

Pedagogy for Higher Education Large Classes (PHELC)



**Proceedings of the Third PHELC
Symposium
Online Event, 25th June 2021**

**Editors:
Dr. Anna Logan and Ann Marie Farrell**

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Introduction

Welcome to the proceedings of the third *Pedagogy for Higher Education Large Classes (PHELC) Symposium*. This year, the PHELC symposium was a stand-alone 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. Due to the ongoing COVID-19 pandemic the symposium was virtual once again. However, because of its virtual nature, PHELC attracted a greatly increased number of participants from all over the world, and the energy created by the enhanced number and diversity of backgrounds of participants led to a lively, vibrant and engaging event which focused on pedagogical practices and relationships.

Loosely, the theme of this year's event was on the positive aspects of large classes. We are indebted to our two keynote speakers both of whom embody that positivity of outlook in relation to large class teaching. Prof. James Arvanitakis opened the symposium with a presentation entitled *'That was fun! The pleasure and excitement of large class teaching'* which set the tone for the symposium from the outset. Prof. David Hornsby provided the second keynote address entitled *'Back to the future: Large classes in a time of pandemic'*, wherein he revisited his keynote from PHELC20 to explore the ongoing impact of the pandemic on large class pedagogical practices and extrapolated some lessons learned that might perhaps be carried forward as many higher education institutions transition large classes back to the face-to-face context. 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 PHELC21 which were presented either as pre-recorded lightning talks or 'live' 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.

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.

We are unsure of the format for the fourth PHELC symposium but we can guarantee that there will be a fourth event in 2022. We have learned a lot from running the last two events online and we hope to harness the best of face-to-face and online engagement for PHELC22 ... watch this space!



Anna Logan and Ann Marie Farrell

Editors

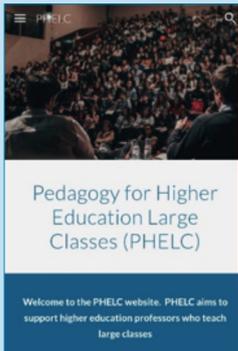
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David Wooff	BPP University, UK
Dr. Paul Young	Dublin City University, Ireland

	<h2 style="text-align: center;">3rd Pedagogy for Higher Education Large Classes (PHELC) Symposium</h2> <p style="text-align: center;">TIMETABLE 25 June 2021</p> <p style="text-align: center;">Facilitated by Dr Anna Logan and Ann Marie Farrell, Dublin City University</p> <p style="text-align: center;">Twitter: #PHELC21 @PHELCprofessors @AnnMFarrell @logananna11</p> <p style="text-align: center;">Please check your local time equivalent (timeanddate.com may be useful)</p>
<p>10.45-11.00 (Irish/British Standard Time)</p> <p>11.45-12.00 (Central European Time)</p> <p>17.45-18.00 (Hong Kong Time)</p> <p>05.45-06.00 (Eastern Daylight Time)</p> <p>19.45-20.00 (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>11.00-11.15 (Irish/British Standard Time)</p> <p>12.00-12.15 (Central European Time)</p> <p>18.00-18.15 (Hong Kong Time)</p> <p>06.00-06.15 (Eastern Daylight Time)</p> <p>20.00-20.15 (Australian Eastern Std Time)</p>	<p><u>Welcome:</u> Introduction to workshop content and participants</p> <p>Dr. Anna Logan (@logananna11) & Ann Marie Farrell (@AnnMFarrell), Dublin City University</p>
<p>11.15-12.30 (Irish/British Standard Time)</p> <p>12.15-13.30 (Central European Time)</p> <p>18.15-19.30 (Hong Kong Time)</p> <p>06.15-07.30 (Eastern Daylight Time)</p> <p>20.15-21.30 (Australian Eastern Std Time)</p>	<p><u>Keynote 1:</u> Prof. James Arvanitakis, Western Sydney University (@jarvanitakis)</p> <p><i>'That was fun': The joy and importance of large classes</i></p> <p><u>Short papers:</u></p> <p>Dr Yuhui Gao, Dublin City University (@gaodcu) - <i>Building meaningful connections with large, online classes.</i></p> <p>Mai Burke Hayes, Mary Immaculate College, Limerick (@Mai_B_H) - <i>Enhancing students' feedback literacy through peer-review in large classes.</i></p> <p>Seán Smyth et al., Dublin City University (@seansmyth98) - <i>The opportunities and challenges of emergency remote teaching for large class students during the COVID-19 pandemic.</i></p> <p><u>Q&A Session</u> (keynote and short paper presenters)</p>
<p>12.30-13.00 (Irish/British Standard Time)</p> <p>13.30-14.00 (Central European Time)</p> <p>19.30-20.00 (Hong Kong Time)</p> <p>07.30-08.00 (Eastern Daylight Time)</p> <p>21.30-22.00 (Australian Eastern Std Time)</p>	<p style="text-align: center;">Coffee Break & Wheel of Fortune (prizes)</p>

