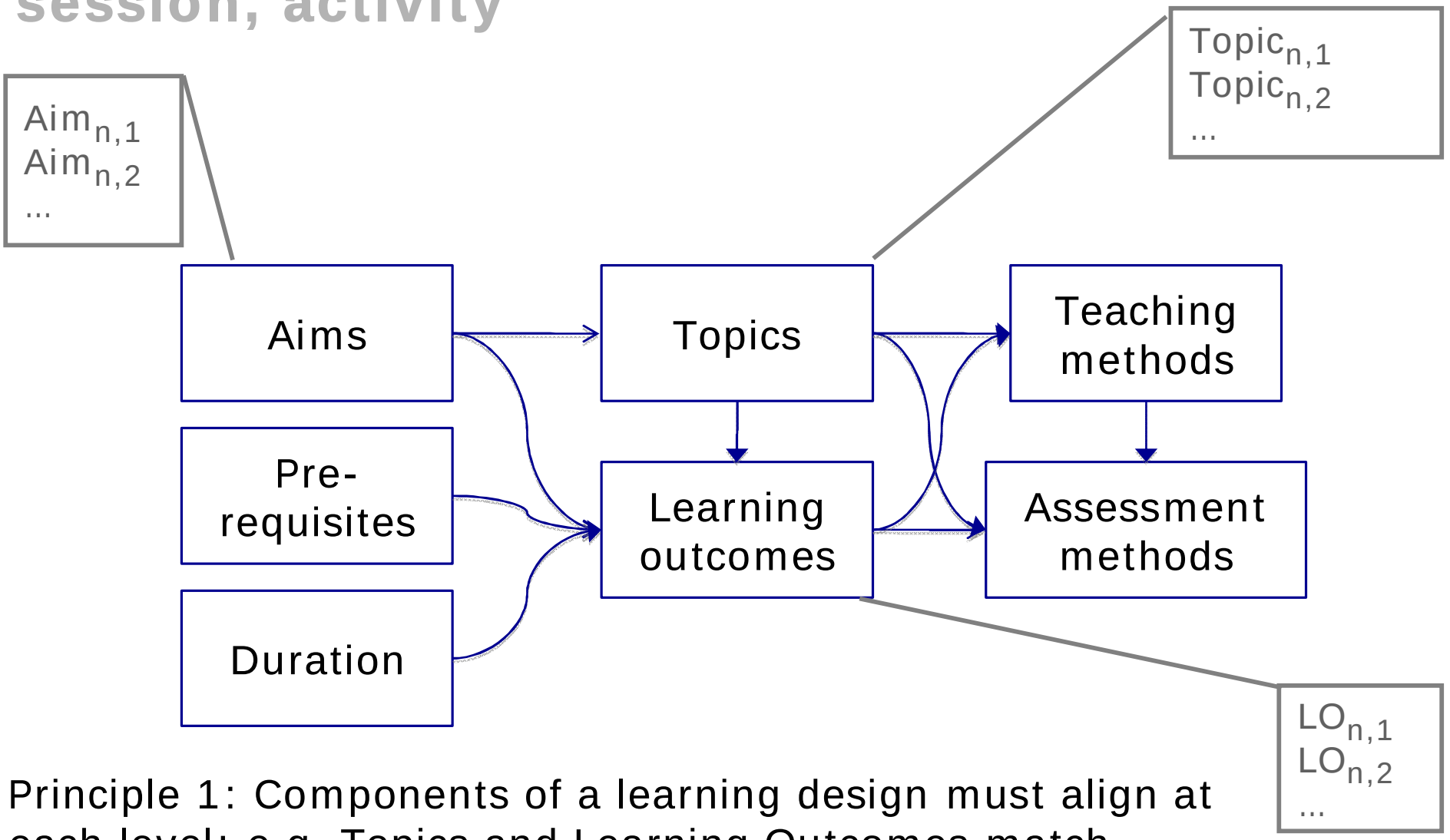
- *Planning –*
  - ensure all the components of learning design (aims, learners' needs, learning activities, intended outcomes, etc) are addressed and are compatible with each other, at different levels of course, module, session, learning activity
  - help lecturers make decisions by feeding back the implications of a decision for other parts of the process, enabling editing and customising, and representing the resulting design in a
  - link each decision to relevant online advice on learning design, online learning object repositories (e.g. OCW, OpenLearn, MERLOT), case studies (e.g. JISC, ALTC), learning designs (ALTC, iCampus), distillations of educational research findings (e.g. JISC briefings, journal abstracts), local information about learner needs (e.g. feedback surveys, examiners' reports)
  - build a community of practice, where lecturers can discuss and share learning designs, learn from each other, and build on each others' ideas
  - for allocating lecturers' time, learners' time, estimating comparative costs, publishing schedules for modules or sessions, producing module-level planning for administrative purposes.

