Jisc

Mobile phones help students with exam prep

Medical students at the University of Oxford

Summary

Professor Helen Christian teaches undergraduates at the University of Oxford who are studying for a range of degrees in medical sciences and biomedical sciences. Several years ago, she introduced the use of live digital question and answer submission to her lectures by using a combination of the students' own mobile phones and the Meetoo polling technology software. She found that this approach had a really positive impact on the students' understanding of key concepts, and it meant that Helen was able to respond in real time to gaps in understanding or misconceptions. Helen's work was recognised through a university teaching innovation award in 2011.

Mobile phones in lectures and seminars

Helen used mobile phones and polling technology (Meetoo) with undergraduate students as an audience response device and for submitting questions during face-to-face teaching sessions. She had previously tried other technologies – Socrative and also the university virtual learning environment (VLE) but found that Meetoo offered the best combination of features and reliability.

The technology has been used in several different contexts with students studying either medical sciences (pre-clinical phase) or biomedical sciences. One successful use of the technology has been in lectures where some of the teaching is to groups of about 150-180 students and it is difficult to have meaningful interaction with the students or to check their learning. The approach also helps to scaffold their learning, helping them to understand the information more deeply and

to identify the information that is most important for their exam preparation.

The approach has also been used in seminars where students who are transitioning from their second to third years of study use their mobile phones to ask questions about the subject area. Questions are anonymous but visible to all and are either addressed immediately or after the seminar. This technique is particularly important for students at this point in their academic career where they need to develop their questioning skills for their finals and they are moving to a higher level of study where they need to understand the interface between "the known and the unknown" within the discipline. This technique provides a safe place for them to ask questions without feeling embarrassed.

"Being able to submit questions anonymously via the app as we went through the seminar was really helpful to clear up misconceptions that I didn't want to interrupt the class with."

Third year biomedical student

Flipped classroom prep for patient diagnosis

Flipped classroom prep for patient diagnosis The technique has also been used successfully in a "flipped classroom" context. Groups of medical students come together to prepare for clinical interaction with real patients, later on the same day. A combination of pre-reading

"The real time quiz used throughout the lecture was great for self-testing that I had understood the key concepts well – I am not sure I would have properly appreciated this without the quiz."
First year studying medicine

preparation is followed up with presentations and use of polling and Q&A to test out knowledge in an intensive revision session. This has been shown to be effective in helping students to rehearse and reinforce their knowledge before they then examine patients who are suffering from those conditions.

Strategies for exam preparation
Helen's interest in this innovation came because she was concerned about the stress that students were experiencing when preparing for their exams. There is a huge amount of material to understand in her courses, and she was worried that some students were catastrophising the course, and this was affecting their ability to learn. She wanted to introduce more supportive teaching practice that would help the students to be more strategic and confident in their learning.

Improved learning experience
Students are very positive about the use of the technology as it helps them to prepare effectively for their exams. It builds their confidence in

"I really enjoyed the session that used the Meetoo app to answer questions as we went along. I thought it was a good way to get the whole class engaged."
Graduate entry medical student

their own ability to navigate through a huge amount of material and check that they have an accurate understanding of important concepts. Less confident students are encouraged to ask questions and check their understanding, which many of them would not do in a traditional lecture context. There is also the potential to create a record of the questions and answers given which can be used for revision later on.

Timely teaching interventions
Engaging with the University of Oxford Learning Institute's diploma in learning and teaching encouraged Helen to reflect upon her teaching practice and to think about how she might do things differently. There were opportunities to discuss different techniques with other participants of the course, and one of the participants at the same time was a member of the University's Academic IT group. Through discussion, he suggested that Helen might try out some of the technologies that were available at the time and he also supported her when she first used them. This gave her the confidence to adopt the technology and refine her techniques over time, and also to encourage colleagues to try them out. This institutional support through professional development and networking with colleagues created the conditions to start Helen's journey into innovation in learning and teaching that continues to build and develop each year.

Meeting changing student expectations
It has not been straightforward to encourage colleagues to take up this approach. Helen has tried various approaches to support colleagues to explore this way of increasing student engagement. She has had some success in encouraging her peers to try out the technique, but has not been able to get the approach taken up more widely.

One of problems that has occurred is for colleagues to find time to experiment properly with the technology so that they are fully confident and comfortable in using it. Where they have used the technology with students, there have often been technical hitches which have impacted negatively on the teaching session and they have been put off trying again.

This is a concern for the future, as students like the phones and polling approach and it isn't good for them to experience such variability of engagement. There's a growing awareness that students have expectations for technology use that are not being met by their university experience.

Transferability to other institutions
Educationally, the innovation has worked well and achieved what was intended. It has improved the students' engagement with the learning materials and has built student confidence as they prepare for one of the major challenges of their academic careers, their examinations. The value gained from this seemingly simple technique should not be underestimated.

This approach is highly transferable to other institutions and other contexts (ie subject areas). It is cost-effective and can be introduced as a low-risk addition to lectures that can bring real benefits to students in testing their learning in a timely way, checking and correcting misconceptions, as well as reinforcing acquisition of knowledge. It can help build skills needed for students to be more strategic learners, and to prepare for their examinations in a more supported way. For teachers too it offers benefits, for example, they know more about their students' learning and are able to adapt their teaching in order to provide better support.

Although the technology is simple to use, there are some challenges to adopting it in a lecture context, in particular the need for IT provision and support.

Reliable systems and accessible support
A barrier to further development of this technique (and other new ways of working) can be a lack of consistent IT support in lecture or seminar rooms. Something as simple as there not being the right plug-ins on a computer or sound not working in a lecture theatre may mean that the student experience is affected. In turn, this damages the willingness of the student and teacher to be prepared to try new techniques. In other cases, network problems have prevented content being available, or plug-ins do not appear on standard laptops. Each time there is a technical problem, it impacts upon the time that can be devoted to learning and teaching during that session, and these problems tend to be reflected in negative feedback from students, who get frustrated and then, ironically, express a preference for traditional lectures "which always work".

Helen's experience has shown that choosing technology that is easy to use and to adjust, sometimes at short notice, is important, as is making time to get to know the technology and its foibles. And there always needs to be a "plan b" ready in case the technology fails.

Find out more
Contact: Professor Helen Christian, University Lecturer, University of Oxford
Email: helen.christian@dpag.ox.ac.uk
Twitter: HelenChristia19
Website: https://www.medsci.ox.ac.uk/study/graduateschool/supervisors/helen-christian
Podcast of Helen talking about using polling
https://podcasts.ox.ac.uk/assessment-learning-using-mobile-polls-classroom

Education consultancy Sero HE was commissioned by Jisc to interview Professor Helen Christian, University Lecturer about developments **in learning and teaching in a digital age** at the University of Oxford. The studies focus in particular on the impact of such developments on the student experience.