

# Designing with technology for collaborative learning

@suegonline

[S.L.Greener@brighton.ac.uk](mailto:S.L.Greener@brighton.ac.uk)

Sueg1.wordpress.com

Information and Communication Technologies in Education  
September 15-17 2015

This presentation is designed to open up ideas, not test your ICT competence



**“Traditional approaches to teaching and learning with roots in the 18<sup>th</sup> 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.



## J.S. Bruner

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](http://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

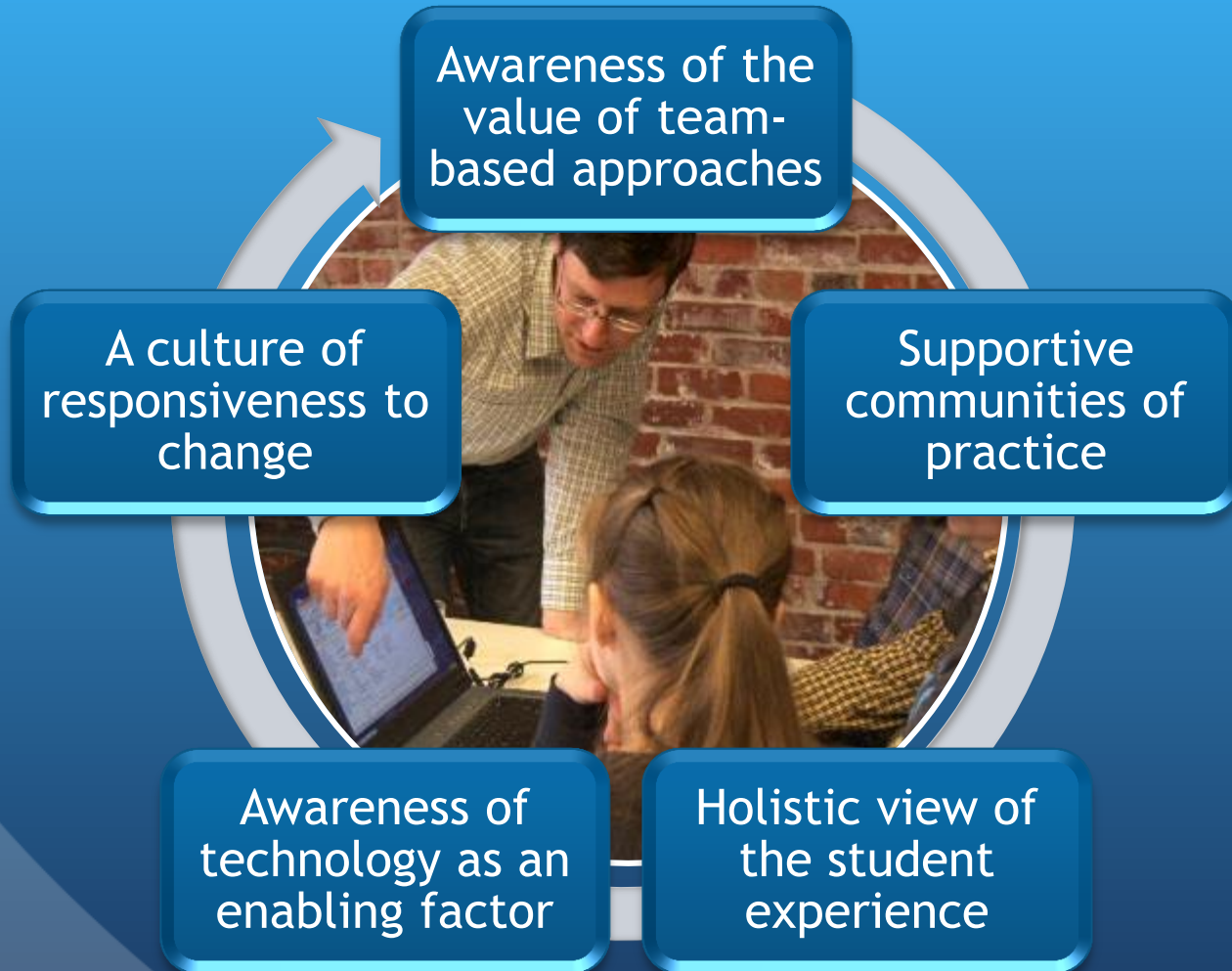
# What do we want from technologies for learning?

