Making students not the lecturer the subject matter experts:
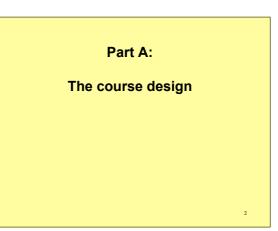
A version of the jigsaw classroom

Steve Draper,   Psychology

Paul Bishop, Psychology

For the slides, references, access to the students' work, etc. see:
http://www.psy.gla.ac.uk/~steve/talks/ltc10a.html

LTConference   22 April 2010

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Part A:

The course design

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The course: Positive Psychology

Final year 10 credit psychology option course.
10 lecture hours
70 students; random assignment to 12 groups of 6;
     each with a dictated topic in the area.
Required as coursework (30% of course mark) to produce a wiki
     on the topic to the brief "Make it as useful as possible to fellow
     students" I.e. start with a summary, a single reference (if you
     only read one thing …), …
Each group had in Moodle its own wiki, and its own discussion
     forum.
10 mins in first lecture to meet other group members, then either
     virtual or F2F meetings as they wished.

3

The assigned topics

1. General introduction
2. Learned optimism
3. Not just pleasure but meaning
4. Express gratitude
5. Simplify your life
6. Physical exercise
7. Mindfulness (meditation)
8. Flow
9. Bad drives out good
10. The burden of choice
11. The strengths approach
12. Positive emotions

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Suggested schema for wiki format

- Title (reconsider whether the allocated name is best)
- If you were only going to read 1 thing: what would it be, and why.
- A very short critique of any gap between the theory, and the result
- An example of wild uncritical claims in this area

- One or more practical exercises an individual could carry out.
- An old cultural connection. E.g. for gratitude, thanksgiving prayers in church;
- If you were only going to read, say, 3 things: which would they be.
- History of the topic.
- Clinical applications: are there any? are health measures relevant?
- A longer reference list of other possibly relevant papers, annotated by how good you think it is, and what it is about.

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The course (2)

Every edit to the wikis is recorded; every forum post is open to the teacher's inspection; and I required each group to post a message outlining how the work had been eventually divided.

I had neither the time nor the knowledge to cover the field in lectures. Instead their role was supporting the groups' work by example, by stating criteria for the wiki materials, and by stressing (my view of) the nature of this field:
- A goldmine for demonstrating critical thinking
- Some strong empirical results
- Personal self-help exercises
- Wild non-academic claims
- A young field: can often see either striking empirical results but inadequate theory, or …

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VLE facilities required

We would ideally have liked Moodle to give us:

- A separate wiki for each group √
- A separate discussion board for each group √
- For each wiki to be writeable only by its group, but readable by the rest of the class and the whole world. √
- For each forum to be readable only by its group plus the teacher.
- For it to be easy for students to include images into wiki pages
- To be able to take a snapshot at the moment of the coursework deadline, for later marking. (The snapshot took days to do; appeared to have all the wrong dates inside it; it broke all the links of the original so it appeared quite differently from the course's normal appearance.)

Still, we managed OK.

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Part B:

Evidence summary

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(No) student witnesses

There will be no live student witnesses today.
The most ecstatic student is exiled by the ash cloud.
The top student in the class sent this email yesterday:

"I was hoping to be feeling less anxious today & to be able to spare some time tomorrow but it's not looking promising. Any other time and I'd be more than happy to! for whatever it's worth I really did enjoy the class and felt the course work was an interesting aspect to it that really helped my understanding of the module as well as my individual topic.
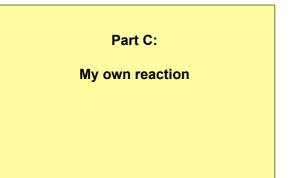Hope the talk goes well"
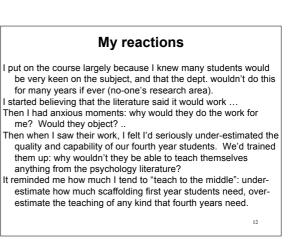
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What student feedback showed

Strong value for the course topic / content

Strong value for the groupwork: both process and product.
(They get groupwork they value in level 3, but not in level 4.)

Somewhat divided opinion about the relative lack of authoritative lecturer content provision.

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Part C:

My own reaction

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My reactions

I put on the course largely because I knew many students would be very keen on the subject, and that the dept. wouldn't do this for many years if ever (no-one's research area).
I started believing that the literature said it would work …
Then I had anxious moments: why would they do the work for me? Would they object? ..
Then when I saw their work, I felt I'd seriously under-estimated the quality and capability of our fourth year students. We'd trained them up: why wouldn't they be able to teach themselves anything from the psychology literature?
It reminded me how much I tend to "teach to the middle": under-estimate how much scaffolding first year students need, over-estimate the teaching of any kind that fourth years need.

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(2)

I used the classes in a markedly different way to normal lectures.

I was required to focus on how the classes could support student actions. And to rely on content being delivered (discovered) mostly by other means.

N.B. thinking explicitly about what actions students should be / are taking at each day in the course is what so many teachers (e.g. me) are extremely poor at in "designing" a course.
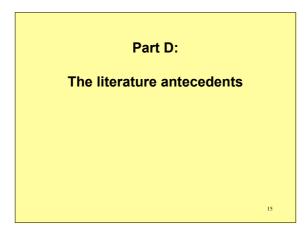
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My provisional assessment (3)

Why do I feel it was a marked success?

- The quality of the student work
- I learned from their work
- The course topic: addressed to student preferences, not staff research agendas
- The student feedback during the sessions; and on a paper instrument in the final session.

