

Pedagogy for Higher Education Large Classes (PHELC)

Proceedings of the Fourth
PHELC Symposium
Hybrid Event, 10th June 2022
Dublin City University and Online

Editors:
Ann Marie Farrell and Dr. Anna Logan



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Funded by

The National Forum for the Enhancement of Teaching and Learning in Higher Education

www.teachingandlearning.ie



Published by

Dublin City University



DOI: 10.5281/zenodo.7045749

ISBN: 978-1-911669-40-1

PHELC Website: www.phelc.ie

PHELC Papers: <https://zenodo.org/communities/phelc/?page=1&size=20>

Cover photos

Sigmund on Unsplash (photo of online meeting on laptop)

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Acknowledgements

We would like to thank the following for their unconditional support for us and for PHELC22: Conor Sullivan, Rob Lowney, Dr Mark Glynn, Suzanne Stone and Karen Buckley our wonderful DCU colleagues - Thank you all.

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Ann Marie Farrell and Anna Logan, Dublin City University.	

Introduction

Welcome to the proceedings of the fourth *Pedagogy for Higher Education Large Classes (PHELC)* Symposium. This year, the PHELC symposium was a hybrid event, with participants (mainly local) joining us on the Dublin City University (DCU) St Patrick's Campus and attendees from all over the world joining us online. It was our first time hosting PHELC in the hybrid format, something which we decided to do after last year's event as we anticipated slowly easing ourselves out of the restrictions imposed by the pandemic. While it was wonderful to welcome attendees on campus and virtually, it was challenging to engage with both groups equally throughout and we required a lot of help and support from our colleagues to ensure the event ran smoothly. On that note, we would particularly like to thank our treasured DCU colleagues for their support - Conor Sullivan, Rob Lowney, Dr. Mark Glynn and Suzanne Stone for holding our hands before and during the event.

We were delighted to receive funding from the *National Forum for the Enhancement of Teaching and Learning in Higher Education in Ireland* (National Forum hereafter) which enabled all participants to register free of charge. The National Forum's continued support has enabled us to develop the PHELC Symposium, to provide access to it free of charge thus removing potential barriers to attendance for many here in Ireland and around the world.

We are indebted to our two keynote speakers both of whom embody insight and positive action in relation to large class teaching. Prof. Jacqui de Matos-Ala opened the symposium with a presentation entitled '*Teaching with diversity in mind – designing curricula for culturally diverse large classes*' which set the tone for the symposium from the outset. Prof. Frederic Fovet provided the second keynote address entitled '*Including learner diversity in large class teaching: Using Universal Design for Learning to sustain a systematic proactive reflection on social justice and accessibility*', which dovetailed perfectly with the first keynote in continuing the theme of inclusion for diversity. Both keynotes influenced the nature of the discussions in workshops towards the end of the symposium.

We were also delighted with the range of papers submitted for PHELC22 presentations of 10-15 minutes each, followed by panel discussions. We hope that the mix of engagement across the four hours of the PHELC symposium provided for the diversity of attendees. The Symposium wrapped up with two workshop discussions, one on-campus and one online, which explored (a) the use of technology to enhance teaching, learning and assessment and (b) building up relationships respectively. A summary of the workshop discussions has been included towards the end of these proceedings

And finally, well done to all our 'wheel of fortune' spot prize winners. The spot prizes have become a feature of the PHELC symposium which we hope to continue into the future.

Based on our experience this year, we are reverting to a totally online format for next year. We believe it is a more streamlined format given the length of the symposium and it enables access to people from around the world. So, hopefully, we will see you in 2023. Keep an eye on Twitter @PHELCprofessors for the exact date.



Anna Logan and Ann Marie Farrell (Editors)

	<h2 style="text-align: center;">4th Pedagogy for Higher Education Large Classes (PHELC) Symposium</h2> <h3 style="text-align: center;">TIMETABLE 10 June 2022</h3> <p style="text-align: center;">Facilitated by Dr Anna Logan and Ann Marie Farrell, Dublin City University</p> <p style="text-align: center;">Twitter: #PHELC22 @PHELCprofessors @AnnMFarrell @logananna11</p> <p style="text-align: center;"><i>Please check your local time equivalent (timeanddate.com may be useful)</i></p>
<p>09.45-10.00 (Irish/British Standard Time) 10.45-11.00 (Central European Time) 16.45-17.00 (Hong Kong Time) 04.45-05.00 (Eastern Daylight Time) 18.45-19.00 (Australian Eastern Std Time)</p>	<p>Log on / Registration</p> <p><i>We recommend that you log on to the zoom link at this time in case there are any difficulties.</i></p>
<p>10.00-10.30 (Irish/British Standard Time) 11.00-11.30 (Central European Time) 17.00-17.30 (Hong Kong Time) 05.00-05.30 (Eastern Daylight Time) 19.00-19.30 (Australian Eastern Std Time)</p>	<p>Welcome: Introduction to workshop content and participants</p> <p>Dr. Anna Logan (@logananna11) & Ann Marie Farrell (@AnnMFarrell), Dublin City University</p>
<p>10.30-12.00 (Irish/British Standard Time) 11.30-13.00 (Central European Time) 17.30-19.00 (Hong Kong Time) 05.30-07.00 (Eastern Daylight Time) 19.30-21.00 (Australian Eastern Std Time)</p>	<p>Keynote 1: Prof. Jacqui de Matos Ala, University of the Witwatersrand, Johannesburg <i>Teaching with diversity in mind – designing curricula for culturally diverse large classes.</i></p> <p>Short papers: Elaine Huber (@enm181), Peter J Bryant (@PeterBryantHE), Stephanie Wilson, Natasha Arthars & Matthew Taylor, The University of Sydney <i>Connected Learning – Designing for Scale Through Co-Design Approaches</i> Kenneth McDonagh (@KennethMcDonagh) and Jelena Radakovic (@j_radakovic), Dublin City University <i>Most Effective Tools and Strategies for Large Class Engagement: First Year Students and Their Recommendations</i> Alison Bailey, University of Sussex (@AlisonB16469287) - The benefits of team-based learning and business simulations to re-engage student learning in a large group setting.</p> <p>Q&A Session (keynote and short paper presenters)</p>
<p>Coffee Break Wheel of Fortune (prizes) – @ 12.50</p>	
<p>13.00-14.30 (Irish/British Standard Time) 14.00-15.30 (Central European Time) 20.00-21.30 (Hong Kong Time) 08.00-09.30 (Eastern Daylight Time) 22.00-23.30 (Australian Eastern Std Time)</p>	<p>Keynote 2: Prof. Frederic Fovet, Royal Roads University, Victoria, Canada (@Ffovet). <i>Including learner diversity in large class teaching: Using Universal Design for Learning to sustain a systematic proactive reflection on social justice and accessibility</i></p> <p>Short Papers: Jon Chandler (@_jon_chandler), University College London & Jamie Wood (@woodjamie99), University of Lincoln - Promoting active engagement with text-based resources in large first-year modules in History Monica Ward, Dublin City University <i>The role of technology in formative assessment with large classes</i> Ann Marie Farrell (@AnnMFarrell), Dublin City University <i>Developing a sense of community in a large class context</i></p> <p>Q&A Session (keynote and short paper presenters)</p>
<p>14.30-15.30 (Irish/British Standard Time) 15.30-16.30 (Central European Time) 21.30-22.30 (Hong Kong Time) 09.30-10.30 (Eastern Daylight Time) 23.30-00.30 (Australian Eastern Std Time)</p>	<p>Workshop <i>Themes TBA</i></p> <p>Plenary discussion: <i>Discussion, conclusions and suggestions for future PHELC events</i></p>
<p>15.30 (Irish/British Standard Time) 16.30 (Central European Time) 22.30 (Hong Kong Time) 10.30 (Eastern Daylight Time) 00.30 (Australian Eastern Std Time)</p>	<p style="text-align: center;">Social Event & Wheel of Fortune (again!)</p> <p><i>More spot prizes. Chat. Some sparkling drinks to celebrate the fourth PHELC symposium</i></p>
<p>PHELC22 is sponsored by The National Forum for the Enhancement of Teaching and Learning in Higher Education the national body responsible for leading and advising on the enhancement of teaching and learning in Irish higher education</p> <ul style="list-style-type: none"> • working with those who teach, learn and shape policy and practice to ensure a valued and informed teaching and learning culture in Irish higher education • focusing on the professional development of all those who teach, teaching and learning in a digital world, teaching and learning within and across disciplines, and student success 	

Participants

Combined
Dr. Hussam Achour, Dublin City University, Ireland
Samantha Ahern, University College London, England
Niamh Armstrong, Mary Immaculate College, Limerick, Ireland
Alison Bailey, University of Sussex, England
Dr. Henrique Barros, Dublin City University, Ireland
Shona Benton, IICP College, Ireland
Dr. Frederique Bouilheres, University of Nottingham, England
Karen Buckley, Dublin City University, Ireland
Daniel Carey, Dublin City University, Ireland
Maura Carey, IICP College, Ireland
Dr. Sheila Castilho, Dublin City University, Ireland
Dr. Jon Chandler, University College London, England
Dr. Jonathan Cherry, Dublin City University, Ireland
Prof Manmohan Chhibber, Thapar Institute of Engineering and Technology, India
Deirdre Cijffers, Learning Unfurled Ltd, England
Dr. Leanne Coll, Dublin City University, Ireland
Dr. Fiona Concannon, NUI Galway, Ireland
Dr. Aisling Conway Lenihan, Munster Technological University, Ireland
Colin Cooney, Dundalk Institute of Technology, Ireland
Dr. Laura Costelloe, Mary Immaculate College, Limerick, Ireland
Dr. Melanie Cunningham, Royal College of Surgeons, Ireland
Therese Danaher, Dublin City University, Ireland
Prof Jacqui de Matos-Ala, University of the Witwatersrand, South Africa
Elizabeth Dinneen, University of Nottingham, England
Dr. Audrey Doyle, Dublin City University, Ireland
Dr. Ciaran Dunne, Dublin City University, Ireland
Ann Marie Farrell, Dublin City University, Ireland
Dr. Orna Farrell, Dublin City University, Ireland
Deirdre Finn, Mary Immaculate College, Limerick, Ireland
Eileen Finnegan, IICP College, Ireland
Dr. Ana Paula Fonseca, Edinburgh Napier University, Scotland
Prof. Frederic Fovet, Implement UDL, Canada
Dr. Catherine Furlong, Dublin City University, Ireland
Emma Gallagher, Dublin City University, Ireland
Dr. Yuhui Gao, Dublin City University, Ireland
Dr. Mark Glynn, Dublin City University, Ireland
Clare Halligan, Dublin City University, Ireland
Kailey Hazeldene, University of Greenwich, England
Prof Michael Healy, Mary Immaculate College, Limerick, Ireland

Combined (continued)

Dr. Janine Hechter, University of Pretoria, South Africa
Dr. Janosch Heller, Dublin City University, Ireland
Dr. Sam Hemsley, University of Sussex, England
Kitty Horne, University of Sussex, England
Dr. Elaine Huber, The University of Sydney, Australia
Dr. Ali Intizar, Dublin City University, Ireland
Suhaili A Jalil, Universiti Sains Islam, Malaysia
Dr. Piotr Jaworski, Edinburgh Napier University, Scotland
Dr. Paul Joseph-Richard, Ulster University, Northern Ireland
Tandeep Kaur, Dublin City University, Ireland
Prof John Kelly, NUI Galway, Ireland
Anne Kirwan, Dublin City University, Ireland
Dr. Tamara Kolaric, Dublin City University, Ireland
Prof Jane Legacy, Arizona State University, USA
Dr. Tanya Levingstone, Dublin City University
Dr. Valesca Lima, Dublin City University, Ireland
Dr. Weiming Liu, Dublin City University, Ireland
Jimmy Lo, University of Greenwich, England
Dr. Anna Logan, Dublin City University, Ireland
Rob Lowney, Dublin City University, Ireland
Dr. Aileen Lynch, Trinity College Dublin, Ireland
Prof Kerry McCullough, University of KwaZulu-Natal, South Africa
Dr. Ken McDonagh, Dublin City University, Ireland
Dr. Siobhan McMahon, NUI Galway, Ireland
Dr. Marlene Miglbauer, Virtuelle PH / University College of Teacher Education Burgenland, Austria
Kate Molloy, NUI Galway, Ireland
Dr. Gwen Moore, Mary Immaculate College, Ireland
Prof Maria Morgan, Royal College of Surgeons, Ireland
Trudie Murray, Munster Technological University, Ireland
Dr. Natasha Katuta Mwila, De Montfort University, England
Dr. Róisín Nic Dhonncha, Mary Immaculate College, Ireland
Conor O Callaghan, Munster Technological University, Ireland
Marie O Neill, CCT College Dublin, Ireland
Dr. Siobhan O Reilly, Dublin City University, Ireland
Dr. Ide O'Sullivan, University of Limerick, Ireland
Dr. Jim O'Mahony, Munster Technological University, Ireland
Dr. Paolo Oprandi, University of Sussex, England
Dr. Renata Osowska, Edinburgh Napier University, Scotland
Sally Parsley, WHO Academy, Ireland
Niki Pryde, University of Edinburgh, Scotland

Combined (continued)

Jelena Radakovic, Dublin City University, Ireland

Roisin Reilly, Trinity College, Dublin, Ireland

Emily Anne Rennison, Mary Immaculate College, Limerick, Ireland

Dr. Rosalind Rice-Stevenson, Edinburgh Napier University, Scotland

Dr. Angelica Risquez, University of Limerick, Ireland

Dr. Maria Ryan, Mary Immaculate College, Limerick, Ireland

Dr. Sandra Ryan, Mary Immaculate College, Limerick, Ireland

Dr. Gary Sinclair, Dublin City University, Ireland

Leonie Sloman, King's College London, England

Suzanne Stone, Dublin City University, Ireland

Conor Sullivan, Dublin City University, Ireland

Dr. Hasbiya Taifi Bernoussi, FSE, Morocco

Jagadeeswaran Thangaraj, Dublin City University, Ireland

Sheona Thomson, Queensland University of Technology, Australia

Dr. Philip Tubman, University of Lancaster, England

Dr. Gavin Urie, Edinburgh Napier University, Scotland

Nokuthula Vilakati, University of Cape Town, South Africa

Dr. Mary Watkins, University of Portsmouth, England

Sam Whelan, Griffith College, Ireland

Dr. Ciara White, Dublin City University, Ireland

Helen Whitehead, University of Nottingham, England

Dr. Helen Williams, University of Nottingham, England

Jing Hua Ye, Munster Technological University, Ireland

Dr. Wenjuan Yu, Lancaster University, England

Dr. Liting Zhou, Dublin City University, Ireland

Keynote Address: Teaching large classes with diversity in mind – Adopting knowledge plurality in a large class

Jacqueline de Matos Ala

Department of International Relations, University of the Witwatersrand, South Africa

Abstract

There is a growing acknowledgement of the need for greater knowledge plurality in our university curricula that reflects ideas and theories that have their genesis in both the global North and South. This paper reflects on not only the importance of knowledge plurality for students but also how this can be achieved in a large class environment. Through the careful selection, sequencing, pacing and assessment of knowledge, the dual challenges of introducing a range of new, often complex knowledges, in a large class environment can be successfully navigated. Further, I found that creating multiple zones of proximal engagement, together with introducing knowledge in different formats can mitigate the potential high cognitive load such a course places on students. Ultimately, the plurality of knowledge encountered provided students with exciting new ways of understanding and explaining international relations in a myriad of context and the large class context did not distract from this outcome.