(Sa

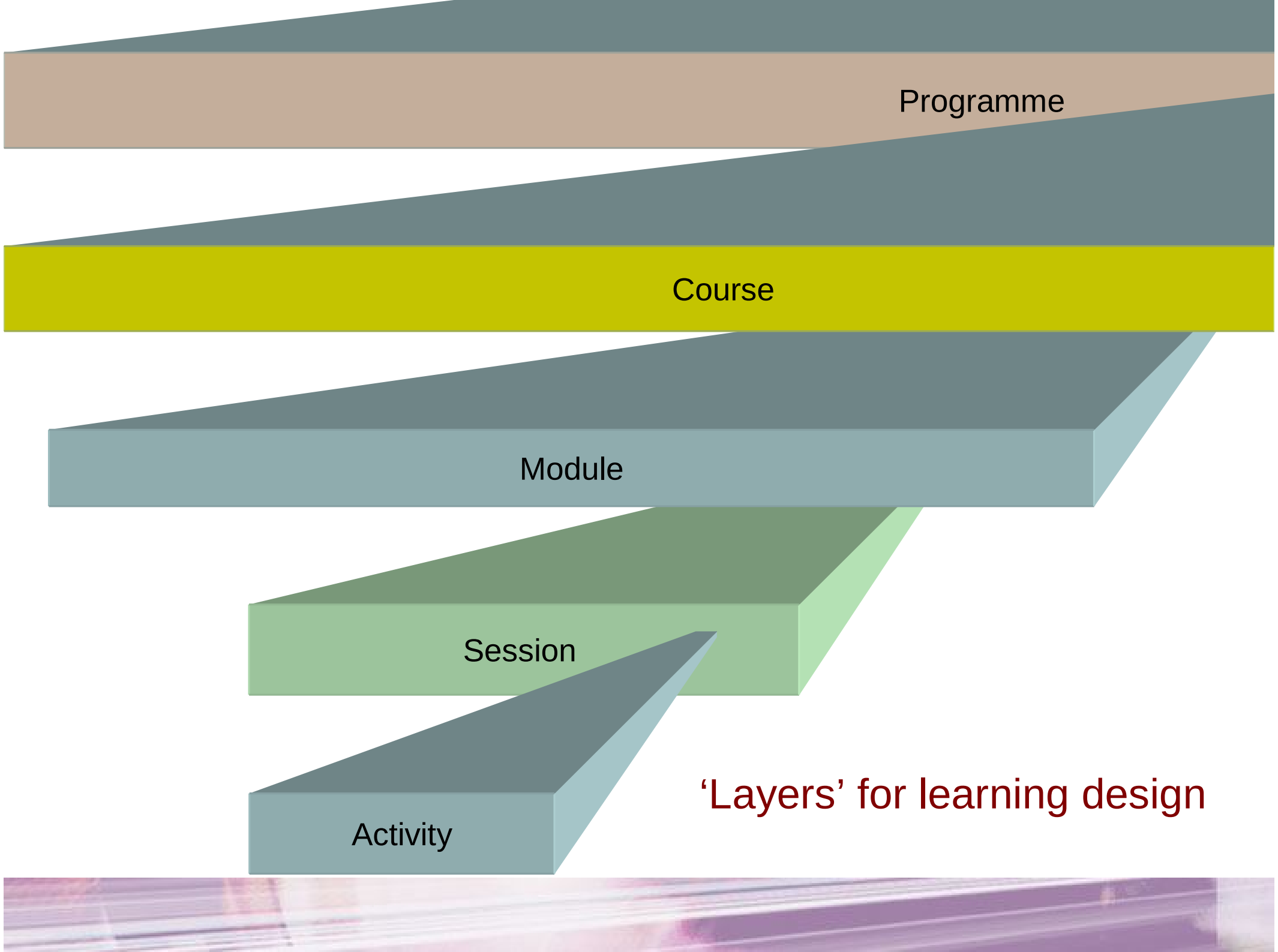
Approaches to learning design

- Content-based
- constrained by academic interests, discipline aims, qualification (knowledge and skills, duration), professional requirements - tool provides IAG on qualification requirements, QAA learning outcomes for the discipline, links to topic-related resources
- constrained by resources (facilities, number of staff, income), number of students, entry requirements, student capabilities, contact requirements - tool provides information on resources available, requirements, staff costs, fee levels, other costs, students, course requirements
- determined by institutional curriculum and other T&L-related policies, market demands, learner needs - tool provides links to institutional information
- driven by an account of how a student will be enabled to learn and achieve the learning outcome - tool provides advice and guidance on what it takes to learn different types of outcome, links to exemplars of learning activities related to each, student evaluations, information on typical forms of misconception related to topic
- constrained by learning theories (ID, Soc-constr, Constructionism, Ed tech, etc.) governing teaching strategies - tool provides information, advice and guidance, on teaching strategies, and learning activities, as well as exemplars