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



# Students are embracing smart devices



seeking out useful apps that assist them in learning activities

Such as:

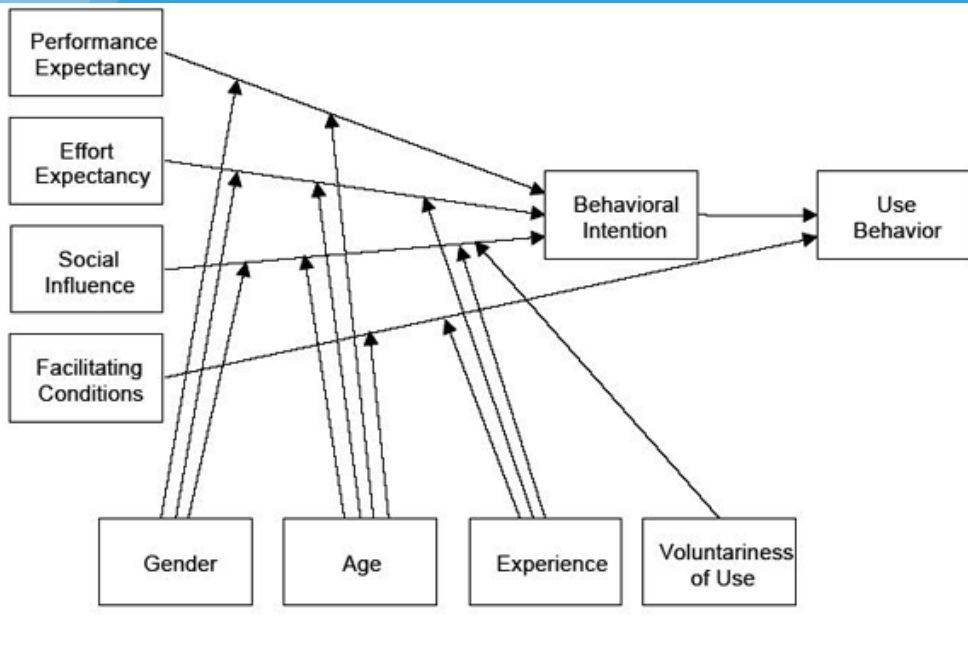
organisation, productivity, referencing, communication, and multi-tasking

(Nortcliffe *et al*, 2013; Nortcliffe and Middleton, 2012; Woodcock *et al*, 2012; Woodcock, 2012)

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

# POLL

What technologies do you use for learning?

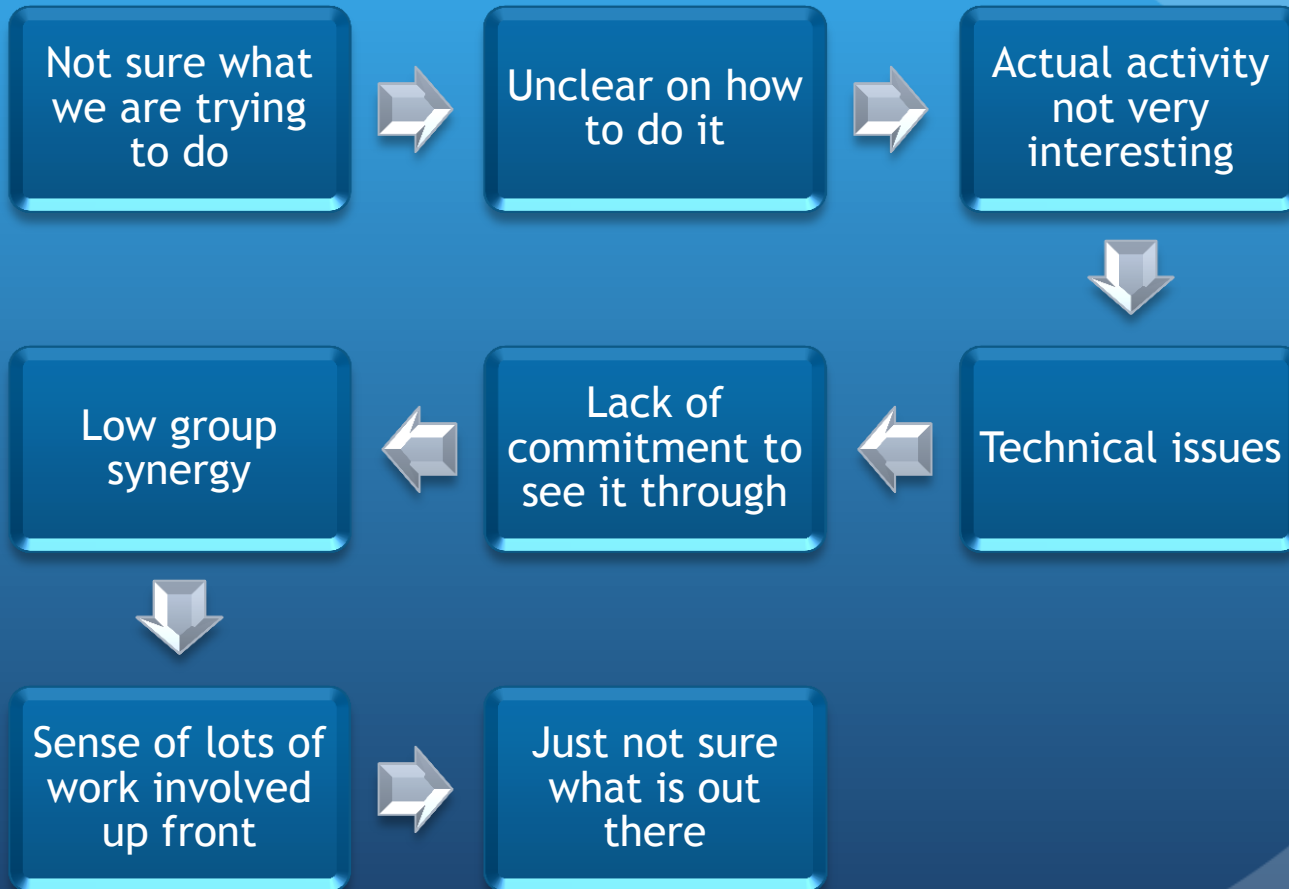
Some technologies are expensive and must be institutionally supported (VLEs, smartboards, some video-conferencing and recording technology)

