

The future of lectures: ten top tips for engaging and inclusive teaching

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Dr Emma Yhnell of Cardiff University is the inaugural winner of the 2024 Teaching Excellence Award – Early Career, recognizing individual excellence, commitment to continuing professional development, commitment to students and colleagues, and sustained and continued impact. Emma advocates championing excellence in teaching and learning and demonstrating that academics can be engaging, creative and enthusing whilst still maintaining academic credibility. Emma wants to use winning this prestigious award to encourage others to be braver and bolder in their teaching and to try out teaching innovations. Whether incorporating a prop, trying some interactive polling or even playing some music, she actively encourages other educators to ‘give it a go’, as it will benefit learners and help you develop as an educator too.

Introduction

COVID-19 fundamentally reshaped the educational landscape, highlighting the challenges of sustaining student attendance in Higher Education (HE) during the subsequent return to in-person teaching. Unfortunately, the enforced shift to remote learning, though beneficial for some student demographics, such as those with disabilities or caring responsibilities, inadvertently resulted in a broader segment of students feeling disconnected, as evidenced by a sector-wide drop in attendance. Nevertheless, this period witnessed an unprecedented emphasis on active learning in remote settings, compelling educators to innovate rapidly and embrace methods which placed students at the centre of the learning process. The value of active learning became undeniably pronounced through technology-driven tools like interactive polling and pedagogical techniques that emphasize participation over passivity. Yet, as the HE sector gravitates back to in-person teaching, it is paramount to carry forward these insights and innovations. Valuable lessons from this period suggest that transforming the conventional lecturer role into an interactive mentor, who imparts knowledge and stimulates curiosity and involvement, can revitalize lecture halls and enhance student interest. Consequently, in this post-pandemic educational landscape, addressing these challenges promptly and innovatively is essential to re-engage students, empower educators and breathe new life into our academic teaching spaces.

How do you solve a problem like lecture attendance?

With colleagues across the sector noting a recent decrease in in-person student attendance at lectures, it is important to note that non-attendance at lectures is not necessarily a new issue, although attendance has decreased post the COVID-19 pandemic. It is crucial to realize that non-attendance does not necessarily imply disengagement from students. Equity, diversity and inclusion (EDI) considerations explain why some students might be unable or unwilling to attend in-person teaching sessions; these are valid reasons, not simply excuses. Short- or long-term illnesses or caregiving responsibilities can make in-person attendance difficult for learners. Lectures conducted online and recorded materials, especially during the pandemic, have been beneficial and could remain so for groups who find traditional in person face-to-face engagement challenging.

In addition, venturing to university can be a costly affair, more so for commuter students, especially with the current cost of living crisis unfolding across the UK. Every student’s accessibility needs must be meticulously and individually catered for in-person lectures to be truly inclusive. Drawing from personal experiences (Nigel), who undertook his undergraduate degree with a profound hearing loss, can shed light on these complexities. Even before the advent of virtual learning environments, for Nigel (and many others), lectures often involved frantically copying down information

displayed on the board or overhead projector without any additional context. Very quickly, these circumstances led to a shift from lecture attendance to spending more time in the library. Only, if those lectures had been recorded with subtitles or transcripts, they would have been much more inclusive, enabling review and engagement at any time. Now, with these significant factors in mind, we can aim to leverage our experiences as multi-award-winning educators to provide practical tips for making large in-person lectures more appealing, engaging and inspiring for educators and learners alike.

Lectures...a problem of perception?