Modelling the planning: course, module, session, activity

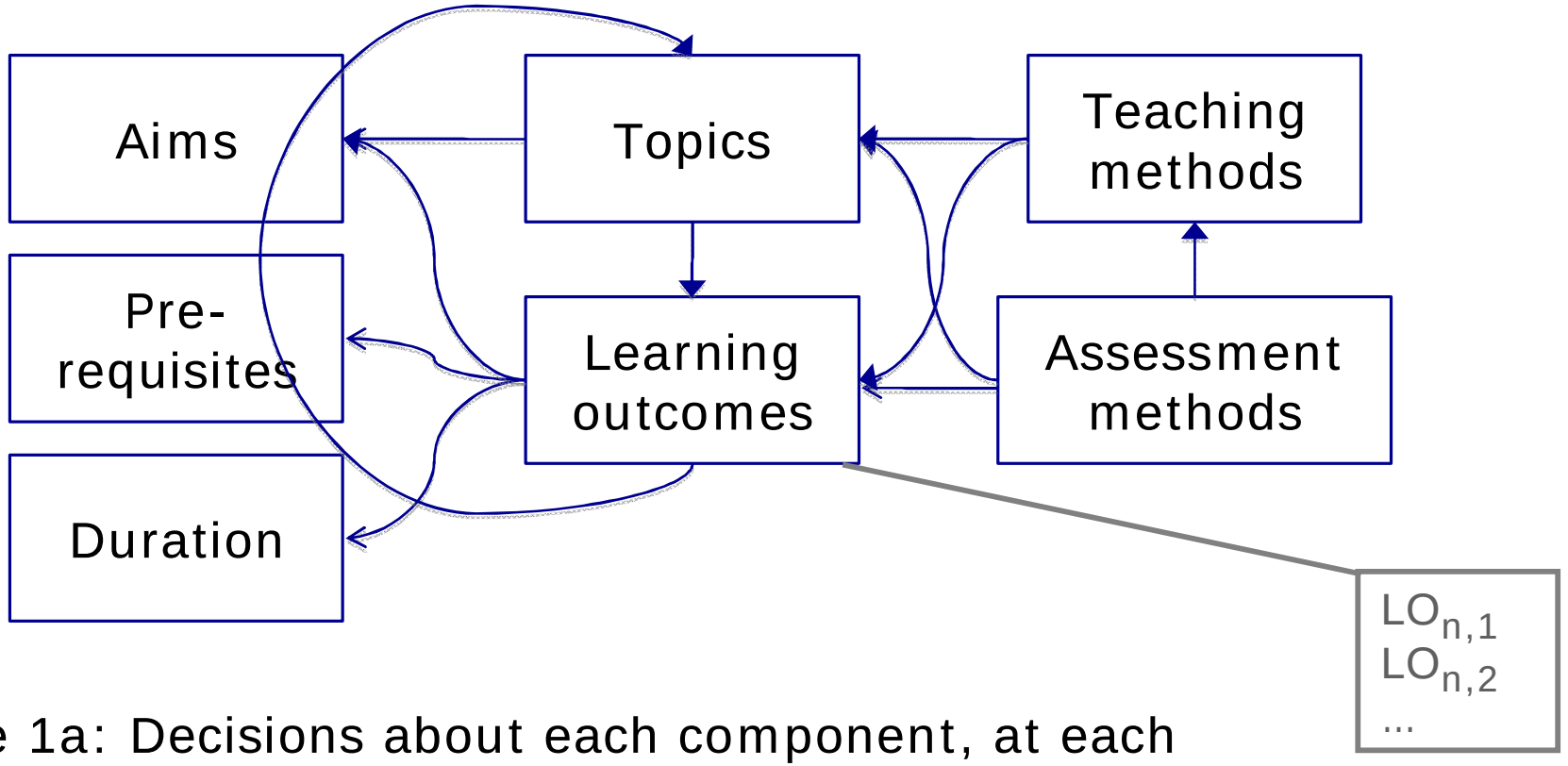


Principle 1: Components of a learning design must align at each level: e.g. Topics and Learning Outcomes match Aims



‘Layers’ for learning design

Modelling the planning: course, module, session, activity



Principle 1a: Decisions about each component, at each level, should propagate through the network

Modelling the planning: course, module, session, activity

- To identify ways in which the concept of lifelong learning is discussed in policy documents without reference to the potential uses of learning technologies
- To appraise and critique policy implications of ICT for policies, and for different contexts of lifelong learning.