Keywords: *knowledge plurality; curriculum studies; large classes; inclusive learning; decolonization*

1. Introduction

I teach a course on “thinking, theorizing, and researching International Relations (IR)” to final year undergraduate students at the University of the Witwatersrand, South Africa. The course design is innovative in that it is knowledge plural which is unique for a course on IR theory. Currently, the theories of IR are comprised predominantly of knowledge that has either originated in the West or been appropriated as Western by its scholars. Moreover, these theories reflect the interests, contexts, and ideologies of Western states. However, with the proliferation of the discipline in the global South, the demand for knowledge diversity that takes account of the realities, histories, cultures as well as philosophies beyond the West has increased. Consequently, there has been an exponential rise in scholarship demonstrating the importance of knowledge plurality in the theoretical component of the discipline (Acharya & Buzan, 2007; Blaney & Tickner, 2013; Smith & Tickner, 2020; Qin, 2020). Nevertheless, despite the increase in the production of scholarship exploring knowledge from global South sources, Western knowledge still dominates most IR curricula globally (Wemheuer-Vogelaar et al., 2016).

My decision to create a knowledge plural IR theory curriculum was motivated by the desire to present a more complete, complex picture of my discipline that would be more relevant to the multicultural contexts of (my) students from the global South than one populated exclusively by Western knowledge. This decision was further reinforced by the emergence of local and international social movements at universities demanding that curricula incorporate more diverse voices especially those of under-represented and marginalized populations (Morreira et al., 2020). What has added complexity to the designing and teaching of this course is the large size of the class. Thus, the pedagogic innovations I employ need to work well within a large class context. Therefore, I intend to offer my course on thinking, theorizing, and researching IR as an exemplar of a large class that has attempted to incorporate a plurality of knowledges, particularly from the global South, into a curriculum. Moreover, I believe that the relevance of this paper transcends teaching contexts from the global South given the fact that large multicultural classrooms are also reality for higher education institutions in the global North too.

2. Terminology - What do I mean by a knowledge plural IR theory course?

In the context of this paper and the course I am discussing, 'a knowledge plural IR theory course' refers to a course that is populated by theories or concepts from multiple locales in the global North and the global South. I also acknowledge the complexity that accompanies the use of the terms global North/West and global South, especially as these are not geographically accurate or exclusive to a geographic region. The use of the term global South not only references a geographic region but is also a metaphor for the oppression caused by colonialism and global capitalism. Additionally, it constitutes a site of resistance to Western oppression (Sousa Santos 2012). Further, I use these terms because they are the ones used in the literature that I engage with.

3. Theories of learning informing my pedagogic approach

My pedagogic practice has been informed and shaped by the ideas of various socio-cultural learning theorists who contend that learning is a social activity where knowledge is co-constructed by participants within specific historical, social, and cultural parameters (Vygotsky, 1978). For Vygotsky (1978), the structured, systematic learning processes students encounter throughout their formal education are imperative as these facilitate the development of higher mental function as well as the acquisition of specialized knowledge (in contrast to everyday knowledge). He also notes that instruction must be ordered systematically for learning and cognitive development to occur. Learning occurs optimally when educators and learners engage with knowledge collectively. The role of the educator or more knowledgeable peer is that of mediator, providing the necessary scaffolding to enable learners to engage with more complex knowledge with their assistance than they would be able to on their own. This is what Vygotsky refers to as the "zone of proximal development' Moreover, multiple representations of knowledge from different sources are encouraged to allow learners to appreciate not only different points of view but also the complex nature of the world which as previously stated is a key objective of my course.

In a similar vein, Bruner (1996) argues that learning occurs through the active interaction with knowledge by learners and educators, particularly by facilitating discourse between these parties on specific issues.

Divergent opinions and understanding of concepts can fruitfully be exchanged through class discussion. It allows for multiple representation of knowledge. It also lets learners share knowledge that others may not possess thereby instigating a zone of proximal development scenario. This learning approach is also conducive to accommodating different learning styles (Bruner 1990). Within this classroom context, the educator again functions as mediator, shifting agency for learning to the students as their sophistication in mastering knowledge and related academic skills grow. This type of environment further accommodates intersubjectivity by allowing multiple viewpoints. Further, if a learner's understanding, ideas or opinion are factually incorrect or socio-culturally unacceptable, discourse can be used as a mediator to change or adapt the learner's stance to the correct or acceptable position. Bruner believes that these forms of mediation develop important habits of mind such as tolerance and the ability to incorporate new knowledge into one's mental schema. These not only benefit the individual but society at large. Significantly, Bruner (1996), Cole (2005) and Hasan (2002) assert that where educational policies and practice positively and effectively accommodate and engage with social and cultural diversity, formal education can benefit all learners equitably. If this is done effectively, in multiple settings, it has the potential to reduce societal inequity.

Adopting a sociocultural approach requires that a course facilitate numerous mediated opportunities for students to engage with knowledge, guided either by the lecturer or more knowledgeable peers. This is logistically far more complicated to execute effectively in a large class environment as 'zones of proximal development' require the creation of more intimate learning environments. The approach also entails carefully scaffolding knowledge and related academic skills so that they move from a multi-structural to an extended abstract level as per the structure of the observed learning outcome (SOLO) taxonomy. I would also like to dispel the notion which often accompanies a sociocultural approach to learning which contends that knowledge that originates within the same ethnic or cultural context as learners makes it automatically accessible to them. Philosophies and contexts originating in the global South still represent specialized, abstract forms of knowledge. They are as sophisticated and powerful in terms of their explanatory capacity as those from the global North. As many originate in precolonial times, they may not align with the way in which societal norms have evolved and may need adaptation. However, these knowledges are valuable in that many offer different and highly relevant explanations, interpretations, and envisaged outcomes of IR. Including them in curricula, moreover, serves to counter the knowledge hegemony of the global North and to decolonize knowledge. Nonetheless, making this knowledge accessible to students in a large class environment is not automatically easier because it may align with students' cultural contexts.

4. Going bravely into the unknown

When designing the course for the first time, the selection and sequencing of the course material was very difficult as novelty limits your frame of reference. I was able to use some material from the previous course on Western IR theory regarding the Western origins of IR theory and how these theories are aligned and support the interests of Western states. To explain Western knowledge hegemony, required that I develop a section on how knowledge is created within a Social Science discipline and then relate it back to IR theory. Here, I had to use conceptual frameworks from the field of the sociology of knowledge as

none existed in my own discipline. Moreover, I had to identify and select various philosophies from the global South that I felt would be generative in explaining and analyzing IR. Pedagogizing this knowledge involved selecting relevant ideas and concepts from these philosophies and then demonstrating how they elucidated our understanding of IR. How these theories gave us new or different perspectives from those of the West was also incorporated into the curriculum. The step after this was placing the themes I wished to cover in a logically, sequenced order that began by situating students within a known area, namely, Western IR theory which had been covered in previous years of study and then guiding students through the unknown and strange. I also needed to consider how I would pace the course content given its novelty. In my experience with teaching large classes, a more relaxed pace best accommodates the learning pace of most learners. The novelty and complexity of the course material meant I needed to consider providing even more time to certain topics. Additionally, opportunities for more engagement between students and the lecturer as well as their tutors needed to be factored into the course pacing if I wanted to create space for zones of proximal development. Having narrated lecture slides posted on our learning management system allowed students to review a theme as many times as they required. Recording lectures on MS Team provides the same opportunity.

The next challenge was making the reading material accessible to the students. Many readings available on theories, ideas and concepts from the global South are complex and esoteric. Thus, I tried to select the ones that I felt would be most accessible to my students. Where students needed to read more complex literature, due to its germinal nature, I would then build readings into the relevant lecture. Here, the students and I would unpack the content together and then relate it to the content of the lecture as well as the overarching aims of the course. Each year, I have added refinements in terms of the selection, sequencing and pacing of the course to improve on what did not function optimally that year. Especially in large classes, I think being flexible when things do not work well is important. Sometimes, problems need to be fixed right away and not left to the next year. It is important that all learners in large classes participate in a course that creates an environment conducive to the learning of all students. In large classes, pedagogic problems that are ignored tend to amplify exponentially and resolving these requires far more work than would have been required with an early intervention.

Realizing the complexity of the course material, I decided to have students write two reading responses for their course work marks instead of essays. Students needed to have more time to process the course content. The reading responses required that students compare and contrast two readings, evaluating (a) the arguments of each author and (b) the contribution these readings make to either problematizing knowledge exclusivity in IR or adding to knowledge plurality in the field. Students also needed to reflect on how the readings added to/challenged their understanding of IR. The reading responses provided a focused, structured environment for students to engage with and reflect on important course readings. The reading response required students to demonstrate a multi-structural level of engagement (as per the SOLO taxonomy) with the assigned course material. Only in the final assessment are students required to answer two essay questions.

Assessment criteria are made explicit to students for each assessment. Assessment rubrics are provided to the students for each assessment. These are designed for each specific assessment and cover both the

engagement with content that students are required to demonstrate as well as the concomitant academic skills. These rubrics are used by the tutors to mark the assessment. This provides consistency in marking which can often be difficult to maintain in a large class. Most importantly, despite the large size of the class, the use of a rubric provides each student with individual feedback on their work that will assist in improving their performance in their next assessment. Feedback should be recognized as a very important zone of proximal development as assessment drives learning (Carless 2015). Although multiple choice questions are often used for large class assessment as they reduce the time taken to mark assignments, they provided limited opportunity for learning through focused feedback and lecturer/peer-student interaction.

The complexity of the course content as readings makes the cognitive load¹ potentially very heavy and could prompt students to disengage from learning. At the start of each course, I acknowledge that this course is very different to any IR course students have encountered to date especially because we are doing IR theory differently. I warn that the course content is also conceptually more complex. However, I tell students that I am their guide and co-traveler in this course. I expressly discuss how the course has been designed to assist them in understanding the content and mastering the necessary academic skills. I find that this discussion assists in diminishing the sense of alienation that students often experience in large classes. Thus, there is a transition from large class to a community of learners where students will always be given guidance from their tutors (more learned peers) or myself. I have built numerous opportunities within the course, for question-and-answer sessions between the students and myself. These are well attended and highly interactive.

Even with a large class, giving students opportunities to be active agents in their learning gets them to invest more in the course. I also make it clear to students that the course has been designed to help them learn and that the course material provides new ways of explaining IR which are often more relevant or pertinent to studying the global South. What intrigues students is that this course approaches IR from perspectives that they have not previously encountered. Students very quickly start to enjoy the course, which is very unusual for a theory course.

To further lighten the cognitive load of the course, instead of being given additional reading for small group tutorials, I give students video clips related to that week's class to watch. A set of scaffolded questions are provided to help students engage with as well as reflect on the content of the tutorial. Our tutorials have proven to be a great way of utilizing zones of proximal development. In this context, the tutor, who is one of our postgraduate students, acts as a more knowledgeable peer. Even in online tutorial formats, most students have been active participants. Within a large class context, tutorials provide a more intimate

¹ Our short-term memory is used to comprehend and acquire academic knowledge. According to cognitive load theory our short-term memory is constrained by its capacity to absorb information and the amount of time it can focus on this task. (Abadzi 2006). Thus, presenting large amounts of content and/or expecting students to employ a variety of cognitive skills in short periods can result in cognitive overload. The risk is particularly high when students are being introduced to new knowledge. Both the quantity of information that a student's mind can hold as well as the amount of time in which they can optimally work with this information decreases exponentially when students are required to process high levels of cognitive load (Feldon 2007). Consequently, students will only grasp a limited amount of the knowledge and/or skills the lecturer sought to impart. To avoid such situations, we should avoid populating our courses with superfluous knowledge and cognitive skills that will ultimately detract from the key knowledge and skills that we want to impart. We must also be mindful of the interaction between short-term and long-term memory. Information held in working memory is not immediately transferred to long-term memory once it is not being used by short-term memory. The consolidation into long term memory takes hours - maybe even days and in the interim is at risk of being forgotten. However, every time information is recalled it is reconsolidated. The more recall takes place, the stronger the neural processes entailed in remembering this information become. Additionally, new information can also be integrated with this recalled knowledge. Thus, providing opportunities for revisiting or revising knowledge within a course helps students remember.

learning space. They eliminate the intimidation many students feel in speaking in a large class context, thereby providing a more conducive space to share ideas and ask questions. Presenting knowledge in this alternative format provides students with a different way of assessing knowledge. It also provides an opportunity to revise and reinforce the knowledge encountered that week which further improves learning.

