When you only get what you design for

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Prologue: Contingent tutoring
Introduction: Active vs. passive goals; obliquity
Part A: Two difficulties with dissemination
Part B: Wider perspectives on A&F

Prologue:

Contingent tutoring / PWS (progressive withdrawal of scaffolding)

Dave Wood's landmark model of optimal tutoring.

A reference point at various moments in the talk.

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Contingent tutoring

How 1:1 tutoring of a procedure works.

Showed that the optimal strategy is to continually vary the specificity/generality of help depending ("contingent") on the learner's success or failure at the last step.

And that this is NOT natural for humans: most of us are poor at it. But it IS the best.

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Contingent tutoring / PWS (2)

May also call this "progressive withdrawal of scaffolding".

This general approach may usefully be considered at many scales in education:
1. Tutoring a procedure step by step
2. Applied to assessment & feedback ("A&F"):
   - Requires dialogue;
   - Self-assessment not remaining helplessly dependent on teachers for all time.
3. At course design level, implies PWS
4. At a general level (this meeting) it is a warning against:
   - Not expecting anything of learners
   - Expecting teachers to do it all   4

Introduction:

Do you only get what you design for?

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Active and passive goals

Position A:
If we are in control of everything, then to achieve A, you make a plan and act directly to bring it about.

Position B:
But many things in life are in fact not like that.

Joining a golf club for the business contacts
Hill walking: set the goal of climbing, but enjoy the views
I want love, but affect an interest in booze and dancing

John Kay's "Obliquity": businesses that aim to be a leader in the field, make money; those that aim to make money, soon fade and fail to make money.

But then again: education

Everyone assumed that many goals in education are passive, attainable only by indirect action.
E.g. in Marton's work, those who aimed at learning were shallow learners, while deep learners said they were aiming at understanding (yet retained more, longer).

BUT Carol Twigg (and to some extent REAP) showed that you can reduce costs and raise learning attainment simultaneously, contrary to what we all thought.

But you ONLY achieve this if you explicitly redesign courses to achieve both of these ......

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Education (2)

In course design you may only get what you design for:

- Student complaint abatement
- Technology introduction (not learning gains)
- Better student "engagement" (not learning gains)
- Learning gains
- Less resource spent

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Part A:

Some difficulties of dissemination

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Two difficulties with dissemination

Attempts at managed, centrally directed (or education-theory-driven like REAP) change are problematic for two big reasons:

A. The total context-dependence of course designs.

B. The essential contribution of tacit skills . *(see next slide)*

These lead to two observations about successful dissemination for course redesign (from our own experience).

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Tacit skills

A design can never explicitly list all pre-requisites.
But in education, we need to pay special attention to the dependence of each of our designs on pre-existing skills in both learners and teachers.

Learners: writing an essay, collaborating in groups, using Excel ...
Teachers (delivery): facilitating a discussion, PWS and NOT telling them how to do it.
Teachers (design): managing student anxiety, PWS at course and programme level.

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A1. The magic bridge between educationalist and teacher

We present both principles and 2 examples.
Many listeners come up with novel ways to apply it in their context: which we could never tell them.

This is the essence of constructivism, not transmission;
Of something coming from a conversation which neither party could have constructed alone.

If your dissemination is transmission, then you are treating clients worse than students (and by the way, you'll fail to have any real impact).

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A2. Great designs vs. principles

Common L-designs may be based mainly on one principle.
(An Alexander type pattern could be viewed as one principle plus one example implementation.)

But great learning designs appear simple & coherent, while ticking a lot of boxes (satisfying many principles) at once.

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Case 1: Redhead

Redhead (unpublished). MSc in Information management and preparation (Digital Archiving).

- 2 hour class before projects are launched:
    Students decide the marking criteria for the projects
- Projects creating an archive (mostly external placements)
- Write reports
- Students reciprocally critique each others' draft reports
- Revise reports, submit final version
- Staff summative grading.