"Multiple mappings are important – really nice and visual"

"... it does make you think"

"This is good reflective/thinking tool – I particularly like its visual aspects of seeing the learning outcomes as a whole"

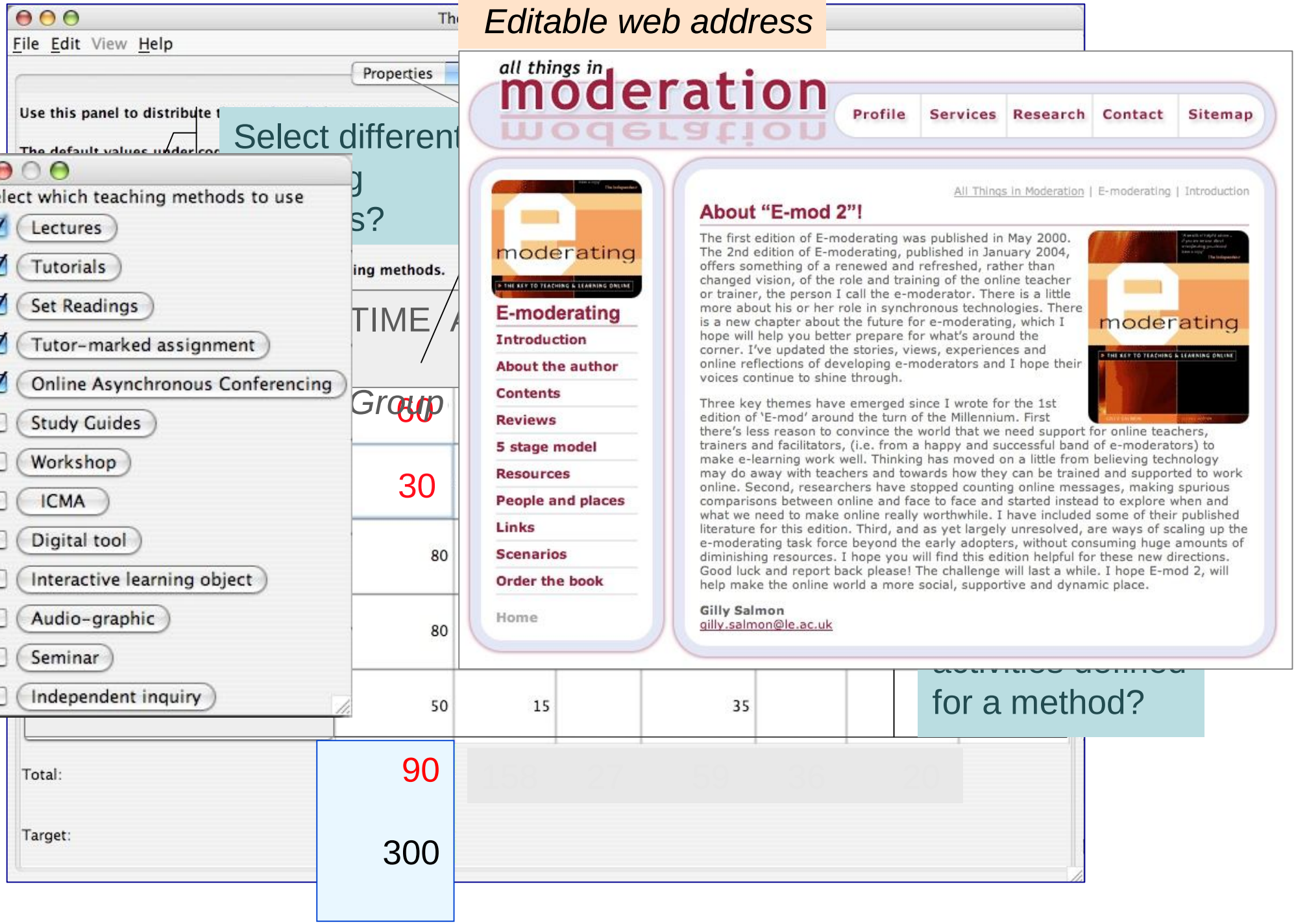
Learning outcomes

Assessment methods

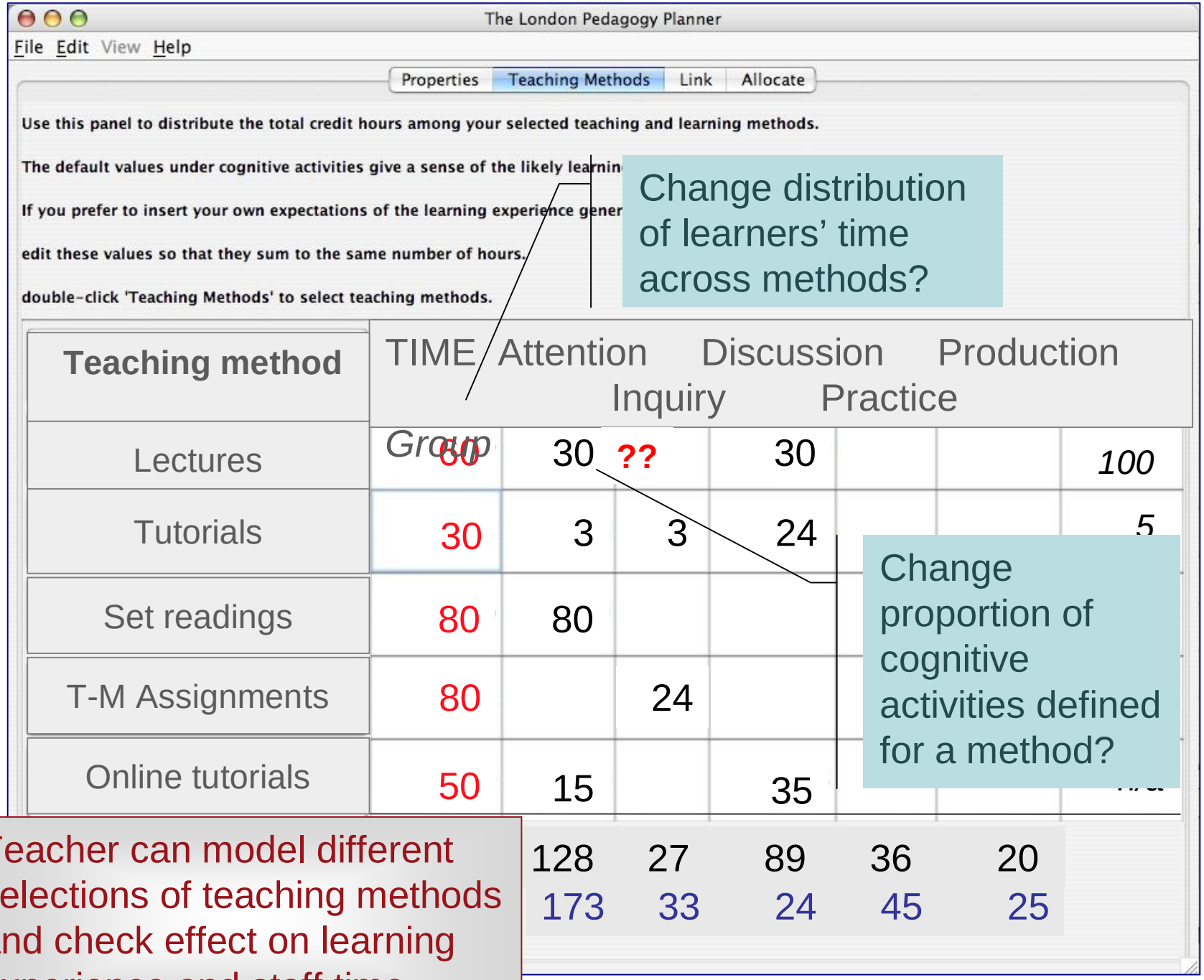
Duration