I have found it very important especially with the move to emergency remote teaching to provide even more information on our learning management platform. It is often necessary to repeat certain information, especially assessment criteria, dates and rubrics on several 'pages' that students will read as well as going over these in class. The course in this format requires even more opportunities for engagement between lecture-tutors-students to function optimally. I have now also taken to posting additional video clips linked to issues that were explored in class to further expand students' perspectives.

5. Conclusions/ concluding remarks

It has taken 4 years to get the course to a place where I am satisfied that my selection, sequencing, pacing and assessment of knowledge works optimally to facilitate learning. I have removed topics and reading that made the course more complicated, replacing these with more suitable ones. The sequencing of topics has been refined. I have added more knowledge from Asia, Indian and Latin America. I have assigned certain topics more time to be covered. Additionally, I have switched the readings used for the reading responses to ones that are more relevant to the topic being covered. The tutorials and tutorial topics have worked well from the outset, though I have also refined some of the material to make things more relevant. Moreover, numerous zones of proximal development have encouraged a high degree of participation in the course by students and has improved overall academic performance. Thus, through innovations in both the design and teaching of the course, introducing knowledge plurality in a large class environment is not hard to do. The students enjoy the course – which is rather unusual for a theory course. They particularly appreciate that the plurality of knowledge encountered in this course provides exciting new ways of understanding and explaining international relations in a myriad of context.

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Connected learning – designing for scale through co-design approaches

Elaine Huber, Peter Bryant, Stephanie Wilson, Natasha Arthars, Matthew Taylor
The University of Sydney Business School, The University of Sydney, Australia

Abstract

In large classes, students can feel a sense of social isolation and disconnect leading to a poor university experience. Utilising a connected learning pedagogy with three underpinning principles, we have been transforming business education at a large metropolitan university in Australia. Designing and evaluating connections to knowledge, to peers and to society and communities we present some of the emerging themes from our work across 25 units each with cohorts of up to 2000. Students tell us what they value, how they engage using technologies and what they find helpful in our designs. We are beginning to produce a series of reusable Design Patterns that highlight the problem–solution–implementation phases of our Connected Learning at Scale project complete with examples of the patterns in use.

Keywords: *Connected learning; scale; student engagement; networks; design patterns; large classes*

1. Introduction

Large classes have been around for decades with an abundance of studies describing the challenges faced by faculty and students, not least being the feelings both parties have of isolation (McEwen, 2021; Mantai & Huber, 2021). This has of course, been exacerbated during the lockdown periods of the COVID-19 pandemic and the shift to online learning and teaching. Some have argued that delivery at scale is a cheaper way to offer education and that online learning might be perceived through the lens of value for money by students (Wheeler & Griffiths, 2022). How can we retain and keep our students engaged in these trying times?

Our Connected Learning at Scale (CLaS) project uses a co-design approach whereby a multi-skilled team of educational developers, learning designers, media producers and educational researchers work in collaboration with content experts who teach the large units as well as students, alumni and industry partners, to co-design for scale. The team began with Educational Design Research (McKenney & Reeves, 2018) and integrated elements of design thinking and connected learning pedagogy to come up with our own educational development approach in the CLaS project. Evaluation is instrumental to ensure our designs are evidence-based and research informed.

2. Description of the Teaching/Learning Context

The University of Sydney Business School is a faculty in a large metropolitan university in Australia with approximately 11,000 students and 500 staff. A large percentage of our students are international from the Asia-Pacific region and most students who study in undergraduate and postgraduate programs do so in very large classes. In fact, some are so large (over 1800 students) we sometimes refer to them as jumbo units. Our Master of Commerce program consists of 150 units¹ with 8 specialisations which encompass all of the disciplines within the business school. Units run across one semester (16 weeks) and students complete two transdisciplinary core units; and then, from their specialisation, they choose elective units in addition to compulsory foundation and capstone units.

2.1. Challenges in Our Context

Through previous studies and our lived experiences, we know there are many challenges for both students and teachers involved in large class learning and teaching. Our previous designs have endured for many decades and produced excellent graduates. They have tended towards magnification - through bigger lecture theatres, passive recordings, and better audio-visuals; and multiplication - through hundreds of small tutorials, which leads to the challenge of how to maintain a consistent quality of delivery (Bryant, 2022a).

Another question we may ask is whether large classes lead us to a dilution of the learning experience to the point of consumption rather than engagement? We know that active learning is better than traditional lecturing (Freeman et al., 2014), and that lecture attendance has been dwindling for years (Skead et al., 2020).

2.2. Connected Learning at Scale Design Principles

Working across our core, foundation and capstones units of our Master of Commerce program, we have been using three principles to reimagine a more connected learning experience for students. These principles inform how we are transforming business education.

Principle 1: Information Engagement

In this principle, students both individually and collectively engage, challenge, create and interact with discipline knowledge and skills as opposed to having it broadcast at them in a lecture. We enable students to take a journey 'through' content according to their needs and abilities, stretching and testing themselves.

Principle 2: Connected Participation and Active Learning

Face-to-face teaching time, student learning activities and technology are leveraged to build connections and networks to address, debate and solve critical global and local challenges through innovative pedagogical approaches. Moving to a student-centred classroom encourages our teachers to guide and facilitate active and collaborative learning.

¹ Units may be known as subjects in some countries.

Principle 3: Relevant and Authentic Assessment and Feed-forward

Learning is applied and tested through authentic assessment modes i.e. those that “reflect the challenges that professionals of this discipline face in work” (Villarroel et al., 2018, p. 18), supported by opportunities for students to receive and share relevant, critical, and affecting feedback and feed-forward from both academics and their peers. Leveraging technologies to support these approaches is also part of the thinking behind this principle.

For more details on these principles see Bryant (2022b).

3. Literature Review

3.1. Connected Learning

Connected learning has emerged in the literature and in practice as a way of embedding the social engagements and networks of teaching and learning within a classroom or facilitated by technology and it is motivated by the interests of the students (Ito et al., 2013). These learning networks present as a complex ecosystem of experiences, relationships, linkages, emotions, knowledges, and practices. In addition, “Connections are ... constantly intersecting, and the skills in navigating and leveraging that are critical to business (or life) success” (Bryant, 2022a). Meaningful and lasting learning is derived from the shared interests or enthusiasm of the connected learner having opportunities to build and sustain relationships (Ito et al., 2020). Siemens (2005) extends the creation and fostering of relationships (through connectivism) by clustering these areas of interest into a community of shared dialogue and thinking. Unlike didactic learning, connected learning is not a passive form of learning. Connected learning requires students to have choice and agency over the connections they make, how they will leverage those relationships and how they hybridise space to support embodied learning (Fung, 2017).

3.2. Leveraging Networks

Connections are critical for a business education. They have been at the core of successful MBA programs where the networks formed during the program are lasting and are valued by the students involved (Konrad et al., 2017). Group work is a common form of assessment as it replicates work-like interactions and at scale, provides for the effective use of resources for marking.

Tapscott and Williams (2010) argued that students were boycotting the traditional pedagogies of university, arguing that the university of the 21st century will not be a tower, but rather a network, comprised of learners, academics, the community, industry and more broadly those who generate and make content and knowledge. Employers are equally seeking job-ready graduates with a range of trans-disciplinary skills including collaboration, teamwork, resilience and being able to work with others (Bratianu et al., 2020).

4. Empirical Methodology/Data

We have used design-based research (Reimann, 2011) and integrated elements of design thinking to come up with our own approach to the unit developments and their evaluation. Over the past two years

we have worked with 25 units across the Master's program and collected approximately 1,453 student survey responses, had 177 students and 48 tutors attend focus groups, and completed 33 unit coordinator interviews. In this paper we will share our learnings from the student perspective.

5. Analysis and Implications for Practice

We have implemented a wide range of innovative practices based on our three principles across 25 of our largest units. Below we begin to synthesise some of the themes that have emerged from our findings across these units.

5.1. Student Engagement

5.1.1. Value

We found that students tend to make judgements about the value of content and activities based on what is being assessed and what is being discussed in tutorials. In both cases, if it is not being discussed or assessed then they assume it is not essential or important and will be more likely to not read or watch or take part in any self-paced online activity. Similarly, students put in effort in the initial weeks but if they find their teachers are not asking about the content in class then their input, and interest, wanes. We need to ensure that our large cohort of tutors (we can have up to 16 working on one large unit) are able to integrate the content being delivered through their tutorials and we provide training and support so that they can effectively use the pedagogies and online tools to engage with their students (Ito et al., 2020).

Authentic assessments are highly valued by students and they sustain their interest and engagement in the content. In addition, many students value the opportunity to test their understanding on a regular basis as this encourages them to revise the content. It also gives them opportunities to 'connect' to the discipline knowledge (Siemens, 2005).

5.1.2. Accountability

This theme was particularly prominent when discussing group work for both assessment and class activities. Students feel demotivated when their peers do not participate and they see accountability as a way to encourage participation. For some, this presented as using marks for participation but others felt this disadvantages them (international students). There has been a shift though, with the move to the online context through the debate of *camera off vs camera on*. Engaged students are starting to express the desire for teachers to enforce this in breakout rooms which enables the 'small class feel' even though they belong to a very large cohort.

Other ways this is presenting is via a growing desire by students for peer assessment in group tasks in order to create accountability.

5.1.3. Tone

We found that our students make judgements very early on about the tone of the unit. It is important that the students feel a connection to the unit coordinator, especially if they do not 'see' them on a regular basis

(recorded or online lectures). So, particularly the first video/lecture of the unit can set the tone for the entire semester. It is also important to ensure that all of the tutors feel connected and part of a holistic teaching team (Mantai & Huber, 2021) and continue with a similar tone to provide a consistent student experience.

Students (especially those with workplace experience) appear to want a more formal and professional tone and are less likely to take something seriously if it does not have this tone. It is important therefore, to clarify expectations around informal responses required in some activities such as first-person language where it's more important to brainstorm and share ideas. As opposed to other learning activities where replies need to be supported by references. It's common for students to feel 'lost' in large cohorts and tone can help scaffold them through their learning journey (McEwen, 2021).

5.2. Peer Interaction via Technology

Students found tools such as online whiteboards to share ideas (using media as well as text) helpful in comparing their ideas to others and also found them helpful when revising. However, they sometimes got frustrated due to the lack of structure with these tools.

Students found use of polls for voting an entertaining way of breaking up content and encouraging curiosity. Students admitted to engaging with them even when time-poor (Ito et al., 2013). This is another opportunity for students to connect with discipline knowledge as well as with each other if they see where their understanding sits within the cohort. In fact, leveraging these large data sets to promote learning can instill a sense of belonging and connection (Bryant, 2022a).

The use of online discussion boards is a widely researched topic. Our students indicated that whilst they *read* the posts to compare their views to others, time plays an important factor in their decision as to whether or not to *post*. Students like to 'like' posts rather than repeating what has already been said – somewhat of an issue in such large classes. They also told us that when they identify a conflicting viewpoint to their own, they are encouraged to further investigate/study.

Peer feedback tools are often used to manage (teacher) workload in large classes and are also welcomed by students, but they identified the issue of conflict arising if they provide critical feedback. Hence, they would prefer to provide anonymous feedback or unidentifiable responses (such as scores over comments). This raises the question though, whether this in fact, discourages connections between peers. More guidance on providing constructive feedback was welcomed by students.

5.3. Student Interaction with Content via Technologies

Students' perceptions of the technology used to interact or connect with knowledge and information varied widely according to the type of tools.

Videos are increasingly being used to deliver content. One of the benefits to large cohorts we envisaged in our designs was to use video to connect students to industry and the community through a range of expert voices and professions. Students reported checking the number and length of the videos each week and making a decision to only watch those up to 10 minutes long. They wanted more agency over their learning (Fung, 2017) for example to control the speed (faster not slower) and requested subtitles be made

available. Students also wanted to know the key points or takeaway messages (for revision) and preferred their lecture content 'chunked' to retain their attention. There was a variance here however with some students still wanting the entire lecture as one video which indicates that not all students are ready for 21st century learning as Tapscott and Williams (2010) predicted.

Many of our videos embed reflective prompts and students reported writing in the initial weeks but then in later weeks, just writing *anything* to keep the video going. However, they did agree that they continue to engage with the reflective questions even if simply as a prompt to think and reflect internally. This prompts us, as designers, to consider the value of video resources and reflection, and not to overuse them. In large cohorts, tutors need to be connecting back to students through these reflections so that students understand the value of such activities and feel heard (McEwen, 2021). It can also offer tutors insight into areas or topics that may need reviewing in class.

In regard to readings, students reported being less likely to engage with them if there was no exam and beyond this, engagement was interest driven (Ito et al., 2013). Students also wanted to better understand the purpose of the reading and explained the importance of retaining quality of the document when scanned. Again, if the tutors reiterate the value and purpose of the specific readings and call on students to recount or use the knowledge from the readings in class, this can assist students in making those connections with discipline knowledge.

