Annotated Bibliography:

Articles and research linked to Interactive teaching

Interactive Learning and Teaching

1. Draper, S. (n.d.). Psychology Lecturer at Glasgow University: online blog with some helpful summaries and sections on interactive learning: http://www.psy.gla.ac.uk/~steve/localed/innovs.html Link to Steve Draper's blog and profile where there are some other articles and information: http://www.psy.gla.ac.uk/~steve/


USA, Science-based research.


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"Teaching which involves students in active and independent learning is more likely to encourage a deep approach to learning in the subject“ (Lublin, 2003)


From Department of Molecular Biophysics and Physiology, Rush Medical College, Chicago, Illinois. Defines Active learning and offers evidence of its effectiveness in teaching Life Sciences in the US. Stresses that, "active learning doesn’t just happen; it occurs in the classroom when the teacher creates a learning environment that makes it more likely to occur“ (:164). Links this to the need for faculty development and change in approach not just individuals. Concludes that, "There IS evidence that active learning, student-centered approaches to teaching physiology work, and they work better than more passive approaches.“ (:165)
[www.gla.ac.uk/media/media_148140_en.pdf](http://www.gla.ac.uk/media/media_148140_en.pdf)

Paper presented at University of Glasgow Annual Learning and Teaching Conference by Psychology Lecturer and Student; supports use of interactive activities and students felt they encouraged, “engagement with learning, discussion with peers, consolidating learning, and changing the lecture pace.”

*More information on Interactive lectures is available at Carleton College website and The Centre for Teaching, University of Vanderbilt:*  


Authors state interactive lecturing can involve:

- a two-way interaction between the lecturer and the students
- increased discussion among the students
- active student involvement with the material or the content of a lecture.

Steinert & Snell reviewed a number of research studies, which show that interactive lectures provide lecturers with a strategic format for designing and delivering lectures. It is suggested interactive lectures are better than traditional lectures for encouraging students to be more actively involved in learning and promoting application of knowledge. A well-designed interactive lecture can help lecturers and students meet the learning goals of:

- Increase student engagement
- Build students’ information management skills
- Develop students’ note-taking skills
- Deepen comprehension
- Increase attention and motivation
- A ‘different’ kind of learning
- Feedback to the lecturer and to the student
- Increase student- and lecturer satisfaction

Go on to identify, explain and summarise a number of interactive “techniques”:

- Breaking the class into smaller groups
- Questioning the audience
- Using audience responses
- Use of Clinical Cases
- Use of written materials
- Debates and Guests
- Simulations and Role Plays
- Using Films and Tapes
- Audio Visual Aids
- Using Effective Presentation skills
Lectures


Petrovic and Pale from Department of Electronic Systems and Information Processing, Faculty of Electrical Engineering and Computing, University of Zagreb, Croatia. Found that 77% of students rarely or never use the ability to pose a question to the lecturer, and 40% of them never use the ability to discuss lecture content with their peers during lecture breaks, as they often have too many misunderstandings to participate in such a discussion or just need a short cognitive break.

Provides support for the use of lecture capture and evidence that students value the lecture as a means of imparting information on a subject.


"results suggest that moving away from lectures and face-to-face teaching may not harm, and indeed may improve the number of students who pass the subject, but that this may be incurred at the expense of greater dissatisfaction in students’ learning experience."

Offers summary of the criticisms of traditional lectures but also recognises the value they can provide and that many learners and lecturers are comfortable with this form of teaching. Cautions against a move to solely online delivery of content, at expense of the human contact that is valued by students.

11. [Eric Mazur: Twilight of the Lecture](http://www.ericmazur.com/)

An interesting article where Mazur, Physics Professor at Harvard University discusses why the traditional lecture approach needs to be reconsidered. He moved to active learning and a flipped classroom and justifies the reasons and evidence as to why this is a more effective approach and encourages deeper learning for students he teaches.


Automated Response Technology


"Questionnaire and interview data suggested that the use of ART (Automated Response Technology) enhanced the classroom environment, motivated students and promoted learning." (Mostyn et al, 2012)


Groupwork


Podcasts


"Nursing students found the availability of biology podcasts helpful for their learning. Successful implementation of these tools to support learning requires teaching staff to understand and promote the importance of these tools.” (Mostyn et al, 2013)
**Use of Facebook**


An attempt to engage with Psychology students in Canada, using Facebook, alongside “traditional” lectures. Highlights the challenges of using established social media forums for teaching purposes.

"*successful integration of social media into the classroom is a challenging one and the relative success or failure of these interventions may stand or fall on the basis of a complex interaction between a number of factors including the timing of content delivery, the integration of social media content with course assessment and the students’ own perspective on using social media for academic purposes.*” Dyson et al, 2015

**Flipped Learning**


Very helpful summary and explanation of flipped learning and its use. Recognises that there is a lack of evidence to support its use and seek to provide theoretical evidence as to the effectiveness of flipped learning.

"*The flipped classroom approach is under-evaluated, under-theorised and under-researched in general.*” (:2)

Suggest that it leads to increased student engagement and motivation and an ability to learn at a deeper level than others approaches. Do though offer note of caution that flipped learning may not always work, hence the need for more research in to its effectiveness.