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Part D:

The literature antecedents

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SGC: Student Generated Content

The oldest and most widespread relative of this course design is the traditional seminar class, where students are required to create and present a paper to the rest of the class. This general approach may be called SGC (student generated content).

Betty Collis has years of experience (in Dutch HE) of putting on courses where students create the materials, and share them digitally. Her book (free online) is full of practical advice on running such courses.
• I've previously run courses with "computer supported cooperative lecture notes": teams produce their share of public lecture notes. Susan Stuart has done this too.
• Similarly Susan, and now David Simmons and others in my dept., have had students produce podcasts for fellow students as coursework.

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Aronson's Jigsaw classroom

Aronson and his graduate students developed the Jigsaw Classroom learning design, originally for a special purpose: tackling the problems when US schools were forcibly desegregated. How to get the different groups of kids to work together, and stop destructive competition.

Basic answer: Make them depend on each other. Their only access to the knowledge on which their marks depend, is from other kids teaching them. Split the class into groups, each specialising on one part of the curriculum; prepare materials; present.

But this has other good effects. One of the biggest is that the work they produce is of real value to others: whereas normally all student work is artificial, with no end user.

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Aronson's actual design (2)

The students in a history class, for example, are divided into small groups of five or six students each. Suppose their task is to learn about World War II. In one jigsaw group, Sara is responsible for researching Hitler's rise to power in pre-war Germany. Another member of the group, Steven, is assigned to cover concentration camps; Pedro is assigned Britain's role in the war; Melody is to research the contribution of the Soviet Union; Tyrone will handle Japan's entry into the war; Clara will read about the development of the atom bomb. Students are then tested on what they have learned about World War II from their fellow group members.

To increase the chances that each report will be accurate, the students doing the research do not immediately take it back to their jigsaw group. Instead, they meet first in "expert groups" with students who have the identical assignment (one from each jigsaw group).

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My use of Aronson

In effect, I had only the expert groups, not the jigsaw groups: I expected the rest of the class to read the wiki offerings themselves (and if they liked, to form study groups to discuss them).

Thus I had the SGC aspect; but actually requiring (like Aronson) more personal teaching (in groups of 6) of students by students would have added an extra dimension. We can be sure this would have strengthened students' grasp of their specialist topic, but might not have greatly improved the audience's grasp compared to their ability to learn by reading.

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Ann Brown

Ann Brown used a jigsaw design extensively in her interventions in US schools e.g. for Biology for 13 year olds. She discusses Aronson, but also other theoretical perspectives (situated learning, learning communities, …).

One assertion of hers was that, in these classes, the teachers were NOT the subject matter experts: instead, they taught (by example, instruction, and scaffolding) not biology, but how to learn. The teachers acted (only) as experts on how to learn.

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EBL (Enquiry Based Learning)

More recent rhetoric about EBL has in common that the teacher doesn't lecture, but requires learners to find their own materials. Often but not always done in groups. No emphasis on benefiting fellow learners by teaching them.

EBL embodies the basic constructivist idea that learners need to actively create their own knowledge.

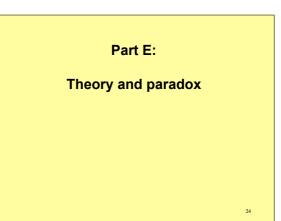Jigsaw designs incorporate this, and more:
- The "authenticity" of producing materials that others need, use, and value.
- The challenge, discussion, and support that groupwork can provide.

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Jim Baxter

A 2006-7 redesign of level 1 psychology at Strathclyde university was based, not on student generated content, but on organising groupwork for a giant class (N = 550) mediated by the VLE.
The groups (of about 5) each had their own space, and produced pieces of written work jointly (2 pieces every 3 weeks).
I relied on lessons I'd learned from this.
- Even in a campus university, it is often more practical for students to interact online than F2F.
- Every online action is recorded by the software. This needn't be actively monitored, yet complete records are available if there is a complaint: comprehensive but cheap policing.
- Students seeing others' work is a potent source of feedback (with no staff effort): showing them what is realistically possible, letting them evaluate their own work against others'.

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Part E:

Theory and paradox

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Theory and paradox

Constructivism shows us that learning is best promoted when students are required to discover / construct the knowledge themselves. (Tutors must zip their lips.)

On the other hand, most of us feel the privilege of being in a university is being able to hear real experts talk about what they know. In student ratings, enthusiasm is very influential.

In level 4, this conflict is acute: both staff and students value options taught about lecturers' own research: and this is a pervasive form of research-teaching linkage.

Yet students are by then more able than ever to seek knowledge out themselves (EBL).

EBL vs. Research-Teaching linkages.

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Theory and paradox (2)

A common compromise in level 4 is:
1) to teach specialist modules didactically;
2) But for student final year dissertations / projects to be frequently on a student's own interests.

3) Still, some projects are in apprenticeship mode, where the student signs up to be a slave in a lab (excellent training for research; but not student-driven).

4) But this jigsaw design suggests another variation is possible: running a course where the "teacher" is not an expert. A seminar class for large numbers made possible by technology.

Emotionally, it was much easier to run this course design for a topic I knew I was no expert in. Harder to imagine doing it for my education option course, though I tried a bit ….

It's just so hard not to tell students your best idea.

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The humourous side of Jigsaw (3)

Of course using Jigsaw in level 4 is actually treating students as postgrads: this fits with the stages of an academic career:

- Read-only: Postgraduates read everything

- Write-only: Young staff write (publish or perish), and rely on postgrads to do their reading.

- Speak-only: If successful enough, the third stage is as a Grand Old Man: These speak only, as invited speakers (no more peer review for them).

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A place to stop

For the slides, references, etc. see:

http://www.psy.gla.ac.uk/~steve/talks/ltc10a.html

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