6. Conclusion

Our findings are nascent and we still have some way to go to solve the many complex issues involved in teaching and learning at scale. However, we are beginning to see increased trends in satisfaction scores and we are working through opportunities to disseminate our findings in contextually sensitive ways. Development is underway to translate our findings into a series of reusable Design Patterns that highlight the *problem–solution–implementation* phases of our CLaS project complete with examples of the pattern in use (Wilson et al., 2021). Some of our patterns to date include 'live Q&A', 'student-generated data', 'micro-deadlines' and 'object-based learning at scale'.

It is through these many different ways of connecting to discipline knowledge, to peers and to the wider society that deep learning is happening and that students are creating lasting and meaningful experiences throughout their time at university.

Acknowledgements

We would like to thank our students for their contributions to our surveys and focus groups and our academic teaching teams for their valuable expertise during the co-design process. We would especially like to thank the Business Co-Design team for their collegiality and creativity and particularly the educational developers for their insightful comments on these analyses.

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Most effective tools and strategies for large class engagement: first year students experiences and their recommendations

Kenneth McDonagh, Jelena Radaković

School of Law and Government, Dublin City University, Ireland

Abstract

In September 2020, Dublin City University (DCU) Faculty of Humanities and Social Sciences (FHSS) and the DCU Business School (BS) launched a project “Promoting Student Engagement in Large Class Environments”, examining relevant tools and strategies used to engage students in large classroom settings. The findings reported in this paper are drawn from focus groups and an online survey designed to elicit student perceptions, experiences and engagement of large class teaching and learning and are predominantly by first year students who participated in this phase of the research. Those first year students represented 76% of all focus group respondents and 72% of those who participated in the online survey and thus represent an important perspective to be considered in our teaching and learning approaches.

Keywords: *Student engagement; large classes; first years; module organization; module support; active learning*

1. Introduction

In September 2020, Dublin City University (DCU) Faculty of Humanities and Social Sciences (FHSS) and the DCU Business School (BS) launched a project “Promoting Student Engagement in Large Class Environments”, funded by the National Forum for the Enhancement of Teaching and Learning in Higher Education, examining tools and strategies used to engage students in large classroom settings. The results of the study were predominantly reflected through the perception, experiences and engagement of first year students, either through focus group exercises, where they represented 76% of all respondents or through the online survey, where 72% of participating students were in their first year. Due to the global Covid-19 pandemic, DCU, like most other educational institutions, shifted its teaching and learning from face-to face (F2F) to almost entirely online delivery of its programmes. The limitations of online teaching which those students participating in the project experienced also had their benefits as it showcased the most effective tools used and communities created under the difficult circumstances, providing examples of some of the best practices which could be transferred and implemented in F2F environments. Furthermore, given the nature and scale of the challenge to first year students (Ginty and Boland, 2016), the project’s inadvertent focus on first years provided important considerations for large class environments and the approaches that could be further considered by higher education institutions. The recommendations of the overall project are grouped under Overarching Module Organisation/Co-Ordination, Within-Lecture Engagement and Post-Lecture Support headings, with this paper focusing on specific active learning tools.

2. Description of the Teaching/Learning Context

The project's results are based on the 2020/2021 academic year and cover six modules from DCU FHSS and eight modules from the DCU BS. The number of students per module ranged from 100 students to 600 students (see Tables 1 and 2).

Table 1. Focus group modules, semester I, 2020/2021

<i>Module code/name</i>	<i>Year</i>	<i>Cohort size</i>
Introducing Law (LG142)	1	320
Constitutional Law (LG1180)	1	325
Historical Geography of Ireland (GY309)	3	120
Critical Thinking for Business (SB102)	1	600
The Financial Markets (EF307)	2	290
Practical Market Research (MG338)	3	260

Table 2. Focus group modules, semester II, 2020/2021

<i>Module code/name</i>	<i>Year</i>	<i>Cohort size</i>
Introduction to European Integration (LG104)	1	200
Constitutional Law (LG1180)	1	325
Advanced Torts (LG225)	1	225
Advanced Contract Law (LG230)	1	100
Industrial Economics (EF301)	3	350
Introduction to Human Geography (GY109)	1	120
Media, Psychology and Creativity (CM152)	1	125
Critical Thinking for Business (SB102)	1	600

Based on the relevant literature, three core research questions were proposed (Table 3).

Table 3. Project research questions

<i>Research Question 1</i>	<i>Research Question 2</i>	<i>Research Question 3</i>
What practices are currently used to engage large classes?	How can student engagement be achieved and/or improved in large classrooms?	What sort of engagement different teaching approaches might bring about and what type of community might evolve?

In order to address these questions, and in discussion with module coordinators, the relevant literature on student engagement in large classrooms (Kuh 2009, Trowler 2010) was re-assessed, coupled with comparative review of the modules' syllabi and their virtual learning environment platforms ('Loop'). Based on these parameters, a selection of questions was prepared for both the focus groups and the online survey.

The focus group design and questions were formulated in a manner which allowed to firstly engage with more general questions (What do you like/dislike about this module) before moving onto specific questions related to the teaching techniques of specific modules. The open-ended question format for some of the

questions then led into more specific inquiries regarding the modules in question. The online survey questions focused on different engagement aspects of the subject matter (attendance, asking questions, class preparation), motivation (attendance, interaction, F2F versus online), institutional interaction and the role of peer engagement, before noting open-ended questions worth exploring (Table 4).

Table 4. Open-ended questions, online survey/focus groups

1. What are the most effective aspects of the large class delivery, and why?
2. What are the least effective aspects?
3. What do your module coordinators do best to engage students in learning?
4. What could your module coordinators do to improve students' engagement in learning?

Both the focus groups and the student survey reflected students' opinions on the course and syllabus set-up, the presentation of the relevant material, engagement by a module coordinator, relationship with their peers and finally how engaged students themselves were within the module (their invested time, effort, motivation).

3. Literature Review

3.1. Student Engagement

The term 'student engagement' is in itself wide-ranging and complex. Most prominently however, and used within the context of, and the application by, the Irish Higher Education Authority (HEA) is George Kuh's (2009) contribution to the scholarship about student engagement. Kuh's methodology encompasses a holistic approach to student engagement noting it is 'the time and effort that students devote to activities that are empirically linked to desired outcomes and what institutions do to induce students to participate in these activities' (Kuh, 2009, p. 683). Reporting in 2016, the Working Group on Student Engagement in Irish Higher Education, established in 2014 to assist Irish higher level institutions to enhance student engagement, has identified seven levels which can encourage student engagement. They range from the student level to the module, department, faculty/college/school, institution, national and international levels. Each level has its role and can affect student engagement, both formally and informally.

The opportunities each level can provide range broadly but the orientation of engagement can be noted across specific dimensions: behavioural (effective teaching practice combined with student behaviour); emotional (interest, enjoyment); cognitive (invested in learning); psychological (internal individual process); socio-cultural; and, holistic (Bowden, Tickle and Naumann 2021; Kahu 2013; Trowler 2010; Fredricks, Blumenfeld and Paris 2004). Taking a holistic approach to student engagement, Trowler (2010, p. 3) associates engagement with additional considerations such as 'student feedback, student representation, student approaches to learning, institutional organisation, learning spaces, architectural design, and learning development'. Furthermore, she notes Coates' understanding of student engagement as 'a broad construct intended to encompass salient academic as well as certain non-academic aspects of the student experience' which includes 'active and collaborative learning; participation in challenging academic activities; formative communication with academic staff; involvement in enriching educational

experiences; and feeling legitimated and supported by university learning communities' (Coates, 2007, p. 122, quoted in Trowler, 2010, p.7).

3.2. Challenges for First-Year Student Engagement in Large Classrooms

Several scholars observe that, amongst other challenges, transition from secondary to third level education is the most notable problem for student engagement, in particular in their first year (Ginty and Boland 2016; Pike and Kuh 2005; Cook and Leckey 1999; Tinto 1998). The experience of first year undergraduate students is certainly different than that of the second years, or some older students (Braun and Sellers, 2012). Apart from financial pressures, considerations of a suitable programme, new social interactions and missing of the old ones, the most important factor affecting first years' adjustment to university life is 'the lack of preparation for and an understanding of the type of learning that is required at third level' (Ginty and Boland, 2016, p. 7).

Therefore, particular considerations have to be made for first years compared to other years when reviewing the difficulties students encounter and how these challenges can be addressed by useful techniques for improved and meaningful student engagement in large classrooms. Within our project, it is notable that first year students were those who were more actively involved, by either participating in different focus groups (76% of all participants) or by taking the time to provide their feedback through the student survey conducted in May (72% of all participants).

In order to tackle the issue of engagement, Ginty and Boland propose strengthening several complementary elements, namely assessing and implementing 'a careful review of course design, developing engaging content, active learning teaching techniques, and an assessment strategy. The key is that the student is involved and engaged throughout the process, from design input, knowledge transfer, assessment feedback and course evaluation' (Ginty and Boland 2016, p.10).

By taking first years' views and experiences and accumulating best practices for increased module understanding and engagement highlighted by the students, particularly under the circumstances of Covid-19 restrictions and entirely online interaction, specific considerations based on active learning approach for both face-to-face and hybrid engagement are put forward.

4. Empirical Methodology/Data

4.1. Focus Groups

Two focus groups were conducted in December 2020, covering six modules, with 10 students participating (7 first year and 3 second/third year students), while an additional two focus groups, covering eight modules, were run in March and May 2021, where 7 students took part (6 first year and 1 third year student). Low participation rate at the December focus groups' exercise was noted and attempts were made to increase student participation for March/May exercise.

4.2. Student Survey

In total, 182 students provided their responses to 24 closed and four open-ended questions, with 72% of the student body representing first year students (n = 131), 16% second year (n = 29) and 12% third and fourth year (n = 22). The survey was sent to students from the above-noted modules. As with the focus groups, the results of the survey reflected a great deal more views and experiences of first year students.

This variable should certainly be considered when analysing the data collected. First years' experience can only be reflected through the online teaching practices, which were oftentimes only implemented for the first time during the semesters observed. Moreover, the general Covid-19 related limitations such as solely studying from home, poor internet connection, no social interaction within university's academic or non-academic activities, decreased social and physical interaction overall, etc. directly affected student engagement within the scope of large class environments. Therefore, many opinions were based not only on the purely online experience, but an online experience coupled with the overall engagement limitations.

Within the survey, several positive aspects were noted as those contributing to higher engagement. 37% responded as Extremely or Very motivated, with 38% Moderately motivated to attend large classes, showcasing how important good institutional methods of engagement are for added motivation. A hybrid style of teaching using both online and face-to-face tools was very welcome, where lectures are viewed at home and subsequently discussed in real time (online) with the lecturer. Finally, the survey results showed that 55% of students considered tutorials as either much more or somewhat more important than lectures.

On the other hand, both within the focus group and in the online survey, the most notable issues raised by the students in relation to their engagement, and based on the open-ended question 'What are the least effective aspects of the large class delivery, and why?' were:

- Range of engagement opportunities with lectures conducted F2F compared to Online
- Lack of interaction vis-à-vis pre-recorded lectures
- Inefficient use of lecture hour
- Lack of Q&A opportunities
- Poorly organized tutorials or online 'breakout' rooms without clearly defined tasks
- Lack of group work supervision
- Lack of coherence between assignment and module structure

Some of the more specific comments drawn from the online survey from first year students are presented in Table 5.

Table 5. Specific comments from first year students, online survey results

'Long lectures with no pauses for interaction or opportunity to ask questions.' (Student #32)
'When the lecturer just talks for the whole lecture.' (Student #50)
'Put less of an emphasis on reading out PowerPoints. It is very disengaging and students can read the PowerPoints themselves, its more about the discussion of the content present on the PowerPoint that is important.'
(Student #132)

5. Large Class Teaching Methods: Suggested Recommendations

Linking these observations to the holistic approach to student engagement, several conclusions are put forward for consideration. If the initial motivation to learn and engage is generally present, as the project's results had demonstrated, then the most difficult part of engaging a student is resolved. Subsequently, we need to focus our efforts on other aspects which can be influenced. Furthermore, as not all modules are run with the help of tutorial sessions, the focus must be to increase levels of interaction and involvement within the large class environment itself. The improvement in these areas could be achieved by acknowledging the need to revise our own teaching tools, including new tools tested during the online phase of teaching, engaging the students themselves more in these new approaches and consulting some of the recommended tools below.

The project's final report included three levels of recommendation, overarching module organisation/co-ordination, within-lecture engagement and post-lecture support. The recommendations presented below (Active learning tools for increased student understanding and engagement) are drawn from specific practices used during Covid-19/online teaching and learning which first year students found useful and effective as tools increasing their own understanding and engagement with the course, their peers and the institution and which could be considered to F2F/hybrid teaching of all teaching cohorts.

Table 6. Active learning tools for increased student understanding and engagement

Content presentation
<ul style="list-style-type: none"> ■ Provide a short re-cap of the previous lecture, noting questions students have raised via email/forum posts/ Zoom function ■ Planned and timed lectures leaving sufficient amount of time for questions and interaction ■ Ask questions about the material covered, to ensure students are following ■ Keep text on power points to a minimum, focus on discussion of content of slides ■ Recognise common questions/issues that could arise from the material covered and provide resources to address those concerns ■ Frequently update platform for ongoing Q&A or a FAQ document with all students' questions/answers available online ■ Provide a short (anonymous) feedback survey asking students for their views and suggestions (during/mid and end of module)
Use of interactive tools
<ul style="list-style-type: none"> ■ When teaching online, use interactive chat function where students can ask and answer questions anonymously ■ Use voting/poll/survey tool to ensure continuous interaction ■ Provide short, unmarked quizzes to gauge levels of knowledge ■ Set a Yes/No poll to gauge understanding of an issue
Engaging with the 'real world'
<ul style="list-style-type: none"> ■ Post complementary short weekly tasks to read/watch along with academic reading material (video/blog/vlog/newspaper/magazine/podcast material relevant to the lecture) ■ Emails/notices about events taking place relevant to the module ■ Show passion for the module, using humour, telling a personal story on occasion ■ Link module material to 'real life', practical and applicable situations

When it came to teaching practices, the move to online teaching inspired lecturers to bring about new and innovative methods which were broadly welcomed by the students. The recommendations this project cites offer a number of useful practices which undoubtedly can be used both face-to-face and online. Not all recommendations can or should be considered for every module, as each module has its own content and administrative specificities. We should however acknowledge that we can learn from our students and other colleagues and that student engagement can always be improved by improving our own engagement.