Principle 11: Users should be able to govern the level of complexity of representation they deal with

Modelling pedagogy against use of time



Modelling pedagogy against use of time



Teacher can model different selections of teaching methods and check effect on learning experience and staff time

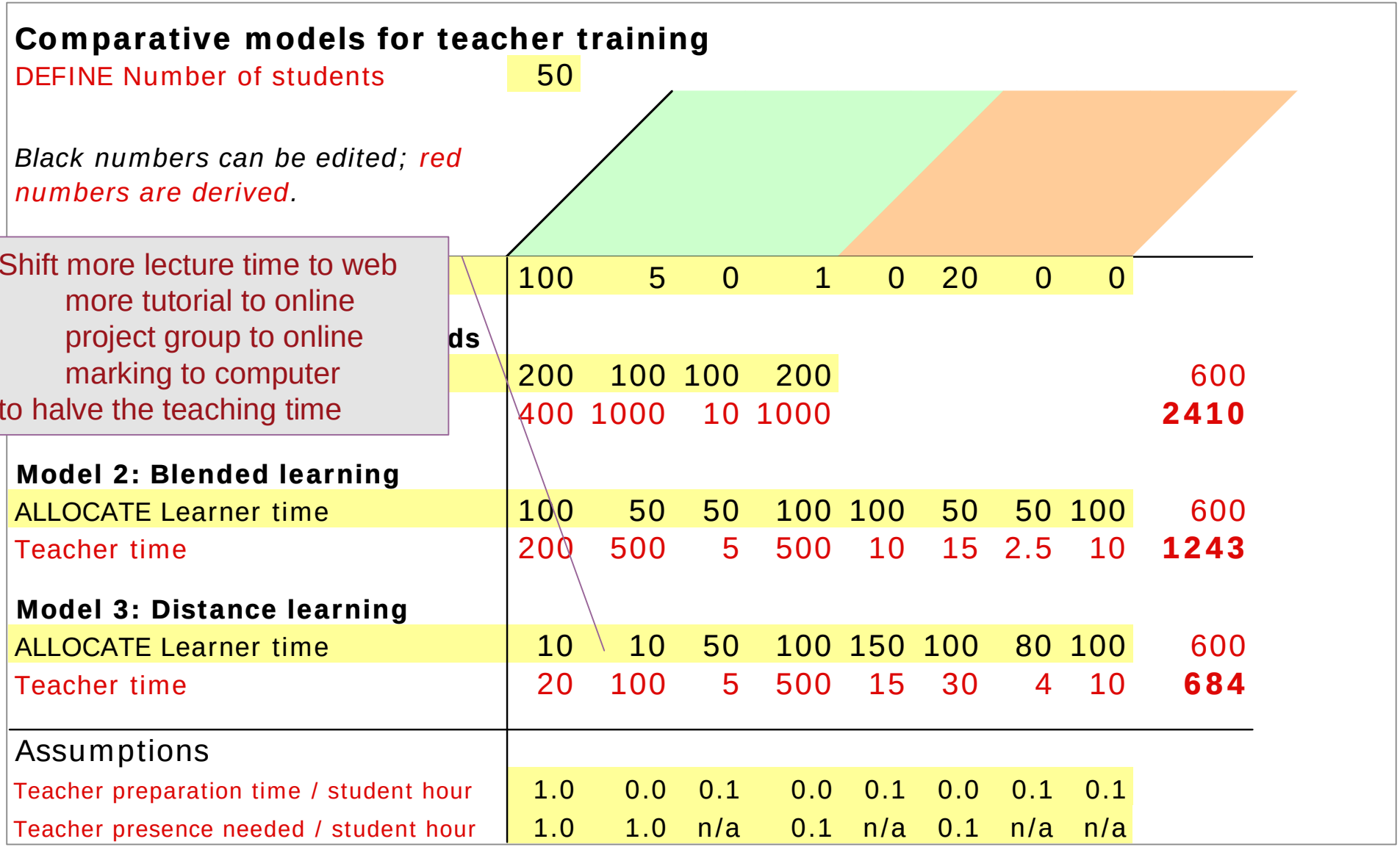
Support for modelling learning experiences

