

Beyond Laurillard

There are a number of issues, mentioned in the lectures, that can be seen as requiring additions to the Laurillard model.

Reflection

"Reflection" is a very popular word in the education literature, but there are different meanings, or at least aspects, of it. Generally speaking, it refers to thinking about one's knowledge and actions in order to detect problems and improve them in future. In HCI, the cycle there could be seen as a form of planned-for reflection, where success or failure in testing out one's designs lead to observations that in turn can lead to improved designs. In professional life, there is more expectation that one's actions should be adequate in the first place, but reflection on any problems (critical incidents) can lead to further improvement. Kolb and Schön offer models of this process. In terms of educational theories mentioned on this course, we might make these different connections, all of which could be called "reflection" in different ways:

- A subheading for the 4 Laurillard activities that link public and private (abstract and concrete).
- Hunt metacognition: self-regulation by detecting and then remedying imperfectly understood items.
- Wider self-regulation = critical thinking (cf. Perry): reasoning about the basis and justifiable confidence for a given bit of "knowledge".

Peer interaction

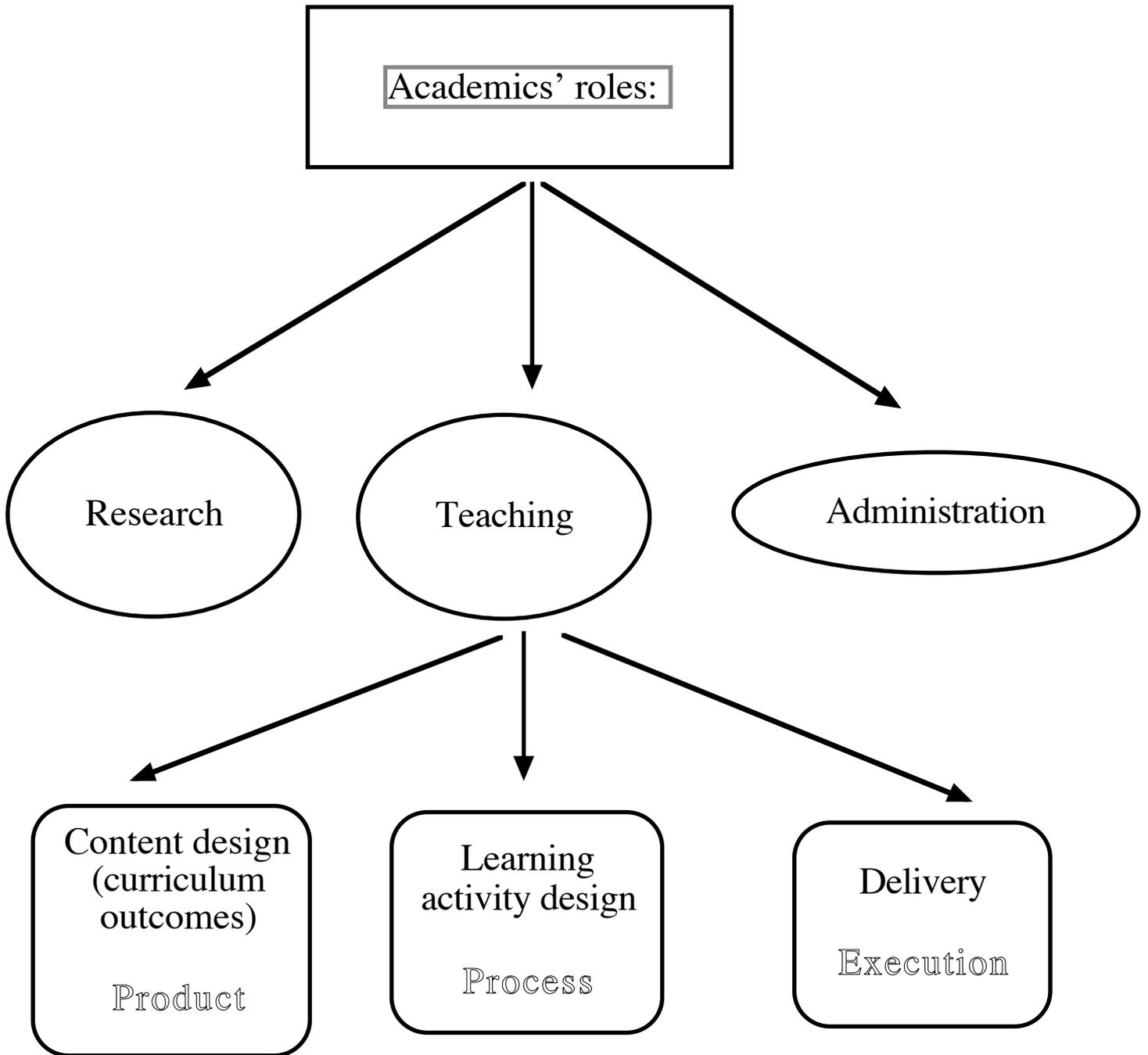
The Laurillard model does not have an explicit place for learner to learner interaction. One possible reply to this is that a large part of the role of the teacher in the model can usefully be played by peers: they can be the recipient of a re-expression by the learner of the topic, and they can give feedback on it (activity 3) and so prompt re-re-expression (activity 4). A more radical view would be that of Illich (1970) who seems to think that abolishing teachers altogether is feasible, replacing it all by ad hoc groups of learners.