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<p>13.00-13.15 (Irish/British Standard Time) 14.00-14.15 (Central European Time) 20.00-20.15 (Hong Kong Time) 08.00-08.15 (Eastern Daylight Time) 22.00-22.15 (Australian Eastern Std Time)</p>	<p>Lightning Talks:</p> <p>David Kennedy, Dublin City University (@daveikennedy) - Using UDL to redesign face-to-face, large class modules for the online, asynchronous environment.</p> <p>Dr. Flora Gaetani & Dr. Fausto Brevi, Politecnico, Milano - The experience of drawing courses in higher education, large classes during the covid-19 pandemic scenario.</p> <p>Fiona Giblin, Dublin City University (@giblin_fiona) - Flipping the flipped classroom online.</p> <p>Dr. Aurelia Carranza Marquez & Dr. M. Angeles Escobar Álvarez, National Distance Education University, Madrid - MOOC on bachelor's degree final project (TFG): Prototyping and design.</p> <p>Jamal Lahmar, University of Sheffield - A problem-based group task for exploring quantitative research design and analysis: facilitating collaborative problem-solving with large classes online.</p> <p>Dr. Monica Ward, Dublin City University - The positive impact of educational technologies in a large class context.</p>
<p>13.15-14.00 (Irish/British Standard Time) 14.15-15.00 (Central European Time) 20.15-21.00 (Hong Kong Time) 08.15-09.00 (Eastern Daylight Time) 22.15-23.00(Australian Eastern Std Time)</p>	<p>Keynote 2: Prof. David J Hornsby, Carleton University, Ottawa, Canada (@DavidJHornsby).</p> <p><i>Back to the Future: Large Classes in a time of Pandemic</i></p> <p>Q&A Session (keynote and lightning talk presenters)</p>
<p>14.00-14.45 (Irish/British Standard Time) 15.00-15.45 (Central European Time) 21.00-21.45 (Hong Kong Time) 09.00-09.45 (Eastern Daylight Time) 23.00-23.45 (Australian Eastern Std Time)</p>	<p>Workshop</p> <p><i>Themes TBA</i></p> <p>Plenary discussion:</p> <p><i>Discussion, conclusions and suggestions for future PHELC events</i></p>
<p>14.45 (Irish/British Standard Time) 15.45 (Central European Time) 21.45 (Hong Kong Time) 09.45 (Eastern Daylight Time) 23.45 (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 third PHELC symposium</i></p>

That was fun: The pleasure and excitement of large class teaching

James Arvanitakis

Australian American Fulbright Commission. Adjunct Professor, Institute for Culture and Society (Western Sydney University).

Abstract

In this short paper, based on a keynote address delivered at the PHELC21 symposium, I argue that while the technology pivot that forced us to turn to online instructions has many valuable dimensions, these should not replace face to face educational settings including large classroom lecture delivery. Rather, large classroom settings are a valuable educational medium we should embrace and continue to employ.

Keywords: *Large class; fun; technology, face to face; fun*

1. Introduction

In a recent presentation, Australia's Education Minister, Alan Tudge (2021), delivered at the Universities Australia conference, the Minister listed a positive the 'on campus' experience as one of the government's key priority areas as the sector begins to recover from the global pandemic. While the relationship between Australia's university sector and conservative governments has frequently been tense, Minister Tudge's priorities are worth noting because they capture something that we as educators have always known: a university education is not simply about the discipline knowledge that we impart, but the many social experiences that accompany time on campus.

It is difficult to outline all of the benefits of a positive on campus experience, but these include the skills that develop through discussion, debate and collaboration, the networks built that are likely to prove invaluable into the future and the socialisation of the many ideals of higher education: the pursuit of knowledge and scholarship as well as understanding the obligations of that we as citizens owe to both our community as well as broader society. While these somewhat lofty ideals are not always met, we as educators continue to strive to make the higher education experience greater than the sum of its parts. This is because if education was simply the distribution of knowledge, we could all save time by writing textbooks and holiday in exotic locations around the world.