See also **Scale-Up at NTU**:  

**SCALE-UP: Student-Centred Active Learning Environment with Upside-down Pedagogies**

The SCALE-UP approach, developed by Professor Robert J. Beichner at North Carolina State University, centres on a highly collaborative, hands-on, technology-rich, interactive learning environment for students.

**NTU SCALE-UP SharePoint** site.

Chapter on the Flipped classroom: Blending learning inside and outside the classroom; helpful explanation and exploration of the potential benefits and concerns regarding flipped learning:

"The success of flipped learning depends on how the interactive classroom element is constructed. Some teachers have adopted peer mentoring, with students teaching each other, others have used group projects to explore the concepts learned at home In some versions, the face-to-face element is used for debate and discussion. The classroom environment is often set up explicitly to reflect and encourage this shift towards collaboration and group work.” (Open University, 2014)

Further chapter looks at use of students own mobile technologies in the classroom environment and the benefits and challenges of this in terms particularly of classroom management and accessibility for all students to the same level of technology. Bring your own devices: Learners use their personal tools to enhance learning in the classroom.

29. Bishop and Verleger (2013). The Flipped Classroom: A Survey of the Research article written for the American Society for Engineering Education Annual Conference and Exposition. Paper aims to give a summary of research in to the use of the flipped classroom, a focus on the US.

"Students tend to prefer in-person lectures to video lectures, but prefer interactive classroom activities over lectures. Anecdotal evidence suggests that student learning is improved for the flipped compared to traditional classroom.” Bishop and Verleger

Enquiry Based Learning


Report from project run at the University of Glasgow to develop elements of Enquiry Based Learning (EBL) in undergraduate degree courses across a range of disciplines. Project encouraged staff and students “to create spaces within their courses to enable students to experience this research-based approach to their learning.”

Provides student feedback on the project and their own participation within it. “project has demonstrated the potential for further development of greater enquiry-based teaching and learning spaces throughout the institution.”
E-Learning Objects

Web-based resources; a mixture of multimedia elements such as audio, text, images and video to engage the learner in interactive learning through the use of activities and assessments


"the overwhelming majority of respondents accessing the Nursing, Midwifery and Physiotherapy, E-Learning Object, viewed the resource they accessed as a positive aid to enhance their learning of the subject in question...Many of the respondents commented that the interactive content made learning the subject easier and gave them a greater understanding of the topic when compared to learning from a text book." University of Nottingham, 2013

Flexible Learning Spaces

32. Rethinking the Lecture Theatre, online article from City of London University on changing lecture spaces and layouts:

"To enable collaboration and flexibility; the design of a traditional lecture theatre will alter dramatically to enable working together in groups and for the teacher to move between groups. I envisage future lecture space to be more open, with flexible furniture that will allow for reconfiguration and for students and teachers to move around freely." (Trevor Byrne, Directorate of Estates and Facilities, University of Manchester, 2014)

NTU Resources

Centre for Professional Learning and Development CPLD

CPLD Resources section: Access to a range of materials to support continuous professional development. Including Case studies showing good practice in a range of areas of staff development across NTU. Handbooks and guides developed to support staff development needs. Links to specific Learning and Teaching Resources e.g.

- Designing Active Learning
- Factors Supporting Learning
- Session Planning and Design
- Using Quizzes in Sessions

Centre for Academic Development and Quality

- Tools to enhance and extend classroom learning
- Teaching large groups
- TIPS (Teaching In Practice Series video resources)
- Technology for teaching- Includes resources for integrating technology within your teaching. These specifically focus on organising your learning materials, mobile technologies, reusing learning resources and inclusive teaching practices.
Available in NOW:

**Teaching and Supporting Learning in HE**
Flexible, on-line resources you can use to develop your professional practice throughout your career – evidence-based approaches on lecturing, small group seminars, project supervision, understanding how students learn, assessment and feedback among other things.

**TIPS: Teaching In Practice Series**
Where colleagues share how they support active student learning, collaborative learning and the flipped classroom.

**Resources available from Other Universities**

- **Nottingham University**
  Creating a thriving teaching culture in a research-led university
  A valuable set of open resources, typically two to five minute videos or 500-1000 word texts, that represent the staff experience of teaching at Nottingham. Collectively, they reflect a thriving teaching culture in a research-led university. Nottingham University says: Teaching at Nottingham is a continually updated collection of peer-reviewed academic development resources. It offers both a window onto the University's teaching culture and a space for the critical evaluation of teaching practice. The collection is widely used by staff at Nottingham, around UK HEIs and internationally. It is produced by the University's [Promoting Enhanced Student Learning (PESL)](http://www.nottingham.ac.uk/education/pesl/) initiative.

- **University of Brighton**
  The study pack is designed to:
  - take account of the needs of students as learners in preparing and delivering your teaching to large groups
  - plan your teaching of large groups to maximise students' learning both during and following the session
  - structure and signpost your lectures so as to help students gain an overview and retain important principles

**General reading and research**