Often, the conventional image of a lecture as a didactic, perhaps even dull session, with an educator standing at the front of a room filled with silent note-taking students, is reinforced by both the expectations of students and the practice of some educators. Historically, these expectations are rooted in our perceptions of what lectures should be, rather than what they could be, which is further reinforced by the design and physical layout of many lecture theatres'. From this perspective, it is not surprising that the term 'lecture' conjures images of serious, one-sided communication, particularly given its definition in the *Oxford English Dictionary*:

Lecture
noun

an educational talk to an audience, especially one of students in a university. "in each course there are supporting lectures and tutorials"

a long serious speech, especially one given as a scolding or reprimand. "the usual lecture on table manners"

Underpinning our pursuit of educational excellence and innovation in HE is the necessity to challenge these outdated views to improve both the staff and student experience using active approaches. We can transform lectures from monologues to interactive exchanges, creating an engaging, inspiring and inclusive learning environment for all students. However, we can only make delivering transformative educational experiences a reality if we equip our educators with the right training, incentives, and time to do so.

Tackling this challenge head-on requires a thoughtful approach and concerted efforts from all stakeholders. However, the fact that many HE institutions are encouraging learners to return to in-person teaching underlines the importance and urgency of this task. In this light, as we push for meaningful change, we share

our top 10 tips for crafting more engaging and effective lectures.

Top 10 tips to improve your lectures

1. Create a positive and respectful environment

An ability to create a mutually positive and respectful atmosphere in the learning environment instils a sense of control and empowerment for educators, ensuring that both educators and students feel comfortable. By creating such environments, for example, by proactively sharing gender pronouns, we can help underrepresented student groups, who are often disproportionately negatively impacted; for instance, sharing carefully selected personal examples, such as any pets that you might have, adds to the authenticity of the educator and helps to begin to undo some of the unhelpful power dynamics which may exist in HE. Learning expectations and appropriate behaviour must be established from the start to manage any potential misunderstandings or inappropriate conduct. Educators, especially those new to the profession or those with a more relaxed teaching style, need to be aware that this could be perceived as tolerance for inappropriate behaviour by some students, if this isn't managed appropriately and carefully from the outset.

Example: Set clear guidelines for respectful communication, consider adding a code of conduct to your introductory lecture slides which focus on both your conduct as an educator and the behaviour you would expect from learners. Clarity on expectations is useful and can be referred back to if necessary during teaching sessions.

2. Be clear on takeaways

Attending a teaching session or talk only to leave unsure of its purpose can be exceedingly frustrating. Needing to establish the key takeaways of your teaching activities, especially lectures, is therefore essential. Delivering this information clearly to your students during the teaching session helps ensure that they can comprehend the objective of the session and they can then refer back to it in the future if needed.

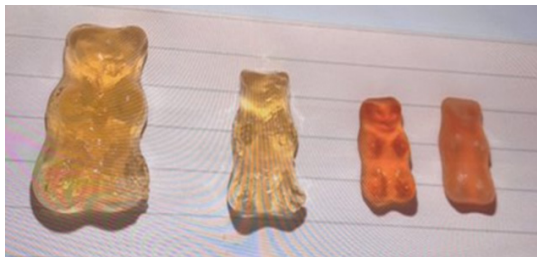
Example: Begin the teaching session with clear and concise learning outcomes and recap these at the end to ensure that they have all been covered during the session (this is helpful not only for students but also for you as the educator to make sure that you haven't accidentally missed anything).

3. Get creative

Exploring creative techniques to clarify a concept or theory can (re)invigorate your teaching. For instance, introducing props, demonstrations or other

visualization aids can add variety and interest to the lecture. Furthermore, carefully consider what you want to communicate to learners and how you might be able to do this differently or more creatively. Ensure, if you are considering using props, they add to the teaching and are large enough for everyone to see them or have enough of them to be handed around (be clear if you need them all back at the end too!).

Example: Emma has previously soaked gummy bears in different solutions overnight to aid in to explain osmolarity and tonicity in her lectures. The different gummy bears are then introduced and placed on a visualizer during the lecture which projects onto the lecture hall screen so that students can visualize and compare the bears.



Gummy bears soaked in different isotonic solutions overnight can be introduced through a visualiser to guide the explanation of isotonic solutions during a lecture.

