Designing with technology for collaborative learning

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This presentation is designed to open up ideas, not test your ICT competence
“Traditional approaches to teaching and learning with roots in the 18th century and earlier are still very common in many institutions and often stifle learning as much as they foster it”

NMC Horizon Report on Higher Education 2015 p22
What’s new then?

Increasingly porous barrier between formal and informal learning

Employability skills must incorporate digital literacy

Video and games are two of the primary ways students learn outside their classroom - games capable of developing inductive reasoning

Social media is no longer just about social networks and fun, it’s a primary news feed and professional development tool.
Why do we want collaborative learning? Uni students regularly complain about working in groups

“she didn’t pull her weight”

“it’s not fair, I’m stuck with this group and they don’t care”

“they never come to meetings”

“I did all the work”
There are a lot of good theoretical and practical reasons for learning in groups

In this presentation we will explore some of the theories, try to understand what we want to achieve in collaborative learning, and check out how designing with technologies might help.
We need each other. Collaboration works.
How do you learn best?

anxiety

testing

achievement
Or do you learn from

- Books
- Web
- Asking questions
- Talking to yourself
- Talking to others
- Listening to what others say
- Making mistakes
What learning theories are relevant here?

Here’s a little gallery
L.S. Vygotsky

From the 1960s, his publications promoted the idea that social interaction plays a fundamental role in the development of cognition. Cognitive development is limited to a certain range at any given age. Full cognitive development requires social interaction.
Gordon Pask

Conversation theory was developed in the 1970s.

To learn, students must learn the relationships among concepts.

They are made explicit through teachback, to facilitate understanding.
Malcolm Knowles

The Adult Learner, 1984, introduced principles of andragogy.

Adults need to be involved in the planning and evaluation of their instruction.

Experience (including mistakes) provides the basis for learning activities.

Adults are most interested in learning subjects that have immediate relevance to their job or personal life.

Adult learning is problem-centered rather than content-oriented.
Constructivist theory suggests that learners build their own knowledge on the foundations of their own understanding. As in Socratic dialogue, we need to interact with each other to build knowledge, and in discussing an idea we go beyond what we knew before.

Instruction must be concerned with the experiences and contexts that make the student willing and able to learn.

Instruction must be structured so that it can be easily grasped by the student as in spiral learning.

Instruction should be designed to facilitate extrapolation and or fill in the gaps (going beyond the information given).
Carl Rogers

Rogers stressed the primacy of experiential learning over cognitive learning, doing over being taught. Significant learning takes place when the subject matter is relevant to the personal interests of the student. Self-initiated learning is the most lasting and pervasive.
Albert Bandura

Social learning theory (1997) stresses the importance of attending to others’ behaviours, emotional and attitudinal reactions.

These models drive learning for individuals and is affected by their self-efficacy

The highest level of observational learning is achieved by first organizing and rehearsing the modelled behaviour symbolically and then enacting it overtly. Coding modelled behaviour into words, labels or images results in better retention than simply observing.

Individuals are more likely to adopt a modelled behaviour if it results in outcomes they value.

Individuals are more likely to adopt a modelled behaviour if the model is similar to the observer and has admired status and the behaviour has functional value.
Jean Lave

learning is a function of the activity, context and culture in which it occurs or in which it is situated.

Social interaction is a critical component of situated learning.

Knowledge needs to be presented in an authentic context.

Learning requires social interaction and collaboration.
POLL

What is your favourite learning theorist?

Using Polleverywhere - don’t worry if you don’t have a mobile device - find someone who does and watch or discuss your answers with them before voting

Pollev.com/sueg via web

Or text by sending the name sueg to +44 7624 806527

When you have done either of these things - I will activate the poll and you can vote or type your response
What is involved in collaborative learning?

**POLL** can you give us examples of collaborative learning activities you use?

Learning theories supporting learning together
Interaction and activity
Groups and teams
Common purpose
Potential for authentic tasks (PBL)
Collaborative learning for employability
What do we want from technologies for learning?

Negroponte: Being Digital

“While a significant part of learning certainly comes from teaching -- but good teaching and by good teachers -- a major measure comes from exploration, from reinventing the wheel and finding out for oneself. Until the computer, the technology for teaching was limited to audiovisual devices and distance learning by television, which simply amplified the activity of teachers and the passivity of children.

The computer changed this balance radically. All of a sudden, learning by doing became the rule rather than the exception. Since computer simulation of just about anything is now possible, one need not learn about the frog by dissecting it. Instead, children can be asked to design probes, to build an animal with froglike behavior, to modify the behavior, to simulate the muscles, to play with the frog.”
Designing with technology in mind

- Awareness of the value of team-based approaches
- A culture of responsiveness to change
- Supportive communities of practice
- Awareness of technology as an enabling factor
- Holistic view of the student experience
Students are embracing smart devices seeking out useful apps that assist them in learning activities.