Another issue is whether peers are not just cheaper but in some ways more effective than teachers in promoting learning. See Foot and Howe (1998) for a recent view, and also the PAL website: <http://www.psy.gla.ac.uk/~steve/localed/pal.html>

Constructivism

"Constructivism" is the single most frequently referred to theory in modern educational literature. The term itself refers to the philosophical proposition that people do not learn by having ideas transmitted to or implanted in themselves, but only by constructing them internally with or on things already in their minds. Considerable notes on this were contained in handout 6. Very briefly, the most important points to remember about it include: different authors mean rather different things by the term. There tends however to be important themes in common underlying this often unacknowledged diversity. Most fundamentally, it goes with a learner-centered focus, and a realisation that simply telling people is generally an inadequate view of teaching and learning. Next it goes with attending to connecting new ideas with the learner's ideas. In fact it may be useful to consider three aspects of this: connection to the learner's pre-existing conceptualisations, often wrong ones (misconceptions: there is a large educational literature on these); connection to the learner's prior experiences, and connecting to the learner's current or future experiences. The latter two are essentially what Laurillard's model sees as the relationship between the public, abstract conception and the private, personal, experiential aspect. Thinking about this in detail, it may be best to consider a 2 by 2 crossing of the public/private levels with actions vs. thoughts. Actions may be at the conceptual level as when we make theoretical calculations or deductions, or concrete actions on the world (as in the laboratory). And a learner's relevant prior ideas may be concepts or facts, general ideas or specific cases e.g. a misconception that mental illness is incurable, or a memory of a frightening encounter with a confused and agitated person on the street.

The term "authenticity" is used to refer to whether the activities and topics being learned are related to real world things that the learner has a prior reason to be interested in. For instance, in medical school problem based learning (PBL), teaching is organised around realistic scenarios of patient illnesses (e.g. a road accident). This is a form of public-private connection as alluded to in the Laurillard model, but emphasises the motivational as well as the conceptual aspects. It also fits well with the apprenticeship model of Lave (see below). However it is more obviously relevant to teaching in subjects such as medicine and engineering (that are defined by practical applications) than it is to "pure" subjects such as physics or literature. There is a basic issue in learning of whole vs. part training of skills: drilling in each part separately which is best for achieving mastery of component skills but can seem boring and irrelevant, vs. practising putting it all together. In fact both are necessary. The debates over phonics in teaching children to read relate to this: drill on rules has to be balanced with reading for meaning and pleasure for best eventual results.



Social perspectives on learning

This course has an almost exclusively cognitive slant on learning. However it is important to realise that there are quite different perspectives, above all social perspectives (which are also absent from the Laurillard model). One of the more extreme is represented by Jean Lave (1988, 1991), whose model seems to be one of apprenticeship and social enculturation rather than of direct instruction: for her, learning isn't about grasping concepts or memorising facts, but about becoming a member of a (new) community. Wood et al.'s work on contingent tutoring, and the notion of scaffolding, is another representation of how, particularly when learning procedural skills rather than concepts, detailed interaction between learner and teacher can be crucial and that learning is optimised when the teacher does not make task success easy for the learner by telling them exactly what to do without thinking or understanding, but instead always leaves a gap that the learner has to figure out for themselves.

Other important landmarks here, illustrating crucial social aspects of education, are Rosenthal's "pygmalion" effect, where he demonstrated that a teacher's beliefs about children's ability had a marked effect on their independently measured learning achievements; and Tinto's theory that university dropouts and retention are predicted by the "integration" of students into their peer group and academic department.

Metacognition

The term "metacognition" (Resnick; 1989) refers to understanding (the processes of) one's own thinking, and the wider idea in education is that if learners think about how they learn, they will do it better. However the best established result empirically is less ambitious: it is that learners who actively monitor how well they remember or understand something, learn better. An early result was reported in Hunt (1982), who simply got learners in each test not only to give the answer but then to state how confident they were of it. This could be interpreted as an internalisation into the learner of the cycle which in the Laurillard model involves both teacher and learner giving each other feedback. This relates to the large literature on giving learners feedback. In reality much feedback does not come from teachers: in some tasks, you get feedback from the task (an experiment works or not). Learners in fact have their own internal standards: when writing an essay, you constantly make judgements about how good each bit of your writing is. Snyder (1971) describes the different, and to some extent conflicting, sources of feedback any student gets in practice.