- The teacher can model the effect on the learning experience of different selections of teaching methods
- Can explore other conventional and digital methods

> "*It encourages thinking outside current teaching box and therefore use of other methods*"
>
> "*This is more useful than I expected it to be*"
>
> *"...very good for integrating learning technologies and the learning design process"*
>
> *"...as a newcomer to writing modules I welcome the help and appreciate definitions/suggestions"*

Principle 12: Users should be able to model the pedagogic benefits and workload costs of different combinations of teaching methods

Tool for modelling teacher workload



Comparative models for teacher training

DEFINE Number of students 50

Black numbers can be edited; red numbers are derived.

Shift more lecture time to web
more tutorial to online
project group to online
marking to computer
to halve the teaching time

	100	5	0	1	0	20	0	0	
ds									
	200	100	100	200					600
	400	1000	10	1000					**2410**
Model 2: Blended learning									
ALLOCATE Learner time	100	50	50	100	100	50	50	100	600
Teacher time	200	500	5	500	10	15	2.5	10	**1243**
Model 3: Distance learning									
ALLOCATE Learner time	10	10	50	100	150	100	80	100	600
Teacher time	20	100	5	500	15	30	4	10	**684**
Assumptions									
Teacher preparation time / student hour	1.0	0.0	0.1	0.0	0.1	0.0	0.1	0.1	
Teacher presence needed / student hour	1.0	1.0	n/a	0.1	n/a	0.1	n/a	n/a	

Principle 12: Users should be able to model the pedagogic benefits and workload costs of different combinations of teaching methods

Creative tools for ‘progressive innovation’

Given your an
learning outco

Likely learne

- ❑ Understand
- ❑ Understand
- ❑ Understand
- ❑ Motivation t
- ❑ Justificatior
- ❑ Seeing the
- ❑ Understand

Phoebe tool

About Learning Activities and Sequences ¶

Definition ¶

A **learning activity** has been defined as:

“an interaction between a learner or learners and an environment (optionally including content resources, tools and instruments, computer systems and services, ‘real world’ events and objects) that is carried out in response to a task with an intended learning outcome.” (Beetham, 2004)

There may be only one activity in a particular learning session, or there may be a **sequence** of activities. The exact number depends on a number of inter-related factors, including:

- The length allowed for the session in the course timetable
- The nature of the content, concepts and/or skills to be learned
- The different techniques that may be appropriate to the content, concepts and/or skills
- The amount of time you expect each activity to take.

Activity types ¶

We have suggested a number of different activities that you might need to design for a particular learning session:

- Preparation activities to be done before the session
- The “main” activity sequence: the principal activity or activities that make up the learning session itself
- Assessment activities to ensure that students have achieved the intended learning outcomes
- Follow-up activities: non-assessed activities that you might want the students to do afterwards
- Additional activities, such as extension activities for more able students and reinforcement activities for students who may have difficulty with particular aspects of the material
- Alternative activities that might be needed in case of unforeseen circumstances

Principle 13: Users should be able to link to supporting ideas to match the learning outcomes they want to achieve for learners

Can teaching 'build on the work of others'? - Learning outcomes across disciplines (Entwistle, 2005)

Biology: "achieve interconnective and synoptic understanding"

Economics: "bring appropriate concepts and research findings to bear in developing solutions "

History: "understand how evidence is used in argument"

43 similar statements from these + Music, Media studies and Engineering

12 academics from maths, philosophy, cognitive science, computer science, and sociology, classed 19/43 as 'relevant' for their subject.