4. Interaction is key

Cultivating an interactive teaching approach can transform the educational experience; inviting students to actively participate in discussions, ask questions and share their thoughts help them to build confidence and feel empowered. Through encouraging such interactions, lectures become more dynamic and promote a deeper understanding of the material being taught and can be facilitated in large lectures using digital polling software.

Example: In large in-person lectures, introducing interactive multiple choice questions that students can answer throughout a lecture (e.g., through MentiMeter) can be used as a way of increasing engagement, reviewing understanding and preparing students for examinations.

5. Be inclusive

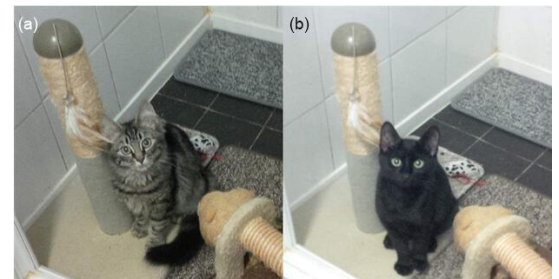
Incorporating inclusive content into your lectures is key to creating an engaging and enjoyable learning experience for learners. Various materials and examples should reflect various perspectives, cultures and experiences to validate different identities, fostering a sense of belonging among diverse student groups. Embracing, valuing and acknowledging the different backgrounds and experiences that students bring to the classroom leverage the strength of a diverse cohort and foster a more inclusive learning environment.

Example: Choosing to share your gender pronouns acknowledges that others may use different gender pronouns while also ensuring that students know which pronouns to use when describing or referring to you as an educator. Emma also uses sound effects in some lectures and has introduced warnings before playing these for learners who may find loud sound effects troubling or unsettling.

6. Focus on the practical relevance and applications

Additional engagement and inspiration in learning often occurs when teaching materials are designed to enable students to grasp their studies' practical implications and relevance. This approach goes beyond just learning facts and content and promotes a deeper understanding by providing additional context.

Example: For a lecture on the neural control of stepping, Emma introduces students to her cats Peggy (a) and Peter (b) to consider seminal experiments which used cats as model organisms.



Emma's cats (a) Peggy and (b) Peter as kittens help to introduce the complex topic of neural control of stepping in her lectures.

7. Foster an environment where there is freedom to make mistakes

Supporting students in feeling comfortable making mistakes and acknowledging this forms a critical part of their learning journey, a notion that must be cultivated from the outset. Carefully shared personal anecdotes, such as when you have made mistakes yourself, can enhance this process, while simultaneously helping to dismantle unhelpful power dynamics between educators and students. Highlighting moments of uncertainty, when a student asks a question that you do not know the answer to, is a great example of this; you must recognize this and state this to the students; you can say something like "that's a great question and I'm not sure of the answer, let me look into that and get back to you." Openly admitting that we, as educators, do not know all the answers displays honesty and highlights the perpetual nature of learning.

Example: Despite teaching immunology to university students today, Nigel failed his first-year immunology

module as an undergraduate. He uses his personal experience to explain and highlight how complex immunology is as a subject.

8. Consider students' feedback

Listening to students' feedback on teaching offers educators an invaluable perspective and an avenue for continuous improvement in their teaching methods. Actively establishing open lines of communication for collecting feedback and conveying how you have adapted (or chosen not to adapt) teaching materials complete the feedback loop, fostering a sense of trust and value in students' opinions and views. Regrettably, it is important to remember that the literature highlights that underrepresented groups often face disproportionately negative student feedback; e.g., Emma has received student feedback comments on her clothes or hairstyle which are not relevant or appropriate to her teaching and these types of comments are not typically made to her male colleagues.

Example: After receiving positive feedback on the inclusion of interactive polling, Emma introduced additional polling into her lectures. Feedback from students suggested that they would prefer to have additional options in the polling; so taking this into account, the responses were increased from three to five. As it was a replica of the number of responses students would be given in the exams at the end of the module, it helped them to prepare.