The management layer and learner self-regulation or autonomy

One of the biggest extensions needed for Laurillard's model is the notion of a management layer, as sketched in the web document I wrote (Draper; 1997). It attempts to describe how learning actions, activities are actually decided on and organised by some mixture of teacher and learner decisions. Clearly this includes "motivation", but the trouble with that term is that it implies learning is just a matter of will power: whereas in reality it depends on what the learner knows how to do and on what the teacher does. (Plenty of other parts of life are also not well analysed in terms of motivation. The most important action for humans is breathing, but very seldom do people live longer by increasing their motivation to breathe: that just isn't the deciding factor.)

One issue then is whether the choice of learning activities is productive. Laurillard's model already has plenty to say about that. Another issue, not dealt with in that first document on the management layer, is how proactive the learner is in organising each activity. For instance for a lecture, is the learner forced to attend, told to attend, suggested they might attend, or not told anything but searches the internet for relevant lectures they could attend (virtually or in person)? Similarly for books to read. And similarly for other things such as getting their questions answered by staff: do they wait to be asked, wait for a tutorial, or take the initiative? This can also be called the issue of learner autonomy, or self-regulation: where learners decide whether and when they need more of something, and then go and organise something to satisfy that need, even though it may well require a teacher to play a part, it could be organised on the learner's initiative.

"Life long learning" refers to the ever increasing need in most professions for people to go on learning throughout their careers (not depending on initial training to serve them), and this probably means that the learning must be largely organised by the learner themselves (drawing on teachers as needed). In contrast, the dominant model is for young children to be told what to learn and how. In Higher Education, students go through a substantial transition towards greater autonomy. Many first year students do little unless explicitly told, in the form of many small exercises each with a deadline; but by their final year, students carry out long projects with many subparts, largely organised by themselves with advice rather than fixed directions. These are shifts not in the Laurillard activities, but in the management layer of who is taking a bigger role in deciding what activities take place, and who initiates them.

On a short timescale, metacognition (see above) is a part of this: with the learner discovering what things they don't understand well, and taking private corrective action once they have identified these things: in effect

deciding where to direct their attention and effort within the broad task of "learning the course material" specified by the teacher. EBL (Enquiry Based Learning) refers to organising learning to give more scope for student autonomy: moving them towards greater autonomy and self-regulation, and generally evoking higher motivation and enjoyment as a consequence.

Dr. Fox

The so called Dr. Fox effect addresses the question: what difference does it make if the lecturer is good or bad? Does the mere manner in which a talk is delivered affect the outcomes? This has been studied in experiments where a lecture script is written and fixed, and an actor hired to deliver it to video in two contrasting manners: one "expressive" and one not. Participants then see one or the other video, and are then tested both for whether they found it good, interesting, well delivered etc. and for how much of the content they remember i.e. learned.

According to Marsh's (1987) review at least, the answer is: if participants are motivated in advance to learn (extrinsic motivation) then it makes a difference to the ratings they give but not to how much they learn; but if they do not believe learning the content is important to them, then expressiveness makes a substantial difference to learning as well.

Many possibilities remain as to what the causal factors are in more detail, for example:

- It's about directing the listener's attention at the time. Varied tone of voice, and appropriate direction to what is key and what is only elaboration or background is what matters.
- Does repeating points (middle, summary before and after) matter?
- Is it eye contact, sense of personal involvement?
- Is it simply the difference between reading a lecture, versus speaking impromptu to points on slides?
- Is it enthusiasm: i.e. do we only bother to learn if the speaker clearly believes the content is important and interesting?
- Do jokes make it easier or harder to learn?
- Is it the inclusion of examples and links to personal experience (as Laurillard's model would predict) that is in fact important here?
- Is time (duration) properly controlled? Many of these suggestions would take longer, and is it really just the length of the presentation that predicts probability of taking it in?

The best reference on this is Marsh (1987), or rather one section of that huge paper, which reviews this line of work. It refers to several other papers which I've also included in the reading list: most by Ware and Williams or Williams and Ware; but also by Coats and Smidchens. You might possibly however consider looking for any wider literature on the manner of giving lectures.

When reading any of these papers, good critical questions to keep in mind are the points above, and also whether the two versions really had the same information content; and what in a given experiment different "expressiveness" meant: eye contact, perceived enthusiasm, jokes, giving examples, different or better visual illustrations (slides) etc.

Technoscepticism

There is a widespread and long lasting belief in our society that applying computers to education will make it better. Many people, research units, academic conferences, and government funding initiatives are dedicated to this. However we should be aware of strong counter-arguments. These were stated clearly by Clark (1983) and in subsequent published debates with Kozma. Much of what is published about applying technology to education only describes what happens or measures whether participants liked it: few do comparative measurements of learning with and without the new technology. When these are done, Clark argued that either there was no effect or that not only was the technology changed but so also was the teaching method which by itself was enough to explain any benefits. He claimed therefore that there is no credible evidence of any benefit whatsoever for applying technology to education. Cuban (1990; 2001) gives a similarly sceptical account. See also Draper (1998) for a related argument.