Capturing active learning in the classroom: new opportunities to enhance learner engagement

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• Scene setting
• Active learning approaches
• Next generation learning environments
• Institutional challenges and opportunities
thinking

constructivism

metacognition

analysis, synthesis and creativity
Implementation Model

- active learning
- engagement
- developing sense of belonging

Better success → Better progression → Better retention

What Works? Student Retention & Success programme (Professor Liz Thomas, 2017)
<table>
<thead>
<tr>
<th>Traditional active learning approaches</th>
<th>More recent active learning approaches</th>
<th>Emerging active learning approaches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fertile questioning</td>
<td>Social media</td>
<td>Virtual &amp; Augmented reality</td>
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<tr>
<td>Think, pair, share</td>
<td>Polls and quizzes</td>
<td>Haptics</td>
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<tr>
<td>One minute papers</td>
<td>Flipped teaching and learning</td>
<td>Teaching informed learning analytics</td>
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<tr>
<td>Role play</td>
<td>Online productivity tools</td>
<td>Artificial intelligence</td>
</tr>
</tbody>
</table>
“Next generation digital learning environment”

- Interoperability and Integration
- Personalization
- Analytics, Advising, and Learning Assessment
- Collaboration
- Accessibility and Universal Design

“Next generation digital learning environment”

<table>
<thead>
<tr>
<th></th>
<th>Question</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>What does the imminent arrival of the intelligent campus mean for universities and colleges?</td>
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<tr>
<td>2</td>
<td>What should the next generation of digital learning environments do?</td>
</tr>
<tr>
<td>3</td>
<td>What should a next-generation research environment look like?</td>
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<tr>
<td>4</td>
<td>Which skills do people need to prepare for research practice now and in the future?</td>
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<tr>
<td>5</td>
<td>What would truly digital apprenticeships look like?</td>
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<tr>
<td>6</td>
<td>How can we use data to improve teaching and learning?</td>
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</tbody>
</table>
Convergence towards a limited number of learning providers, offering comparable features.

https://er.educause.edu/articles/2017/7/what-is-the-next-generation
Emergence of personalised learning tools to support formal and informal learning interactions
Driven by changing patterns of student device usage

ECAR Study of 13k learner experiences from 157 institutions

...and evolving attitudes towards using learning technology in their studies

ECAR Study of 13k learner experiences from 157 institutions

but constrained by academic resistance revealed over use of technology in class

ECAR Study of 13k learner experiences from 157 institutions
“...’same place, same time’ is not enough to guarantee quality when the so-called teaching method is actually ‘information delivery’: the notes of one person copied into the notes of 200 people without going through the brains of anyone. That is highly problematic.

Prof Alejandro Armellini, University of Northampton

Is it time to rethink how we deliver teaching in our Universities?
Learning analytics

Teaching activities

Learning Spaces

Learner Interactions

Next Generation Connected Learning Environment
Teaching activities

Learning analytics

Next Generation Connected Learning Environment

Learning Spaces

Captured

Lectures

Simulations

Practicals

SGTs

Online

Learner Interactions
Are some students missing today?

Did they understand that last slide?

Did that last student question reflect the general consensus?

Are they listening?

Have they completed the pre-lecture activity?

Why am I not getting much response to my questions?
**Forces**

- **Pressure gradient force** ALWAYS work toward low pressure is proportional to the pressure gradient.

- **Coriolis force** works towards the right/left of the motion in the Northern/Southern Hemisphere is proportional to wind speed

- **Friction force** ALWAYS works in direction opposite the wind and is proportional to wind speed.
Learning analytics

Next Generation Connected Learning Environment

Teaching activities
- Blended learning
- Team based learning
- Flipped teaching

Learner Interactions
Connecting learning interactions between activities

Live class experience available for all on-campus and distance learners

Recording, discussion and activities released

Interaction between instructor and peers

Place and pace to suit each learner

During class

In-class engagement tools: discussion, quiz, flagging

Before class

Class follow-up discussion

Post class

Recap/Reflection/Revision on recording, discussions and activities
Connecting learning interactions between classes and modules
Analysing interactions across classes, modules, and courses