9. Always teach with empathy

Stepping into the realms of education with empathy is key, given that educators and students alike may face a myriad of personal challenges (often outside of the HE setting). Highlighting and acknowledging these vulnerabilities is an important part of recognizing our shared human experience.

Example: Using an anonymous well-being poll to invite students to consider how they are feeling at the start of a lecture, you can signpost to further support well-being and student support services if necessary. Emma has successfully used these as ice-breakers to begin her lectures and they have received extremely positive feedback from students, with many noting that it demonstrates that she cares about them.

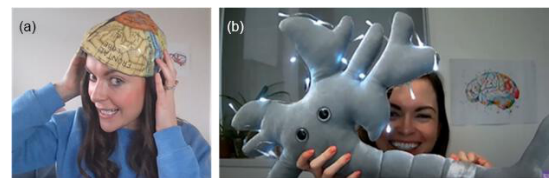
Here is an example of an interactive anonymous well-being poll included on the screen while students are settling into the lecture theatre:

How are you?

- A. *Doing great.*
- B. *Doing ok.*
- C. *Not doing so well today.*
- D. *Chuffed that Wales won the rugby.*
- E. *Gutted for England in the rugby.*
- F. *I am not enjoying the rain.*

10. Don't be afraid to be you!

Importantly, recognize that your unique persona, subject-specific knowledge and expertise bring invaluable contributions and passion to your teaching, which nobody else can. Proficiently and carefully sharing personal examples can forge trust with learners and inspire them on their own academic journey, and being able to do this is a real honour and privilege.



Emma's creative approaches to teaching. (a) Emma highlighting different brain regions using a brain hat freely available from: <https://ellenjmchenry.com/brain-hemisphere-hat>. (b) Emma using a giant cuddly neuron to explain the process of nerve conduction in a first year lecture.

Conclusion

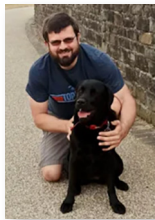
Shaping the future of lectures requires educators to challenge and overcome long-standing conventions, while also being willing to innovate. The transformation of lectures from purely transmission of information to interactive discussions can breathe new life into the learning experience for both learners and educators. Emphasizing the need for engaging and inclusive teaching methodologies, the COVID-19 pandemic acted as a catalyst for change. Variety in pedagogical strategies, coupled with embracing technology, is key to sparking curiosity and maintaining student engagement and thus improving attendance. Ensuring creative and engaging lecture content, which is accessible and inclusive for all students, is vital. Our top 10 tips serve as a guide to help educators create more effective, inclusive and dynamic lectures. ■

Further reading, viewing and listening.

- Talking Learning and Teaching Podcast Series - by Kevin L Merry. A new Podcast all about learning and teaching in Higher Education.
- The Active Learning Network (<https://activelearningnetwork.com>). A group of people from around the world who share an interest in active approaches to Learning.
- Immunology Wars <https://www.immunologywars.com/>. An educational resource aimed at describing the basic functions of the immune system through the Star Wars movies.



Emma is a multi-award winning academic, educator and science communicator and the recipient of The Biochemical Society's 2024 Teaching Excellence Awards – Early Career. As a proud teaching and scholarship-focused senior lecturer, Emma uses her expertise in science communication, to deliver engaging and interactive teaching sessions with passion, energy and infectious enthusiasm. She was awarded a National Teaching Fellowship in 2023 which recognizes, rewards and celebrates individuals who have made an outstanding impact on student outcomes and the teaching profession. Email: Yhnelle@cardiff.ac.uk



Nigel is an award-winning immunology lecturer. He is the recipient of the British Society for Immunology Teaching Excellence Award (2020) and the Royal Society of Biology's Higher Education Bioscience Teacher of the Year Award (2021) and is a National Teaching Fellow (2022). He is the co-founder of #DryLabsRealScience and Immunology Wars and his assistance dog Devon is a much beloved part of the education team. Email: FrancisN10@cardiff.ac.uk