The on campus experience I am discussing here includes face-to-face instruction. This is the opportunity to share a physical location with our students to converse, deliberate and disagree. It is an opportunity to create safe spaces where we can investigate challenging ideas as well as 'brave spaces' that draw on the educational power of discomfort and 'uncomfortableness.' These include ideas that we may not agree with and find challenging but should investigate and unpack to understand different perspectives that test us and our own ontological security. In a political world marked by deep partisanship, it is also learning to converse with those we disagree with.

To achieve these goals, we need to draw on a series of educational and pedagogical tools and environments including large class teaching. That is, like watching a movie in a theatre rather than on the couch at home, different educational mediums offer us the opportunity to confront ideas in a variety of ways. This is not to argue against employing technology – far from it as technology should be an integral part of what we do – but that large class pedagogy is a specific experience that takes us as educators, as well as our students, on a unique learning journey.

2. Technology and Education

Ever since I entered higher education two decades ago, the sector has been in a state of flux and subject to disruption. Countless reports have outlined the many disruptions that come from multiple directions including government legislative changes, increasing competition within and across the sector, the emergence of new entrants (including private providers), a rise of anti-intellectualism driven by the election of populist leaders, and most importantly, technology (see for example KPMG, 2020).

The impact of technology has been both overwhelming and underwhelming. For example, many predicted that the emergence of Massive Online Open Courses (MOOCs) would spell the end of higher education as we know it (Marginson, 2012) but over the years, they have had little impact. In contrast, the rise of mobile technologies has empowered educators with the opportunity to engage their student cohort both within the classroom setting and in accessing educational materials 'on the go.' The emergence of mobile devices has distressed other educators who see them as a distraction and talk as if there existed some 'golden age' when students were always alert, focused and engaged (Dontre, 2020).

Another aspect that has followed the rise of technology has been an overwhelming number of 'buzz' words that have meant to capture the new educational environment. We have seen phrases such as 'blended learning', 'flipped classroom' and more recently 'hyflex'. While such terms seem to make great titles for conferences we may enjoy attending, they are hard to distinguish and seem to add little pedagogically.

Personally, I have been one of those that has seen technological tools as powerful educational devices allowing educators to engage students in different ways – from requesting students do undertake research exercises during class time to documenting their daily lives by taking photos and sharing these experiences. My preference is to argue that good pedagogy is good pedagogy no matter the technology employed (if any at all). That is, the educator must reflect on what they are attempting to share with the student body and use the appropriate tools to achieve this goal: this may be wholly online, partially online or totally face to face. We need to avoid artificial targets such as 'all courses should have 50 percent online content' to meet administrative targets that add little to the educational experience and journey.

3. What we Learnt during Covid

Part of the technological discussion has focused on the flexibility of students to undertake 'just in time learning' (Petrus Mahlangu, 2017) whereby students can attend class without leaving their homes (or even

their beds). This was seen as a good thing – until Covid came along and we learnt that this is not an ideal learning experience.

While the sentiment is that 'Covid changed everything' – including the learning that students expect – I would argue that this misrepresents the learning experience that students desire (and have always desired). It is true that students have always wanted some flexibility, and some prefer online environments, but most of the students that physically want to attend a higher education institute do so understanding that their learning experience will transcend the educational material.

Rather than 'change everything', the Covid experience has confirmed three important insights. The first is that students can learn online if required but prefer a face-to-face experience (Hoh, 2020). Much has been said that Covid has reminded us about the importance of human interactions and relationships – and no matter how good the online experience is, we crave human connections (Walter, 2020).

The second is that regardless of preferences, online engagement and collaborations are fundamental skills that must be part of the learning experience. Understanding and employing engagement tools, be they Zoom, Skype or Teams, are important tools that will be utilised into the future even when (hopefully) Covid becomes a distant memory. As such, even if we could instantly return to a pre-Covid world, the abilities to utilise such tools should be seen as being part of the important suite of skills our students (and colleagues) embrace.

Thirdly, students want learning choices. In our yet to be published research, my colleague from Deakin University (Melbourne, Australia), Dr Trina Jorre De St Jorre, undertook a survey with students to understand their learning preferences. Undertaking this survey long before Covid, we identified that while students enjoyed flexibility, they wanted the experience to be well resourced. That is, be it online or in-person, the experience was driven by the pedagogy employed and the resources available.