So we can expect lecturers to be grappling with similar kinds of learning outcomes

– so could they share learning designs across disciplines?

Creative tools for ‘progressive innovation’

Given your analysis of learner needs, please select the learning outcome that is most relevant:

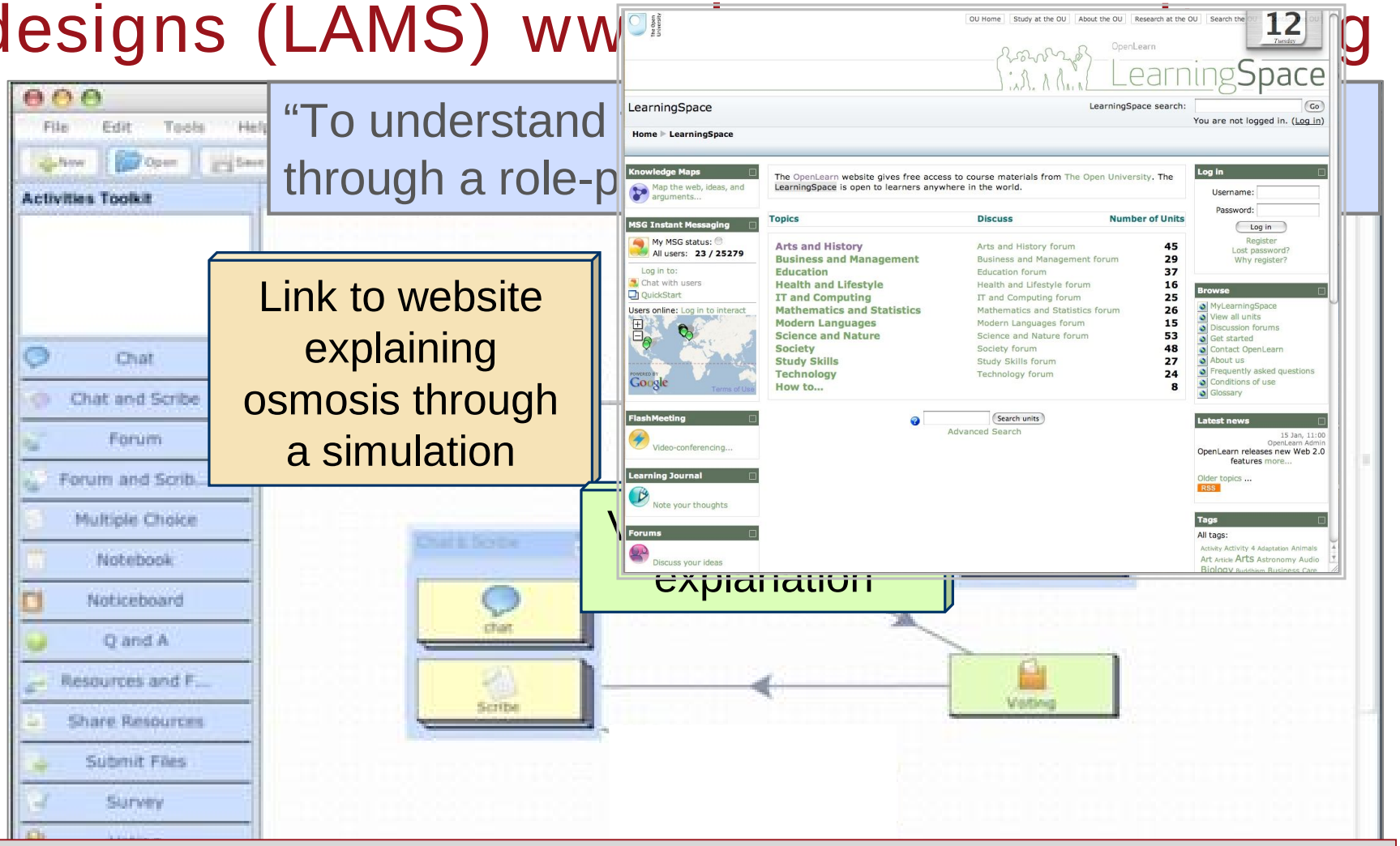
Likely learner needs

- ❑ Understanding mean
- ❑ Understanding the pr
- ❑ Understanding and a
- ❑ Motivation to do thor
- ❑ Justifications for key
- ❑ Seeing the familiar as
- ❑ Understanding the va

Select a learning design – from CETIS? ALTC? LAMS? MERLOT? OpenSpace? SAKAI?

- ❑ Provide an animated representation of the system working, which learners can step through, and then report their understanding
- ❑ Provide a simulated model of the system and ask learners to manipulate it to achieve a particular outcome, and then explain how it works
- ❑ Use a role-play activity to get learners to take turns in teaching and questioning about elements of the system, and collaborate on producing the best explanation
- ❑ Develop a set of inappropriate explanations, taken from other learners’ assignments and exams, ask learners to ‘mark’ them alongside expert explanations, and discuss results.