Many others are free and public domain





# Barriers?



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

## Creating

- Designing, constructing, planning, producing, making
- **Programming, filming, animating, blogging, publishing, podcasting**

## Evaluating

- Checking, hypothesizing, critiquing, experimenting, testing
- **Blog and vlog commenting, posting, moderating, collaborating, networking**

## Analysing

- Comparing, organising, deconstructing, structuring, integrating
- **Mashing, linking, tagging, validating**

## Applying

- Implementing, carrying out, using, executing
- **Running, loading, playing, operating, hacking, sharing, editing**

## Understanding

- Interpreting, summarising, comparing, explaining, exemplifying
- **Advanced searching, journalling, tweeting, annotating, commenting**

## Remembering

- Recognising, listing, describing, identifying, retrieving, naming, locating
- **Bullet pointing, highlighting, bookmarking, social networking, googling**

# Based on Bloom's hierarchy of learning as adapted by Andrew Churches *with suggested technologies*

## Creating

- Designing, constructing, planning, producing, making
- Programming, filming, animating, blogging, publishing, podcasting

## Evaluating

- Checking, hypothesizing, critiquing, experimenting, testing
- Blog and vlog commenting, posting, moderating, collaborating, networking

## Analysing

- Comparing, organising, deconstructing, structuring, integrating
- Mashing, linking, tagging, validating

## Applying

- Implementing, carrying out, using, executing
- Running, loading, playing, operating, hacking, sharing, editing

## Understanding

- Interpreting, summarising, comparing, explaining, exemplifying
- Advanced searching, journalling, tweeting, annotating, commenting

## Remembering

- Recognising, listing, describing, identifying, retrieving, naming, locating
- Bullet pointing, highlighting, bookmarking, social networking, googling

Storify, mobile video, YouTube, Powtoon, Wordpress, Scratch, Flipboard, mobile audio

Wordpress, Edublogs, Tagging, Discussion boards, SMS, Whats App, Facebook, Dropbox, Hootsuite

Google Docs, Tagging, SimpleMind, Wordle, Evernote, Google Scholar, WorkFlowy, Office timeline, surveymonkey

Google Docs, Whats App, Prezi, Slideshare, YouTube, Googlesites, Google+, Facebook

Google Scholar, Mahara, Twitter, Skype, Google Docs, Dropbox

Evernote, Mendeley, Diigo, Whats App, Facebook, Google, Instagram, Pinterest, Snapchat

## 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 collaborate 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](http://www.sueg1.wordpress.com)  
which lists my publications*

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