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The benefits of team-based learning and business simulations to re-engage student learning in a large group setting

Alison Bailey

Management Department, University of Sussex Business School, United Kingdom

Abstract

This paper considers the role team-based learning (TBL) and business simulations play in engaging learners in online and face-to-face settings on a large Year 1 UG first term core Business module. In 2020/2021, 729 students were enrolled online, increasing to 759 face-to-face in 2021/2022. Research undertaken during lockdown and on return to face-to-face provision confirms that when TBL is coupled with a business simulation, it proves to be an effective pedagogy supporting diversity, engaging learners, developing employability skills, and increasing student networking in ways alternative pedagogies could not achieve.

Keywords: *Team-based learning; business simulations; inclusivity; diversity; employability skills.*

1. Introduction

Increasing module numbers from 488 in 2017 to 729 in 2020 and 759 in 2021 have caused a dilemma around engagement, inclusivity, feedback, and a good student experience. There is a real risk students can participate in little or no activity, let alone engage in critical thinking. Covid-19 has compounded the problem further. Online provision has varied depending upon the school or college attended, resulting in a negative impact on learners' education and general well-being (Stringer & Keys, 2021). These points have been at the forefront of my mind in deciding how to engage learners and have led to the module being re-designed using constructivist pedagogy - Team Based Learning (TBL) followed by a business simulation. The following reflects the success of this approach.

2. Description of the Teaching/Learning Context

N1065 Introduction to Business & Management is a first year, semester one core module. In September 2020, 729 students were enrolled in 13 workshops, each with approximately 55 students who were taught by six lecturers – five taught previously on N1065, one was new to the University. In 2021/22, 759 students were enrolled in 15 workshops, each with approximately 55 students and seven lecturers - five taught previously on N1065; two had not. Two thirds of the cohort were home students - the remaining third, international/EU. Module structure comprised a one-hour asynchronous prerecorded weekly lecture and a synchronous two-hour workshop. The lecture introduced concepts, gave instructions, and included guest speakers. Workshops in weeks 1-6 used TBL; followed by the online business simulation in Weeks 7-11.

3. Literature Review

Internationalisation of HE has generated significant challenges e.g. large classes experienced by first year undergraduates and an increasingly diverse student body. These issues alone create complications in designing modules to encourage participation, engagement, and promote a good learning experience. Add a pandemic into the mix, and a whole new level of complexity emerges for module convenors.

Historically first year undergraduates struggle with the 'impersonal nature' and 'culture of anonymity' of large classes resulting in 'low engagement' and 'high absenteeism', (Mulryan-Kyne, 2010; De Matos-Ala & Hornsby, 2013, p.81). Questions circulated around how to develop modules that engage students and achieve deep level learning, whilst minimising anonymity and addressing the high levels of isolation and loneliness being reported (Office for National Statistics, 2021). Concerns regarding available resources for both students and staff, time zone differences, and worries about the increasing staff workload were never far away.

Large classes are ideal to try innovative constructivist strategies. Constructivist pedagogy proposes that 'knowledge is generated by a complex interaction between the learner and the environment' where they learn through experience, adding new knowledge to existing knowledge to form new or better understandings (Brenner, 2013, p.64). Vygotsky extends the concept further to discuss social constructivist pedagogy in that 'learning occurs when students solve problems beyond their current developmental level with the support of their teachers or peers' (Brenner, 2013, p.64), highlighting the 'relationship between cognitive processes and social interaction' (Brame, 2016 p.2). Enter TBL and the business simulation.

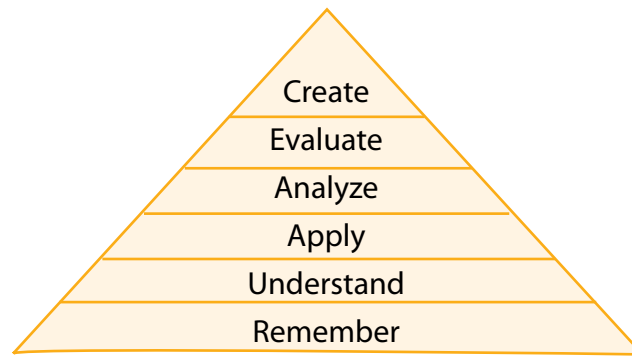
TBL is a 'practical and effective' way to meet the challenges highlighted above whilst improving team and individual performance/outcomes (Michaelsen, et al., 2014, p.58; Ficapal-Cusia & Boada-Graub, 2015). TBL was developed by Larry Michaelsen in 1979 to increase engagement in large management classes. TBL 'is a flipped classroom teaching and learning method, using carefully constructed materials and facilitation strategies to foster knowledge acquisition, competency in applying that knowledge, critical thinking, and team building' (Winter, 2020, p1). It is an iterative learning process based on Piaget, Kolb and Dewey's experiential learning models using active learning processes (Miettinen, 2010; Brame, 2019).

TBL fits within the social constructivist practitioner's toolbox as it has two main attributes. 1. Lecturer's role shifts from information giver to facilitator, placing the onus on students to 'actively engage' in problem solving activities; 2. TBL develops 'small self-managing learning teams', regardless of the overall class size, leading to engaged and motivated learners, capable of solving complex problems and achieving deep learning (Michaelsen, et al, 2014, p 58). TBL can 'provide greater equity ... promote inclusivity and provide structured opportunities to build intercultural communication and dialogue' essential for international students at any time, never more so in lockdown (Hussain, 2021, p.76).

With the online business simulation, pedagogy shifts to problem-based learning. Comparable to TBL, but with one subtle difference: whilst both are facilitation roles, under PBL the lecturer is 'actively involved' and will step in to support teams to complete the simulation (Michaelsen, et al, 2014 p70). The lecturer's role shifts from teacher/facilitator to Business Coach, reversing class hierarchy. Business simulations fit within

constructivist pedagogy; they are an experiential learning pedagogy giving students a ‘transformational real world’ learning experience (Cadotte, 2016, p.119). This paper refers to an enterprise simulation where teams of students start and run a business playing against the computer (Anderson & Lawton, 2009, p.194). Business simulations have historically been criticised for not enabling students to develop Bloom’s higher order skills, achieving only lower order learning (Anderson & Lawton, 2009). Conversely, recent research suggests the opposite is in fact true. Using Anderson and Krathwohl’s revised version of Bloom’s Taxonomy, teams clearly reach ‘evaluate’ – a higher order skill within Bloom’s Taxonomy (Wilson, 2016), as highlighted by Cadotte & MacGuire (2013, p38)

simulations provide students with opportunities to manage a complex organisation over an extended period of time in the face of great uncertainty students apply their knowledge by thinking and acting in an integrative manner as they adapt to changing business conditions,’ to this end, students ‘construct their own understanding, raise questions, generate, and explore their own modules and build representations that organise their experiences.



Anderson, L.W., & Krathwohl (Eds.) (2001)

Figure 1: Anderson & Krathwohl's Revised Taxonomy

TBL is a useful tool to run before business simulations as permanent teams need time to develop into high performing teams, as highlighted by Tuckman, prior to completing the business simulation (Taylor, 2017).

4. Empirical Methodology/Data

Quantitative methods were used to collect data via end of module surveys circulated to 2020/21 and 2021/22 cohorts. In 2020/21, 188 students responded, 180 in 2021/22. Surveys were anonymous.

The 2020/2021 survey revealed that while 61% of students were anxious about joining University of Sussex Business School in lockdown, 61% of students were anxious they had lost educational skills, in fact 88% of students reported TBL developed deep learning quickly, 73% developed effective networks and friends, 73% reported TBL developed trust amongst team members and 81% revealed TBL was beneficial in forming cohesive teams for the business simulation. 85% of students reported they would like to see TBL used in other modules and 89% stated they would recommend TBL to other students.

The 2021/2022 survey revealed a similar picture in that 98% students found TBL was a very effective way of learning and engaging with the module whilst 76% students stated TBL improved their time management

skills. Interestingly 88% stated TBL was very effective in developing the group with 86% stated TBL was effective in developing friends and networking and 93% stated TBL developed trust with team members; 87% of students would recommend TBL to others.

5. Analysis of/Reflection on/Implications for Practice

TBL and the business simulation have led to good results, feedback, and learner progression. Engagement and participation, clearly observable both online and face-to-face, increased. Marks held steady - the overall module mean in 2020/2021 was 63.57 compared to 2021/2022 at 63.62, despite concerns regarding achievement in an online setting at the start of September 2020. Assessments were moderated by a second Business Coach to ensure consistency and a sample double marked by USBS's External Examiner.

Module feedback was consistent across workshops justifying TBL and the business simulation. Student comments include the pedagogy '*reduced isolation and anxiety*', '*fostered learning*', '*developed soft skills*', encouraged home and international students to '*collaborate*' and even '*have fun*'. Staff workload was considered manageable with staff preferring the end of module team presentations to individual exams. The mid-term MCQ taken in Week 6 was marked automatically by the VLE, requiring no additional workload hours. As module convenor, my workload was intense, having to field daily questions from students, staff, administrative queries and organising guest speakers.

During 2020/2021, attendance was excellent with near full attendance in all online workshops; in 2021/2022 attendance was good but not quite as good the previous year.

TBL works well online and face-to-face in large group settings. It is effective in engaging students and developing valuable employment skills. Combined with the business simulation it is a powerful pedagogy

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Keynote Address: Including learner diversity in large class teaching - Using Universal Design for Learning to sustain a systematic proactive reflection on social justice and accessibility

Frederic Fovet

Thompson Rivers University, Canada

Abstract

Large class teaching is seen by many practitioners and scholars as a context increasingly privileged by the neoliberal academy for revenue reasons. It is, however, a landscape often also seen as challenging in matters of inclusion and accessibility because the sheer size of the class hinders many inclusive strategies. The session will debunk two specific myths perpetuated within this landscape and explore the pertinence of UDL in sustaining a systematic, proactive and design focused approach to social justice in large class teaching. The paper first argues that Equity, Diversity and Inclusion (EDI), as an objective within higher education, is achieved through inclusive pedagogical design in the large classroom, more effectively than through mere policy. Second, the article suggests that UDL is in fact more urgently required in the large classroom than in other teaching spaces. The paper uses auto-ethnography as a method to explore the author's experiences, as a manager in disability service provision, supporting and advising instructors exploring UDL implementation in large classes.

Keywords: EDI; UDL; teaching and learning; large classes; neo-liberal landscape; higher education

1. Context

Large classes are increasingly appealing in higher education (HE) in a business model that now systematically uses neoliberal criteria of optimal revenue, profitability and financial sustainability as prime objectives for quality assurance and strategic development (Minz, 2021). These large classes, however, also give rise to specific pedagogical challenges, particularly in relation to inclusion and accessibility (Sanger, 2020). As a result, although equity, diversity and inclusion are becoming central concerns for post-secondary campuses, these priorities can appear difficult to address and achieve in classes where the large student intake is the primary focus (Fortes & Tchantchane, 2010). This has meant that, while a considerable body of literature now exists around inclusive design in teaching and learning and more specifically around universal design for learning (UDL) (Burgstahler, 2015; Dalton et al., 2019), much of it tends to be dismissed by large classroom practitioners as impracticable or unrealistic (Kennette & Wilson, 2019; Novak & Bracken, 2019). Instead, EDI becomes, in these spaces, a matter of policy only – a conceptual concern with very little tangible implications in terms of pedagogy.

The article uses auto-ethnography (Pithouse-Morgan & Naicker, 2021) to document and analyze the author's experiences supporting and advising instructors teaching in large classes, while he was employed – for a

period of four years from 2011 to 2015, as manager of an accessibility services unit on a large Canadian campus. He complements these observations with further opportunities he had to support instructors as a program head and faculty mentor, at later stages of his career. The paper debunks two common myths perpetuated in HE and suggests that, despite appearances, (i) EDI in large classrooms is best achieved through inclusive pedagogical design, and (ii) UDL is highly pertinent, pressingly needed, and perfectly achievable in large classroom settings.

2. Literature Synopsis

2.1. Social Justice in a Neoliberal Landscape

While EDI concerns are currently at the forefront of post-secondary institutions' concerns as a result of powerful wider societal movement such as the #MeToo movement, Black Lives Matters, and Truth and Reconciliation (Wolbring & Lillywhite, 2021), the discourse on social justice is often put into parenthesis when revenue, financial sustainability and growth in admissions are seen as priority (al Shaibah, 2014). The COVID crisis has threatened further the financial stability of many HE institutions – particularly as a result of low international admissions over this period - and made these priorities felt even more harshly (Purcell & Lumbreras, 2021). EDI within large classroom settings is seen as challenging as it is presumed the inclusion of diverse learners requires individual attention and personalized assistance from instructors, something which large classroom lecturers are often not in a position to offer (González-Castellano et al., 2021).