Mike Sharples, Open University, https://www.slideshare.net/sharplem/designs-for-active-learning-cambridge-2017-79690448

Echo360, active learning environment
Institutional challenges (and some solutions)

- Capturing multi-user experiences

Project aims, capturing active learning in Engineering, City, University of London
- To enable wireless presenting for staff in learning spaces
- To enable wireless presenting for students in learning spaces
- To allow staff and students to annotate content displayed on the main projector on their mobile devices

(Dom Pates, 2018)
Institutional challenges (and some solutions)

- Capturing multi-user experiences
- **Enabling diverse teaching and learning spaces**

Martin Hill, Curtin University of Technology

- A multi-camera clinical installations across 9 different health specialties, including: Pharmacy, Occupational therapy, Social Work, Nursing and Medicine

- Using an in-room control system and switching equipment, they can change camera angles or switch cameras during class, all of which can be recorded and reviewed afterwards
Institutional challenges (and some solutions)

- Capturing multi-user experiences
- Enabling diverse teaching and learning spaces
- **Promoting peer-peer and peer-instructor interactions**

![Mentimeter](image)
![Glisser](image)
![Echo360](image)
Institutional challenges (and some solutions)

- Capturing multi-user experiences
- Enabling diverse teaching and learning spaces
- Promoting peer-peer and peer-instructor interactions
- **Changing the way we teach**

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University of Ottawa, Colin Montpetit

- Introduction to Genetics, Year 1 module,
- 10% overall grade score dedicated to participation marks

- “Students felt that the instructor was listening to them during lectures.” – the engagement tools give instructors live access to Q&As and Activity Poll results

- Learning gain increased from 36% to 59% over 4 yrs

- More students achieve higher grades
Institutional challenges (and some solutions)

- Capturing multi-user experiences
- Enabling diverse teaching and learning spaces
- Promoting peer-peer and peer-instructor interactions
- Changing the way we teach
- **Changing the way we train staff**

**University College London**

ABC staff development workshops (Arena, Blended, Connected)

http://blogs.ucl.ac.uk/abc-ld/

**University of Northampton**

C@N-DO Workshops,
https://www.northampton.ac.uk/ilt/academic-development/workshop
Institutional challenges (and some solutions)

• Capturing multi-user experiences
• Enabling diverse teaching and learning spaces
• Promoting peer-peer and peer-instructor interactions
• Changing the way we teach
• Changing the way we train staff
• **Enhancing personal and institutional technology integration**

“The challenge identified that a vast array of tools were in use across the education sector, both bespoke edtech, such as VLEs and e-portfolios, and tools such as Evernote, blogs and social media.” JISC,
Capturing active learning in the classroom: new opportunities to enhance learner engagement

Any question or further conversation please contact John jcouperthwaite@echo360.com and / or Stephen Stephen.Powell@mmu.ac.uk
Session
Attendee
Responses
What is the most important barrier to changing education at your institution?

Answer Key:

0. Do you encourage active learning?
1. Does your institution explicitly encourage active learning?
2. Generally, teaching staff use active learning approaches
3. Active learning approaches are not well developed
**Please share some active learning approaches**