A creative tool for representing learning designs (LAMS) ww g



The sequence of learning activities embodies a pedagogic idea - captured to enable the teacher to re-use, review, and improve.

Requirements for ‘progressive innovation’

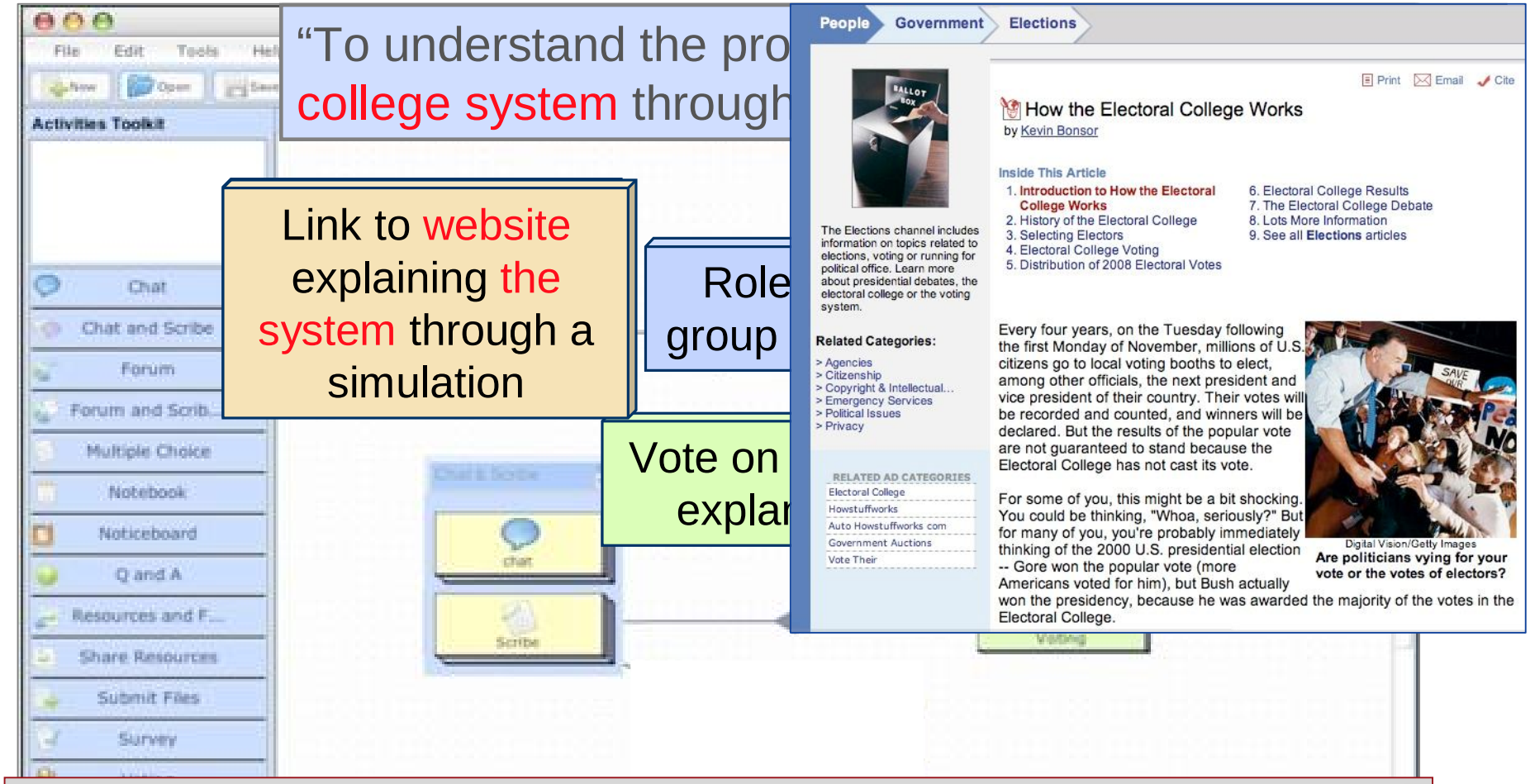
We need to be able to

- link from the specific context to the relevant generic form
- enable generation of a new specific activity from the generic form
- pedagogical patterns for each level of description

This requires

- categorisation of learning outcomes – as in QAA, Tuning exercises
- categorisation of desifn patterns and activity sequences in terms of learning outcomes they are designed to achieve
- common standards of metadata to enable resource discovery of this kind

A tool for *migrating* learning designs (LAMS)
www.lamscommunity.org



The sequence of learning activities embodies a pedagogic idea - captured for others to adopt, adapt, re-use, review, improve, and share.

Conceptual representation of pedagogic theory at different levels of description →