2.2. EDI in Large Classrooms

EDI take prominence in the branding discourse of post-secondary institutions at present, but priority is also given to large class teaching as a mode of growing revenue and achieving financial sustainability (Hutt et al., 2010). It is in this context frequently assumed that EDI strategies are impossible to translate into classroom practices, and that teaching and learning should focus instead on the effective management of large student intake (Maringe & Sing, 2014). EDI is relinquished, in such a landscape, to efforts around policy and administrative mindset. As a result, instructors often feel that EDI is a matter for student services and student affairs personnel and that it has more to do with campus culture than with pedagogy (Tamik & Guenter, 2019). There is little scholarship around EDI embedded pedagogy. Assessment in large classrooms seems particularly challenging in this respect. While there is an understanding that traditional summative assessment usually encountered in the large classroom is unsuitable to address learner diversity, few alternatives are envisaged within the time and resource constraints that exist in such contexts (Glazer, 2014).

2.3 UDL in Large Class Contexts

There has been considerable growth in the momentum for UDL implementation in HE, over the last decade, both in North America and Europe (Black et al., 2015; Fovet, 2021). Exploration of UDL has spread beyond the Humanities faculties – the original disciplines within which most early adoption was witnessed - and UDL is now actively implemented through the full spectrum of subject areas (Nieminen & Pesonen, 2020; Fovet, 2021b). It is also explored both in undergraduate and graduate education settings (Fovet, 2020),

and is increasingly popular in the college landscape (Boothe, et al., 2018). There is still currently, however, resistance when it comes to discussing UDL implementation in large classroom contexts in HE, even among the most eloquent of UDL advocates. Specific scholars have tackled this topic and demonstrated that the UDL model is just as pertinent to the large classroom format (Faculty Center for Teaching and e-Learning, 2012; Dean, Lee- Post & Hapke, 2017), but these practitioners and researchers are few and far between. There is currently a need to debunk some of the fears, misunderstandings, and myths being perpetuated (Farrell, 2021; Fovet, in print), as they are currently dissuading instructors from considering UDL when they teach in large class contexts.

3. Assertions

This short paper makes use of auto-ethnography to examine the myths which are often perpetuated in HE in relation to EDI, large classes and UDL adoption. The author analyzes the support work and advice he was regularly asked to provide to instructors teaching large classes.

3.1. First Myth: EDI is Best Addressed in Large Classrooms through Policy

There is considerable momentum currently in HE in relation to EDI (Dewidar et al, 2022). This very ediatized focus is the result of recent powerful societal trends that have brought to the forefront issues of social justice: Black Lives Matter, the #MeToo movement, Truth and Reconciliation/ Indigenization, Decolonizing the Curriculum, as well as the claims and protests of the Trans community and sexual minorities, have all dynamized the EDI discourse and demonstrated the urgency for change in HE. While this pressure is authentic and heartfelt, in the post-secondary sector this discourse focuses mostly on campus climate, policy, and services. EDI efforts on HE campuses ironically, as a result, avoid actually discussing pedagogy or diversity in teaching. EDI policies offer instructors very little tangible and immediately pertinent advice and support on how to diversify their pedagogy to address the full spectrum of learner diversity. This is frustrating for faculty who feel the pressure for change but remain unsupported in this process. It is also irritating for diverse students who see diversity increasingly used as a marketing feature but observe few efforts occurring on campuses to transform and update pedagogy view a view to fully addressing learner diversity. All stakeholders are increasingly seeking a model or a framework that might support this process of pedagogical change and UDL will fill this gap and serve this purpose, regardless of class size.

3.2. Second Myth: UDL is Challenging to Implement in Large Classes

Even among UDL advocates and implementers in HE, there has been some hesitation when it comes to implementing and using UDL in large class contexts. As has become apparent in the literature review, the logic of the inclusive design process is often put on hold by instructors who feel that large classes present exceptional characteristics that prevent the genuine implementation of the UDL principles. It is often assumed that the work around inclusive design does not lend itself well to a reflection on practice, when the rhythm is fast and the demands on the instructor are vast, due to large class size.

My own experiences supporting instructors, both as an accessibility specialist and as a faculty mentor, lead me to believe that the use of UDL is actually even more pressing, pertinent, and effective in large classes. I

have at times witnessed first year undergraduate courses being run with 1,200 participants. At this stage, there is in fact no longer even a pretence that the traditional lecture format is anything else than a fiction. There are often not even enough seats available for students, many have little choice but to watch the class from large screens outside the auditorium, or online from home.

This is a scenario where simple UDL design tips seeking to offer multiple means of representation become essential tools: securing systematic microphone use, having the lecturer available onscreen to improve visual accessibility, recording classes and making them available online, providing the lecture material ahead of the class, etc. A similar reflection is required in relation to offering multiple means of action and expression, when the class size becomes significant: if the lecturer no longer has the opportunity to entertain a personalized connection with the learner, traditional exam and summative assessment tools used on a large scale, for example, become meaningless. Using UDL to create more meaningful ways for students to demonstrate skills and competencies becomes necessary and even urgent. UDL will also be useful for instructors realizing the limitations of their traditional assumptions around learner engagement; the UDL principles will support them as they design more flexible methods for learner engagement to be authentically demonstrated despite – or perhaps simply because of - large class sizes.

4. And Then Came COVID

The COVID pandemic has had an impact on teaching and learning practices within HE that is still difficult to gauge with precision. It is clear, however, that it has vastly accelerated the growth of UDL and inclusive design with the post-secondary sector. First, the majority of faculty have now acknowledged and embraced their role as designers of the learning experience. It has been impossible for instructors to shy away from this realization during the pandemic simply because each of their instructional choices, during the online pivot, has demonstrated the immediate negative impact of bad design on the learner experience. In this sense, HE instructors have never been as receptive to UDL as they are now.

The second exceptional occurrence which took place during the COVID crisis is that most courses temporarily took on the characteristics of the 'large class' during the online pivot: most instructors had to negotiate with lack of personal contact with learners, overwhelming online correspondence, a very fast pace, and a lack of support from campus services. To some extent all classes became 'large classes' in the lived experiences of strained and overwhelmed instructors shifting to online instructions. Navigating the idiosyncrasies of challenging large class formats became the reality of most faculty. This has created an opportunity to advocate for UDL within these challenging experiences.

5. Outcomes

The impact of this reflection is considerable as many campuses have so far adopted an approach which leads them to focus UDL experimentation on small classes and pilot projects of limited scale. This analysis suggests that the strategy is counter-productive when, in fact, the most significant impact of UDL may be immediately noticeable in large class contexts.

5.1. Reformatting the UDL Discourse and Existing UDL Professional Development

Very few resources on UDL are available to instructors teaching large classes. Professional development (PD) is currently also lacking and there is therefore very little modelling of best practices taking place or showcasing of successful initiatives. This paper is therefore a call for action to participants in this conference to develop PD opportunities for colleagues, within which they will grow momentum around UDL implementation in large classrooms.

5.2. Developing a UDL Scholarship that is Specifically about Large Classroom Implementation

As was stressed in the review of the literature, there is currently very little scholarship focused on this topic and this is extremely counter productive, as most HE instructors will require evidence and data before they experiment with a model of instruction. It is therefore urgent for UDL advocates and practitioners to not only ensure UDL is being used in large class contexts, but to also record their experiences and initiatives, and publish accounts of their efforts so that it may develop a relevant scholarship that will support others in embarking on this inclusive design reflection within the large lecture.

5.3. Considering the Large Class Impact of UDL Adoption in Relation to the Full Spectrum of Diverse Learners

It is important to stretch the UDL discourse and reflection beyond simply a concern related to access and disability. The spectrum of learner diversity is increasingly wide, and includes – beyond students with disabilities – first generation students, non-traditional students, lifelong learners, culturally diverse students, second language learners, sexual and gender minorities, Indigenous students, etc. The percentage of learners who experiences barriers in access to learning can often therefore exceed fifty per cent of the class, when all these categories of learners are considered together; in large class contexts, this represents vast amounts of learners. The inherent demographics of these large lectures mean that inclusion needs to be a priority; solutions must be systematic and effective. UDL serves as a reliable framework to support instructor reflection daily around diversity as a broad concept (Kennette & Wilson, 2019).

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Promoting active engagement with text-based resources in large first-year modules in History

Jon Chandler¹, Jamie Wood², Graham Barrett² Matt East³

¹University College London, UK ²University of Lincoln, UK, ³Talis Education

Abstract

In large courses it can be particularly challenging to engage students in active reading practices. The shift over the last decade to the use of digital sources and during the pandemic, the adoption of online teaching has further exacerbated the problem. In this paper, we discuss our strategies for engaging large classes (150-250 students) in active reading through use of Talis Elevate, a social annotation tool. We outline two case studies in which we used social annotation and observed a significant increase in student engagement. We propose a new concept, 'active online reading', which combines structured individual commenting tasks with responding to other students' annotations to enhance learning. This concept has relevance not only in our reading-rich discipline of History but also across higher education more generally.

Keywords: *Online reading; deep reading; active reading; pandemic pedagogy; large classes*

1. Introduction

Processing quantities of written material through close reading is an important disciplinary skill in History, as in many other subjects, but this can be particularly challenging to teach in large classes (Tinkle et al., 2013). Higher education teachers generally pay little attention to teaching students how to read thoughtfully, even though it has been recognised for some time that purposeful reading practices can enable students to engage in deeper learning than more surface approaches (Dubas & Toledo, 2015). The shift across the sector to the use of digital sources online has altered how we read (Cull, 2011) but only recently has sustained consideration been given to the need to develop pedagogies that enable our students to become active online readers (Cohn, 2021; Kalir et al., 2020; Merrydew, 2021). In this paper we discuss the strategies that have recently been developed for the purpose of engaging students in such active reading in large courses at the School of History and Heritage at the University of Lincoln and the Department of History at University College London (UCL).

2. Description of the Teaching/Learning Context

Like many universities, Lincoln and UCL employ large-group teaching on much of their core undergraduate curriculum in BA History and related programmes. These modules usually adopt a lecture-seminar format,

with assigned preparatory reading feeding into in-class discussions. Such large-sized classes often yield reduced levels of student engagement with learning; reduced frequency of lecturer feedback; and reduced development of students' active reading skills (Kerr, 2011). These residual issues were magnified by the pandemic, which necessitated remote learning for the 2020-21 academic year at minimum, further divorcing students from lecturers and seminar leaders. To address these challenges, the authors turned to Talis Elevate (talis.com/elevate), an online tool that facilitates the annotation of a range of media (e.g., text, images, audio, video) to support student engagement with digitised preparatory readings. Despite the challenges posed by the pandemic, at both Lincoln and UCL we noticed a significant increase in student engagement with reading following the adoption of this tool.

2.1. Case Study 1: The Medieval World at the University of Lincoln

The Medieval World is a core undergraduate module run over one semester at first-year level. The module offers an introduction to medieval history and is taught using a standard lecture-seminar format (two one-hour lectures and a one-hour seminar per week) over 12 weeks. In 2020-21, the module had 161 students. During the pandemic, lectures were delivered asynchronously online, while seminar groups were split in half into two subgroups. Each week in alternation, one subgroup met on campus for a socially distanced seminar, the other used Talis Elevate online. Students were provided with a weekly worksheet with guiding questions and extracts from primary sources. They were also invited to read at least one secondary source per week. The weekly worksheet was uploaded to Talis Elevate for each seminar group (roughly 20 students each), and students were asked to add answers to the guiding questions and to annotate specific parts of the primary sources.

Students were surveyed at the end of the course. Fifteen responses were received, or 8.7% of the cohort, which cannot be considered a representative response rate but is in line with the number of responses end-of-course surveys generally receive. Of these, 14 respondents said that annotation activities had helped their studies. When asked to elaborate, responses focused on analytical practice, collaboration and diversification of opinion on the subject matter due to the 'public' nature of discussion. Students particularly valued being able to see their peers' annotations on resources, emphasising that this provided them with confidence and reassurance. However, a small number of respondents expressed anxiety about the requirement to comment 'publicly', while nonetheless recognising the overall value of the exercise.

2.2. Case Study 2: Approaching History at UCL

Approaching History is a core first-year undergraduate module that is taught online over the whole academic year. The module offers an introduction to historical theory and method, and in 2020-21 had 241 students. Although traditionally delivered via a two-hour lecture, in 2020-21 the module was delivered as a one-hour asynchronous lecture and a one-hour live lecture per week. Students were expected to read at least two secondary sources each week and were provided with guiding questions. The live lectures focused on discussion of these questions as well as of example essay or exam scripts. The scripts were uploaded to Talis Elevate and students engaged in synchronous annotation of them during the live lecture.

Students were surveyed at the end of the course. Twenty responses were received, or 8.3% of the cohort,

which again cannot be considered representative but is in line with the norm. Of these, 17 respondents felt that the online annotation activities were beneficial. Respondents elaborated that social annotation was 'useful at gaining new skills for analysing academic papers' and appreciated the ability to 'bounce ideas off each other' virtually. Social annotation, therefore, helped engage students in the core disciplinary skills of 'deep reading' and critical analysis that are often challenging to manage in large classes.

3. Literature Review

Online reading (reading that takes place in an online space while the reader is connected to the internet) is now increasingly the norm for students. However, particularly within a large course, such reading is too often approached passively. Large courses in History are often described as 'surveys', which, as the term suggests, typically focus on providing comprehensive 'coverage' of the history of a region and/or period (Clarsen, 2009), with readings selected by specialists in the field to ensure that students are exposed to advanced knowledge of the content. A major weakness of this approach is that students are placed primarily as passive recipients of knowledge rather than active learners engaged in developing new ideas, explaining their understandings to each other, and applying their knowledge to different contexts. Research suggests that requiring students regularly to participate in close reading exercises and to reflect on their experiences encourages engagement (Tinkle et al., 2013).