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Case 1: Redhead (b)

Boxes ticked = principles enacted:
- Learners decide criteria
- Peer formative assessment against the criteria
- Feedback then used in revising the draft
- Staff summative judgment

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Case 2: Reciprocal peer critiquing

Morrow (2006); myself. Psychology undergraduates.

Done twice, first with past (already marked) work; second for new coursework before submission.

- Students bring in and exchange work
- Prefaced by 1-3 questions they particularly want comments on
- Produce critiques on 2 others, address criteria plus the questions; rubric: best and worst feature
- Round table, F2F feedback, me chairing

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Case 2: Reciprocal peer critiquing (b)

Morrow (2006); myself. Psychology undergraduates.

Boxes ticked = principles enacted:
- Peer assessment
- Learners proactive in formulating feedback questions
- Exercise the criteria from another viewpoint
- Peers see each others' work (resource for remedies)
- See how own and others' work compares in quality
- Can act on feedback directly (in 2nd application)
- F2F delivery means dialogue around feedback, and not just clarification but multi-party discussion.
- Multiple opinions on same work: information on variability

So

Obviously there's a gap between what we know separately in each design principle (for A&F, for good L&T)
And how to achieve that in a great design.

Course design expertise is partly a tacit skill.

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Part B:

Wider perspectives for A&F

Almost all that is written about assessment and feedback presupposes that it is all about the technical skill and knowledge of the learner in a module. But actually that is only a small part of a what a learner cares about; and only a small part of what a teacher should care about.

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B1: My 3 super-principles

Contingent tutoring: feedback is only effective when at the right level of specificity. This is essentially impossible to know without interaction (dialogue).

Feedback should be organised to be feedforward.
(No action => no learning.) Feedback is not a teacher action, but a pedagogical design.

Formative not summative: judgements on learners are not only offensive and demotivating, they are of no use to learning. *(see next slide)*

B2: What can a learner do with a mark?

Learner 1 needs a C grade, and gets a B. So they reduce the effort they put into this course, and learn less.

Learner 2 needs a C grade but gets a D. They have a fixed mindset, conclude they don't have the ability to do this course, and drop out.

All learners, like us, must regulate their effort. But marks aren't good information about this. If we are going to support this vital self-regulation need for learners, then surely we should address it better e.g. require work logs with each piece of work, be realistic about the amount of student work we are demanding, and give (and receive) feedback on effort.

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Regulating study skills

A third thing a learner needs to regulate, is their study skills. How can we help? Probably all A&F to date is useless for this.

One approach (I've piloted) is to set up workshops where they measure themselves under comparable conditions using alternative study methods.

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Feedback loops

Learners are regulating multiple variables.
Feedback is useful only for one: technical skill.
Marks are useful for none, except course choice?
We should be designing courses, and A&F, to
    support all a learner's self-regulatory needs.
    (See my paper; reference on the handout.)

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B3: The 2-dim view of disciplines' A&F

Most discipline knowledge has two independent components:
1. Content / breadth / coverage / declarative knowledge
2. The core procedure e.g. "the history essay" "physics problem solving".

Most exams demand both together (making them non-diagnostic)
But tutoring and feedback seem necessary mostly for the procedural aspect; so concentrate on that?
But in any case, quite different testing and feedback is appropriate for these two aspects …

Separate formative A&F for content and procedures?

For concepts either quizzes or "brain teasers" I.e. catalytic assessment. (See my other paper)

For procedures, perhaps "micro tests" can be helpful, and part-whole training and testing.

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So ....

In A&F you probably only get what you design for.

The literature, and most practice, only designs at best for local and technical knowledge, and it ignores:

• Wider time scales
• The different needs of procedural and declarative knowledge
• The multiple variables learners are self-regulating and so need feedback for

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A place to stop

So what do you think about:

•Multiple different variables regulated by feedback?

•The 2-dim. view of disciplinary knowledge?

•Why dissemination is difficult?

•When you only get what you design for?

The handout has references.
http://www.psy.gla.ac.uk/~steve/