Such as:
organisation, productivity, referencing, communication, and multi-tasking


They are media meshing and media stacking

They use mobile devices to extend learning from the formal environment to semi and informal learning spaces (Emery 2012)
What do we want from technologies for learning?

- Accessibility
- Ease of use
- Platforms
- Free & consistent with institutional policy
- Connecting with the learning purpose
- UTAUT model (Venkatesh et al) concerns technology adoption
What technologies do you use for learning?

Some technologies are expensive and must be institutionally supported (VLEs, smartboards, some video-conferencing and recording technology)

Many others are free and public domain
Barriers?

Not sure what we are trying to do

Unclear on how to do it

Actual activity not very interesting

Low group synergy

Lack of commitment to see it through

Technical issues

Sense of lots of work involved up front

Just not sure what is out there

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Based on Bloom’s hierarchy of learning as adapted by Andrew Churches

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<thead>
<tr>
<th>Level</th>
<th>Examples</th>
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<tbody>
<tr>
<td>Creating</td>
<td>• Designing, constructing, planning, producing, making</td>
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<td></td>
<td>• Programming, filming, animating, blogging, publishing, podcasting</td>
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<tr>
<td>Evaluating</td>
<td>• Checking, hypothesizing, critiquing, experimenting, testing</td>
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<td>• Blog and vlog commenting, posting, moderating, collaborating, networking</td>
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<td>Analysing</td>
<td>• Comparing, organising, deconstructing, structuring, integrating</td>
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<td>• Mashing, linking, tagging, validating</td>
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<td>Applying</td>
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<td>• Interpreting, summarising, comparing, explaining, exemplifying</td>
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<td>• Advanced searching, journalling, tweeting, annotating, commenting</td>
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<td>Remembering</td>
<td>• Recognising, listing, describing, identifying, retrieving, naming, locating</td>
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<td>• Bullet pointing, highlighting, bookmarking, social networking, googling</td>
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Based on Bloom’s hierarchy of learning as adapted by Andrew Churches *with suggested technologies*

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<th>Technologies</th>
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<td>Designing, constructing, planning, producing, making</td>
<td>Storify, mobile video, YouTube, Powtoon, Wordpress, Scratch, Flipboard, mobile audio</td>
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<td>Programming, filming, animating, blogging, publishing, podcasting</td>
<td>Wordpress, Edublogs, Tagging, Discussion boards, SMS, Whatsapp, Facebook, Dropbox, Hootsuite</td>
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<tr>
<td>Evaluating</td>
<td>Checking, hypothesizing, critiquing, experimenting, testing</td>
<td>Google Docs, Tagging, SimpleMind, Wordle, Evernote, Google Scholar, WorkFlowy, Office timeline, surveymonkey</td>
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<td>Google Docs, Whats App, Prezi, Slideshare, YouTube, Googlesites, Google+, Facebook</td>
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<td>Analysing</td>
<td>Comparing, organising, deconstructing, structuring, integrating</td>
<td>Google Scholar, Mahara, Twitter, Skype, Google Docs, Dropbox, Evernote, Mendeley, Diigo, Whatsapp, Facebook, Google, Instagram, Pinterest, Snapchat</td>
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Using Technology to Encourage Collaboration

How teachers in Joint School District #2, Meridian, Idaho are using technology to engage students in learning.

https://www.youtube.com/watch?v=jn7nnzWNlaY

How can I use technology to facilitate, not direct, student collaborative learning?
How can I build the necessary lifelong collaborative skills with technology?
How can I incorporate technology to enhance a collaborative project?
Trends in EdTech

NMC Horizon 2015 report on Higher Education identifies:

- BYOD
- Flipped classroom
- Makerspaces
- Wearable technology
- Adaptive learning technologies
- Internet of things

And of course there are MOOCs, learning analytics, personalised learning environments, near field communication ...

Do they matter?
We need to watch them but our priority is to consider their relation to learning, collaborative learning and our course design.

We fail to relate technologies to learning design at our peril.
Designing with technologies for collaborative learning

*Remember the Cs of learning technology...*

*Connect  Communicate  Collaborate  Curate  Create*  
(Nerantzi & Beckingham 2014)

*If you don’t, you students certainly will*
Designing with technologies for collaborative learning

We can take questions now, and/or talk during the conference

You can find more of my work through my blog: www.sueg1.wordpress.com which lists my publications

or the journal I edit: Interactive Learning Environments (Taylor & Francis) at http://goo.gl/3DJo4i