Several recent studies have analysed pedagogical approaches to structuring student engagement in reading online (Cohn, 2021). Providing students with guided reading tasks gives them greater motivation to complete academic reading and a better understanding of its significance for their learning (Miller & Meridian, 2020). Research from Lei et al. (2010) shows that students who engage in regular reading generally do better in assessed tasks and are able to contribute more to discussion and collaboration, increasing their levels of knowledge. By building collaborative annotation activity into courses, as Kalir et al. (2020) outline, 'these practices can aid learners' curation of resources, information-seeking behaviours, and collective sense-making'. Further, Di Iorio and Rossi (2018) detail how this practice may enable learners to generate implicit knowledge from both documents and their interactions with others within a shared social resource. As has been observed of active reading and deep reading in general (Merrydew, 2021), such social annotation, a 'technology which allows students to process, discuss, and collaborate on information they have collected for their learning' (Chan & Pow, 2020), helps students work through material at their own pace and revisit content they do not understand (Dubas & Toledo 2015).

4. Analysis of/Reflection on/Implications for Practice

In both modules discussed in this paper, Talis Elevate was used to enable students to annotate texts collaboratively. While there was some initial apprehension, for the majority of our respondents the work was recognised as playing a positive role in their studies. Student feedback indicates that the collaborative annotation of texts had a positive impact on their independent learning, confidence, and critical faculties. Students also perceived that active online reading had deepened their learning. However, it should be

recognised that a minority of students reported feeling some anxiety about making responses visible to their peers. Care should thus be taken to set out clear expectations early in modules, stressing the value of this practice for critical thinking, deep reading, and collective knowledge creation. Further, it is important to ensure that activities are framed sensitively to ensure that annotation spaces are as inclusive as possible, enabling all students to express their voices.

The relatively small-scale activity of students adding comments to readings makes explicit many hidden aspects of their academic reading practices. Asking students to 'think of a question after you've done the reading' or 'annotate things you don't understand' may seem minor tasks, but they prove to help students engage with and therefore, understand the material. Social annotation had at least two positive benefits in our case studies. First, writing a short comment required reflection on reading, which students perceived as deepening their engagement with and understanding of the text. Second, the collaborative element of the process (i.e., the sharing and visibility of comments) was, in general, viewed positively by students, validating perspectives and opening up new interpretative possibilities.

What we describe as *active online reading* is a new and important pedagogical approach. Active online reading combines structured individual commenting tasks (on readings) with responding to other students' comments. In History, active online reading focuses on close analysis of primary sources and secondary literature, creating a collective space for students to share their observations about the texts, sometimes in response to guiding questions. The collectively annotated resource represents a bank of shared knowledge, and feedback demonstrates that students perceive value in observing the work and behaviours of their peers. Active online reading offers a framework to 'fill some of the gaps' lost due to the lack of physical collocation during the pandemic, and provides effective scaffolding for further activity (e.g., in face-to-face seminars or other online work). An inherent issue with large classes, made even more acute by the pandemic, is the limited time in which to create and foster personal interactions either among students themselves or between students and teachers. Active online reading creates time and space for student-student and teacher-student interactions in an online environment as well as in the post-pandemic classroom. We suggest that it has the potential to enhance learning not only in the reading-rich discipline of History, but also across higher education more generally, in large modules as much as in seminar-based courses.

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The role of technology in formative assessment with large classes

Monica Ward

School of Computing, Dublin City University, Ireland

Abstract

While the benefits and importance of formative assessment are well known, it can be challenging to incorporate formative assessment in large class teaching. This paper outlines how technology can be used to provide engaging, beneficial formative assessment for two cohorts of computer science students (n=138; 170). It provides an overview of the role of self-tests for students as an integral part of learning. They provide immediate feedback to students and also to the lecturer in what areas students need extra support. They are also a useful preparation tool for students in advance of assessment that contributes to their final mark. Student engagement with the self-tests is good, once they know they are available and there are no negative consequences for low scores. The upfront effort required to develop 100 and 150 words briefly specifying the focus and aims, the key findings and the implications or conclusions drawn.

Keywords: Educational Technology; large classes; student engagement; formative assessment; assessment; feedback

1. Introduction

Technology in education (or EdTech) has come to mean 'electronic technology', but technology has always been used in education - from the use of chalk, through to pencils and now to electronic devices. Often the focus of the use of technology in education (edtech) has been on teaching and learning, but in recent years, there has been a growing interest in the use of technology in assessment (Ward & Costello, 2016; Ward, 2021). This is a vast topic and ranges from the use of simple in-class quizzes to get a sense of students' understanding of a topic to sophisticated software and hardware for proctoring purposes. This paper explores how edtech can be used in engaging, beneficial formative assessment for students in a large class. It looks at the challenges around formative assessment including how to encourage students to actually participate when there are no marks associated with the assessment and how to provide timely feedback to students. It outlines an example of where self-tests (formative tests not carrying any marks) have worked well for both students and lecturers and provides some recommendations on adapting this approach

2. Description of the Teaching/Learning Context

The context in this paper relates to an introductory course on computer systems for beginner level first year computer science students. The class size ranges from 130-170 annually. The students have to learn specific

skills in the module including conversion between different number systems (binary, octal, hexadecimal, and decimal), Boolean logic and data representation. These skills are procedural and students should be able to master these skills and become comfortable with these elements of computer systems (Luxon-Reilly et al., 2018). The module is 100% continuous assessment and consists of student artifacts (four artifacts worth 55% in total) and three in-class assessments (one each for number systems, Boolean logic and data representation, worth 45%). The steps involved in these topics are explained in class and students work out examples in class also. They have access to self-tests on sub-topics (detailed components) of each of these topics. These self-tests are purely optional and there are no contributory marks associated with them. The self-tests allow students to check their understanding and mastery of the sub-topic. There is also a special self-test for each of the assessments, prep quiz, which mirrors the format and level of difficulty of the actual mark-bearing assessments (i.e. preparation quiz). Some of the questions are basic with right/wrong answers, but others, particularly the ones that mirror the mark-bearing assessments, are more granular in nature. Figure 1 shows an example of a self-test question. The boxes with the arrows on the right-hand side provide students with options for the question, while in the box, the students should provide the correct answer. A less granular question would simply ask for the final answer (i.e. what the hex number is in binary) without asking for values in each step of the conversion process.

These self-tests were developed over a number of years. There is an upfront cost in the development of the self-tests. Therefore, initially, there were only a few self-tests on selected topics, but students liked the self-tests and asked for more. The self-tests now cover all the quantitative aspects of the module.

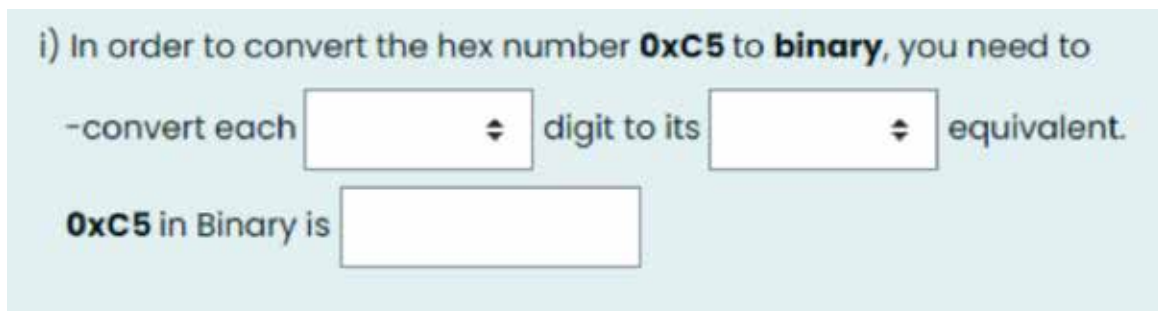


Figure 1. Screenshot of self-test question.

3. Literature Review

Assessment can make a positive contribution to student learning (Black & William 1998, 2006; Carless et al., 2006; Hattie & Timperley, 2007), although students may not often agree. If assessment is authentic, students can see a direct benefit from doing the assessment. However, this element of authenticity is sometimes lacking (Thompson et al., 2008). Sometimes the assessment and feedback is not clear, not perceived as relevant and may not be helpful for learning (Boud & Soler, 2016).

While an exact, agreed definition of formative assessment is hard to find, there are five key strategies pertaining to formative assessment (William & Thompson, 2008). These are Shared Learning Expectations,

Questioning, Feedback, Self-Assessment and Peer-Assessment. Not all elements will be in every element of formative assessment and these are general, domain-independent ones. What formative assessments actually look like will vary depending on the domain and the context. Some researchers highlight feedback as one important element of formative assessment (Sadler, 1989; Juwah et al., 2004) and note that feedback should be timely (Wiggins, 2012). However, this can be difficult to do with large classes - individual, timely feedback that is helpful for learners is not easy to provide.

Another issue is student engagement - often students will not participate in optional formative assessment activities if there are no grade-bearing elements associated with them (Hornsby, 2020). Why would they do something if they are not going to get any marks for the work? Student engagement can be behavioural (participation), social (appeal) or cognitive (investment) (Fredricks et al., 2004) and it is important to take all three components into account. Positive student engagement can be beneficial for learning and availing of formative assessment opportunities can facilitate learning (Chen et al., 2021). The question is - how can students be encouraged to engage in formative assessments with no marks and how can educators provide these types of assessment, without excessive workload burdens?

4. Empirical Methodology/Data

The use of the self-tests by students in this module varies by year. In some years, the uptake is good, while in other years less so. Some of this variability can be explained by student awareness of the self-tests and the frequency of reminders about them to students.. In previous years (pre 2020), when the module had a terminal exam, students would use the self-tests before the in-class assessments and as a revision tool before the terminal exam. Now that the module is 100% continuous assessment, students will generally only use the self-tests before and leading up to a marked assessment, and the self-tests are used around 50% less. Table 1 shows the average number of self-tests per topic and the student engagement with them for 2020 (n=138) and 2021 (n=170). A '-' indicates that there was no self-test on that topic in that year. Note that some students retake the self-test several times - around 20% of students took the tests twice and approximately 2-3% took them more than twice.

5. Analysis of/Reflection on/Implications for Practice

The students actively use the self-tests, even though there are no marks associated with them. As mentioned above, there is an upfront cost in terms of the design and development of the self-tests. This was particularly true in the case of the prep quizzes, which had to mirror the actual tests and also be at the same level of difficulty. The prep quizzes are far more granular than the general self-tests and this provides students with detailed feedback on their submissions. One major advantage of the self-test and prep quizzes is that once they are developed, they can be used every year with students. The topics and sub-topics do not change, but a new cohort of students have to study and master them each year. The students use the self-tests as they find them helpful and beneficial for their learning. They are relatively easy to complete and align what is being covered in the lectures. There are no penalties and students can take the

self-tests as often as they like. Some students retake the self-test several times until they get full marks. The students also get timely feedback despite being in a large class and this is obviously beneficial for them.

There are three main recommendations to make in relation to the use of self-tests as formative assessment with large classes. Firstly, design and develop the resources gradually. This will allow modifications based on what works for students and acknowledges that time is required for self-test development. It is hard to state exactly how long it takes for each self-test - initially, a self-test may take a few hours to develop but later quizzes can be developed quicker. It is important to have a range of questions in each self-test to cater for the differing abilities in large classes. Secondly, the lecturer should review self-test usage regularly to monitor student progress and also to check if students are actually availing of the resources. It can be helpful to go through some of the self-tests in class so that students know who to do them. Thirdly, make students aware of the existence of, and the benefits of doing, the self-tests. They are an effective tool for learning, self-assessment and getting feedback on their knowledge. Technology facilitates assessment at scale and the benefits of technology for formative assessment have been realised in this module over several years.

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Developing a sense of community in a large class context

Ann Marie Farrell

School of Inclusive and Special Education, Institute of Education, Dublin City University, Ireland

Abstract

Many aspects of teaching and learning of large classes in higher education are typically considered challenging particularly as regards the student experience and creating a sense of belonging to a class community. This paper represents an analysis of, and reflection on attempts to address these challenges by enhancing opportunities for engagement and creating a sense of community during face-to-face lectures with 440+ students on a teacher education programme.

Keywords: *large class; classroom community; engagement; student experience; relationships*

1. Introduction

Teaching and learning in a large class context in higher education is generally viewed as being quite challenging particularly in relation to the student experience and feeling part of a class community. This paper is a reflection on efforts to create a sense of belonging to a class community by enhancing opportunities for engagement during face-to-face lectures with large classes of 440+ students on a teacher education programme. First, the pedagogical context is outlined. Second, a short review of the literature provides a pedagogical context and rationale for the practice and finally, the practices utilised in-class to create a sense of community are outlined and reflected upon.

2. Description of the Teaching/Learning Context

This reflection on practice is based on teaching two large classes of 440+ students who are enrolled on modules which focus on special and inclusive education on a BEd primary teaching programme; one in first year and one in the fourth (final) year. The classroom is a large, modern, tiered room with rows of seats in three blocks with two sets of stairs between the blocks. I have taught large classes for approximately 20 years; I enjoy working with these groups and see the challenge of enhancing the learning experience for these large classes. Some of the practices outlined in this paper are utilised with both groups of students while others are used either in the first year module or in the final year module.

Many years ago, I stopped saying "I can't do that with a large class" in favour of "How can I do that with a large class?" That change in focus changed my thinking and, in turn, my practice. I considered each element of my pedagogy (curriculum, teaching, learning, assessment) in terms of the large cohort and made small, iterative changes over time. In relation to teaching, one aspect I really wanted to tackle was

the creation of a sense of community and comfort during the face-to-face sessions themselves with a view to enhancing the learning experience for my students and as it turned out, for myself also. Enabling the student voice, harnessing student expertise and providing opportunities for some fun became key aspects of each session wherever possible.