<table>
<thead>
<tr>
<th>Approaches</th>
<th>Examples</th>
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<tbody>
<tr>
<td>Inter-profession education for health case students</td>
<td>Moving to VR/AR, AI now, used your central column</td>
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<tr>
<td>Interactive tools in echo for question and answer sessions</td>
<td>Kahoot</td>
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<tr>
<td>Jigsaw reading, think-pair share, role play</td>
<td>PBL</td>
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<tr>
<td>peer instruction</td>
<td>Group wikis</td>
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<tr>
<td>matching laminated cards of definitions and terms in pairs</td>
<td>Peer Teaching, Jigsaw Technique,</td>
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<tr>
<td>Group work in workshops</td>
<td>Team Based Learning</td>
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<tr>
<td>EBL, PBL</td>
<td>Field trips</td>
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<td>Socrative</td>
<td>Case study</td>
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<tr>
<td>Flipped learning, polls and quizzes, padlet, PBL</td>
<td>Group work and socrative</td>
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<tr>
<td>Using twitter to capture student responses/opinions</td>
<td>Padlet</td>
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<td>Buzz groups</td>
<td>TPS, jigsaw, collaborative learning</td>
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<tr>
<td>Collaborative learning</td>
<td>Experiential learning</td>
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<td>Padlet TodaysMeet peer review</td>
<td>Game based learning</td>
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<tr>
<td>Jigsaw activities</td>
<td>Visualization labs</td>
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<td>Cards, games</td>
<td>Role plays</td>
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<td>360 embedded videos in formative tests</td>
<td>Q &amp; A - group discussions</td>
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<tr>
<td>Team based learning</td>
<td>Polleverywhere - peer instruction</td>
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<tr>
<td>Game based learning</td>
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</table>
**Do you capture learning beyond the lecture theatre? And if so, how?**

<table>
<thead>
<tr>
<th>What are the activities?</th>
<th>What are the challenges?</th>
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<tbody>
<tr>
<td>Discussion board on Moodle</td>
<td>What are the challenges of tracking all activities?</td>
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<tr>
<td>Blogs, wiki, forums</td>
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<td>Google+</td>
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<td>Mahara</td>
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<td>Zeetings poll</td>
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<td>Group work on blackboard</td>
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<td>Slack for team collaboration</td>
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<td>Mentimeter/quizzes</td>
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<td>Nearpod quizzes</td>
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<tr>
<td><strong>What are the challenges of tracking all activities?</strong></td>
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<td>Reflective writing</td>
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<td>Forms Office 365</td>
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<tr>
<td>Discussion forums</td>
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<td>Discussion forum within BB</td>
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<td>A reflective portfolio</td>
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<td>Shared documents</td>
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<td>VLE learner analytics</td>
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<tr>
<td>Moodle - analytics and forums etc</td>
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<tr>
<td>Via the VLE</td>
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<tr>
<td>Group work</td>
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<tr>
<td>Padlet for reflection</td>
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<tr>
<td>Vlogs</td>
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<tr>
<td>Shared contents with O365 or similar</td>
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<td>Online tests</td>
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</table>
Considering this 'connected learning environment', how is your institution addressing any of these issues?

- Echo is used extensively and we use the analytics feature to track what the students are using the technology for
- We use panopto
- Digital classrooms
- Weak on learning analytics
- Proactive approach, though some staff are slow to adopt
- Moodle forums - allowing students to raise questions here and responding to them in class
- Tracking attendance/monitoring engagement on weekly basis through electronic registers and reaching out to students who show no or little sign of engaging
- More charging points available for students
- Panopto (sorry John!)
- Small-scale experimentation with Web conferencing for revision sessions and online computer lab sessions
- Offering an assortment of tech tools, but not much pedagogical skills devt
- Upgrading AV in teaching spaces
- Moodle

- Large push on "extended classroom" support and provision
- Interactive lecture theatres
- Panopto/video recordings for staff/students
- Weekly attendance monitoring, feeding into our own engagement dashboard
- We have a learning specs strategy which is drawing together the similar aspect to the ones you suggested
- Extra office hours and Moodle forums
- Communicating clear expectations about active learning at the start of courses, using technology which works intuitively, trying to model good examples so staff can choose what is going to work for them
- Blackboard but not all lecturers are engaged
- Pushing back in some ways - big investment in attendance monitoring
- Active and flexible learning classroom
- My institution assumes that the existence of technology is enough - no investment in staff development to be able to design and deliver interactive teaching and learning
- It seems that more available for staff than students
What is the most important barrier to changing education at your institution?

Answer Key:

0. Capturing multi-user experiences
1. Enabling diverse teaching and learning spaces
2. Promoting peer-peer and peer-instructor interactions
3. Changing the way we teach
4. Changing the way we train staff
5. Enhancing personal and institutional technology integration