3. Literature Review

Large class cohorts create pedagogical challenges for both teachers and students, particularly in relation to building a sense of community as a class and in the classroom. Teachers may have difficulty forming relationships with students because of numbers (Auslander, 2000) and the physical distance between them and the student body (Cole & Kosci, 2010). In any pedagogical context, the relationship between student and teacher is important; arguably assuming even greater importance as the scale and complexity of the classroom context increases. Students who need and rely upon interactions with their teacher for motivation are disadvantaged by distance (Allais, 2014), both physical and psychological. The often impersonal nature of the large class setting disadvantages many (Hornsby & Osman, 2014). Students may feel marginalised because they are afraid or reluctant to ask questions in class (Mulryan-Kyne, 2010). Absenteeism can impact the overall classroom environment and climate (Westrick et al., 2009) but is often tolerated or ignored as teachers and students silently agree to disengage from each other (Mulryan-Kyne, 2010). The lack of agreement on what constitutes a large class complicates research and practice, with the perception of 'large' often influenced by discipline, experience and institutional norms (Kerr, 2011). Teachers' perceptions often influence practice and, in turn, influence students' approaches to the large class environment (Prosser & Trigwell, 2014).

However, the advantages and possibilities presented by large classes are often undervalued or are not evident at all. There is an inherent energy in large groups (DeRogatis et al., 2014) which, if harnessed, can energise both students and teachers. Finding ways to reach out to students and to consider the diversity inherent in a large cohort does not just enhance learning itself in terms of aligning with learning outcomes, but also enhances the learning experience (Farrell, 2021). Hornsby (2020) outlined six principles of teaching large classes online: active learning, equity, inclusion, student success, development of appropriate skills and attributes, and an ethos of care. While he was referring to the online context, these principles are central to the face-to-face context also. Arvanitakis (2021) explores the pleasure and excitement of teaching large classes. It is in this context, that I reflect on my own teaching practice in large class contexts.

4. Analysis of/Reflection on/Implications for Practice

Initially, I developed practices with the intention of enhancing learning, engagement and understanding. However, over time, it has become clear that the practices have also contributed to the development of a sense of belonging to a class community. The following key practices are enacted in my large class face-to-face context including *inter alia* collaboration with students and other staff; varied use of technology; multiple means of representation of contested and complex concepts; and, consideration of the use of the virtual learning environment (VLE), each of which are explored below.

Collaborating with student representatives (reps) is a good first step in creating a sense of community in a large class context. I now meet with the reps either before or at the very beginning of the module to explain what the module is about; to ascertain their own expectations or concerns if any; and, to outline the possibilities of working alongside each other over the course of the semester. I ask them to model asking questions in the first or second class and I sometimes provide them with the questions, particularly for the first year reps who are often worried themselves and have not yet developed their own confidence in the large class context. I then request that they ask one of their friends to pose a question the following week. Once other students see them asking questions, some pluck up the courage to ask a question in class themselves.

One of the difficulties in a large class is that if you do opt to speak, you likely have to raise your voice to be heard by those seated furthest away from you. A 'throwable' microphone is a really good tool to overcome this problem. A catchbox™ mic is covered in foam is very light and can be thrown safely around the room. It enables the student holding it to speak in their normal voice which is then picked up by the sound system in the room so that everyone can hear. It also provides a bit of fun as it hits people on the head, often me (it does not hurt due to the foam)! The student reps often take responsibility for managing the mic which encourages students to speak more than when I am the one throwing it to them.

In the context of workshops co-taught with my colleague, students are invited to respond to problems or questions in a 'think-pair-share' scenario. They jot notes and are then invited to either share their thoughts with the group or to pass their notes to the end of the row where either myself or my colleague collect the pieces of paper. One of us reads out the responses while the other summarises on a blank powerpoint slide live on screen. This is a very low-tech but effective way of capturing student voice and engaging them in problem based learning tasks even though they are in a very large group. As one of us is normally walking around the room, it reduces the physical distance between teacher and student. It also allows for instant feedback on their work. For more detail on this practice please see Farrell and Logan (2018) and Logan and Farrell (2018).

I use a question and answer (Q&A) platform to capture student voice also both in class and between classes. It is anonymous, so students feel safe in asking questions. However, as with modelling asking questions in class, posing questions on the Q&A platform often has to be modelled also. Sometimes, I ask one of my colleagues to post a question which I have prepared on the platform while I am teaching. I 'discover' the question when I check the platform half way through the session and respond to it there and then in-class. Generally, this is enough to get the ball rolling and students begin to post questions during each class or often, between classes. As well as responding to questions in-class, I always post a written response afterwards which allows me to develop a good repository of feedback for students. It is also useful to throw the question back to the class before responding as this sometimes sparks some discussion and allows me to assess for learning.

Using Quizzes allows students to assess their own learning in relation to that of others in the class in a safe way when the quiz is anonymous. It also allows me as the teacher to assess for learning and to alter the progression of the lesson depending on student responses. However, one of the most important aspects

of using quiz is the potential for fun and gamification particularly if something like kahoot is used. As well as learning, students enjoy the gamified aspect of the quiz and additional fun and enjoyment can be inserted with the provision of a small token prize for the 'winners'.

As Arvanitakis (2021) points out, large classes are very likely to contain students who already have lots of knowledge and insight into some of the topics you intend to explore. At the beginning of each module, and again during the module, I invite students to contact me if they have any experience, expertise or insight which may be useful to their peers and which they would like to share. I usually get a few volunteers and I meet with them to discuss how we might harness their knowledge. They usually present for about 10-15 minutes within a relevant session. When a student stands in front of their peers to talk about a concept I am teaching, it makes the concept more tangible, relevant and understandable and heightens engagement. Students tend to be really appreciative of peers who share their experiences.

Before Covid-19, I perceived the virtual learning environment (VLE) as a 'filing cabinet' which acted as a repository for materials. During the pandemic, the VLE became my classroom and that utterly changed how I viewed that space even since we have moved back to the face-to-face classroom. For large classes in particular, it allows me to reach out and reduce the distance between me and my students by providing information or guidance through the use of short videos or audio recordings as well as or instead of written information. Indeed, many of the challenges found in the literature on online pedagogy mirror those found in the literature regarding large class pedagogy (Farrell et al., 2021).

Universal design for learning (UDL) provides a framework for teachers to consider their pedagogical practice to enable access to a diverse range of strategies/approaches. My modules focus on very contested terms and practices such 'special education', inclusive education', 'inclusion' and so on. Using UDL enables me to bring that contestation to life whereby guest speakers are invited to share their experiences and views, usually as part of a panel discussion, which brings the multiplicity of perspectives to life in a way that I alone could not enact. For my final year students in particular, the energy these panels have brought to the class is invaluable.

And, very basic, easy things to do ... smile at your students. Greet them as they file into the room. Come out from behind the podium and move around the room - share your proximity to reduce the physical distance between you and the students.

As mentioned previously, I began enacting these practices with a view to enhancing engagement and understanding in the large class context. However, the unintended consequence has been that " ... changing my practice ... has enabled me to form a relationship with my students mainly because the avenues of engagement energised the teaching-learning dynamic in the classroom, an energy that was amplified because the class was large" (Farrell, 2021, p.384).

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PHELC Workshop

This year, as the PHELC symposium was in hybrid format, we had two workshops – one online and one on campus in Dublin City University. The following is the outcome of both workshop discussions.

On-campus workshop discussion - How have you used technology to enhance teaching, learning and assessment in large class settings?

The discussion in this workshop centred around the possibilities for using technology in the large class context to enhance teaching, learning and assessment. The following key points were made:

- Participants identified the fact that students were generally reluctant to speak aloud in class and even if they did, were often not audible throughout the room because they generally spoke in a low voice. A 'throwable' mic was recommended to help alleviate this issue. While some students would still not volunteer to speak, others were more willing to do so with the mic because they could speak at a normal volume. The 'Catchbox' microphone was recommended by some participants because it was padded and therefore did not cause any damage or injury if not caught and injected a bit of fun into the class also.
- Audience polling technology such as Vevox or Kahoot! was recommended for a variety of purposes:
 - Polls can be set in advance of class and the results used as a foundation for discussion.
 - Using polls in class allows for the teacher to assess for student learning and understanding which, in turn, can inform teaching. If used at the start of the class, the teacher can address misunderstanding. If used at the end of the class, the teacher can use the information to inform planning for and teaching of the following session. Polls also allow students to get a sense of their own understanding in the context of their peers in a safe manner as generally, polls are anonymous.
- It was agreed by workshop participants that more formalised quizzes are difficult to create well. While they do somewhat address the challenge of continuous assessment with large cohorts, they need a large database of questions. One participant recommended using quizzes to allow students to revise and self-assess their own understanding. Enabling the access to quizzes on multiple occasions was seen to enhance retention of information and enhanced understanding.
- E-portfolios were recommended by some workshop participants for a number of reasons. Firstly, they act as a catalogue, curating student work and recording progress across a range of domains over time. Secondly, they enable assessment and feedback, particularly in relation to acting on feedback to improve work.
- Workshop participants also recognised online games such as Wordwall as really useful to assess for learning and to inject fun into the teaching/learning cycle.
- Discussing a particular author or topic can lead them to researching the person/topic on Twitter.

- Using a 'choice' tool to allow students to decide the focus of their assignment addresses universal design for learning as well as academic integrity. Additionally, motivation is increased when students have some ownership over the focus of an assignment.

One issue, which is often unrecognised, is the range of tools with which students are expected to engage across a programme. A (2019/20) survey in Dublin City University asked students to list the tools that they use in the classroom. Figure 1 (courtesy of Dr Mark Glynn, former Head of the Teaching Enhancement Unit) provides a visual overview of the diversity of technological tools encountered by students.



Figure 1: Wordcloud of technological tools used by DCU students

Online Workshop: What strategies have you used to build effective relationships in a large class setting?

This workshop group identified the challenges to developing relationships and then identified strategies which address some of those challenges. Those challenges and suggestions for action are outlined below.

Challenges

- Somewhat obviously, the sheer volume of students creates an inherent difficulty in building up teacher-student relationships.
- Additionally, large programmes tend to have a large staff cohort and again, because of the volume of teachers, it can be difficult to build up collaborative relationships, which can militate against the cohesion of a programme resulting in a fragmented approach to teaching and assessment. This, in turn, can add to the challenge for students navigating a large programme.

- Also, due to numbers of students and associated workload, large programmes will often have a large part-time staff cohort which further hinders fostering relationships between students and staff.
- Academics are defined by their expertise in a particular disciplinary area. By default, they are not experts in many of the other areas which comprise a programme. For that reason, some academics may be reluctant to engage with others teaching on the programme for fear of being perceived as lacking understanding.
- Time was also identified as a constraint to developing relationships with students and other staff on a large programme.

Suggested strategies – building relationships with staff

- Get to know the people working on a programme and at least an overview of their input. This may be as simple as reaching out to others to meet and discuss their modules over a coffee or as complex as formally collaborating to co-plan and/or co-teach aspects of the programme.
- Teaching assistants: Valuing the relationship with teaching assistants (TAs) is important in terms of maximising the learning experience for students. It is important to value the TAs' contributions but also to show students that you value the other colleagues working with you in the large class by treating them with respect and acknowledging their expertise and contributions. Meet with the TAs before the module commences to share focus, content, structure and to elicit their suggestions in terms of their roles in class and in terms of assessment. During the course, check in with the TAs in relation to student engagement and understanding; they may have a unique perspective and viewpoint of students in the large class context if they are situated in different parts of the room which can inform teaching. Consider the nature of the interaction with TAs during the class; perhaps the TAs might enable feedback from the students following a think-pair-share task for example, which might be particularly useful given the reluctance of some students to speak in the large class contexts. It may also be useful to invite TAs to present a session or a part thereof; this would help to involve the TA more in the planning and teaching of the module while simultaneously changing the classroom dynamic.

Suggested strategies – building relationships with students

- Use of short audio recordings and screen casts to communicate with students through email and/or on the virtual learning environment (VLE) may help to reduce the distance between student and teacher, for example, a short audio recording of the teacher's voice reminding students of the focus of the forthcoming class.
- Build a relationship with the class representatives from the outset; this can act as a bridge to enhance relationship with the full class cohort.
- Encourage discussion in the large class context. Using strategies like 'think-pair-share' allows students to explore ideas and concepts in the safety of a small group before bringing them back

to the whole class. As students are discussing, it is useful for the teacher to move around the room and engage some of the groups as this gives a sense of those who are sharing interesting insights, which can be confirmed and supported by the teacher who can then encourage those groups to share their thoughts. This also has the added advantage of allowing the teacher to share their proximity with the student body and to somewhat reduce the physical distance between them and the students.

- Using tools such as Padlet to ask and answer questions builds up a relationship between teacher and students also; students can see their questions are listened to and valued, especially if answered in class and afterwards in writing on the platform.
- Students on very large programmes will often be required to interact with a large range of teachers, not just across the programme but also at a micro level within a module. Because of large numbers, aspects of a module may be shared between a number of staff which makes it really difficult to build a relationship between teacher and students. Even if a number of staff are needed to teach on the module, it may be worth considering one member of the team to be the 'face' of the module i.e. to introduce those teaching each session, to co-teach some sessions or to just to be present during the session, making explicit links between the content of one session with the rest of the module and/or other elements of the programme.

One participant shared the following quote from a paper (Giblin, 2019) published in the Proceedings of PHELC19 drawing on the work of Kahu (2013)

Student engagement is widely accepted as a contributing factor on learning and success in higher education. As a multifaceted construct, student engagement embodies the affective relationships among peers and educators within the socio-cultural learning environment; and student behaviour, such as the psychological investment, interest and effort assumed when navigating the learning experiences.

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2022