In other words, Covid has not altered the way we learn – just confirmed that we want a well-designed experience. This includes the experiences in large classes that do not need to be impersonal and disconnected: they can be fulfilling, engaging, empowering and fun (yes fun). Large class engagement can be just as much an educational powerful tool as can be any other mechanism – it must be planned and executed with the educational goal in mind.

4. If you are Going to do it, do it Right...

In this final section, I want to outline three important ways to ensure that large classes are successful pedagogical mechanisms (Arvanitakis, 2014). The first is to ensure you take advantage of the class size by undertaking specific challenges that make the experience valuable. For example, in one class on unconscious bias, I ask all students to write down five stereotypes about themselves: these do not have to be true, just stereotypes about their own cultural background (see Nomikoudis & Starr, 2017). I then ask them to circle how many of these are true. The students are then asked to stand, and I ask those to stay standing if two or more stereotypes are true. In the many times I have undertaken this exercise, invariably

about 80 percent of students sit-down. This highlights how the perceived stereotypes about us are not true – and as such, neither can they be true of others. Such an exercise is most powerful in a large class setting.

The second is that the large class should be interactive to ensure that they are engaging. That is, they should not be a one-way form of communication but include questions, quizzes, small group discussions and knowledge sharing. This builds the cohort experience. My rule of thumb is that such an interactive process should occur every 10-12 minutes – not only engaging the student body but cementing the key lessons being shared.

Thirdly, large classes can be used to draw out the valuable experiences of the student body. Paulo Friere's key message in *Pedagogy of the Oppressed* (1970) is that the students he engaged had as much to teach him as he can teach them. They are not empty vessels to be 'filled' with his expert knowledge but have insights, experiences and histories that he does not. It means that their knowledge should be just as valuable as his – it is just different. In a large class, the opportunity to share knowledge with and by your students is there – we just have to find ways to ensure they feel comfortable in sharing. In my own work, I ask students to write an experience related to the subject matter: not an essay but rather, a story. Then, if they feel comfortable, to share it with me and in turn, I will share it with the class. In this way, I have uncovered and shared stories about topics as broad as toxic masculinity to the challenges of studying with a severe disability – experiences brought to the student body by students themselves.

5. Concluding Comments: The Path of the Citizen Scholar

Over the last decade, Dr David Hornsby and other colleagues around the world have unpacked the concept of the 'citizen scholar', arguing that the role of the contemporary university should be not only to ensure the highest scholarship, but that our students also become active, engaged and empowered citizens (Arvanitakis & Hornsby, 2017). In so doing, we have outlined a series of skills and attributes that need to be embedded within the curriculum including empathy, curiosity, mistakability and problem definition. These are often termed 'soft skills' but such a description is misleading because it indicates they are of second order importance.

What the citizen scholar approach drives is the ability to apply the knowledge learnt in such a way that graduates understand their broader obligations. This must be socialised, tested and challenged in an environment that is both safe and confronting – and the large classroom provide that opportunity. We must take advantage of this pedagogical tool and do so in a way that further develops and our students and us as educators.

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Building meaningful connections with large online classes

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Abstract

As we adapt to the sudden shift to online teaching caused by the Covid-19 pandemic and discover new pedagogical possibilities in this medium, building meaningful connections in large online classes in order to foster effective learning continues to present its challenges. The objective of this paper is to reflect some key lessons learned from teaching large classes online. Four perspectives are presented: upskilling through professional development, creating meaningful learning experiences by embedding citizen scholars through curriculum and assessment design, balancing online pedagogical care and self-care, and promoting a learning community among students.

Keywords: Covid-19; large online classes; meaningful connections

1. Introduction

Educators have expressed their concern that 'online teaching is often perceived as incapable of fostering the necessary interpersonal relationships or sense of classroom community that leads to effective student learning' (Deacon, 2012, p.5). This concern is further intensified in the light of the sudden transition to online teaching and learning as a result of the Covid-19 pandemic, in which many educators have faced the simultaneous challenges of shifting to online delivery with little remote teaching experience, an issue compounded by the demands of large classes.

As Deacon (2012, p.9) points out, 'effective online instruction requires teachers to become literate in not only the intellectual dynamics of teaching and learning in virtual environments, but the affective and social dynamics, as well'. Inspired by this insight, the present paper reflects on some key lessons learned from teaching large online classes during the pandemic. The reflection draws upon the experiences of (a) upskilling through professional development, (b) creating meaningful learning experiences by embedding societal awareness and participation through curriculum and assessment design, (c) balancing online pedagogical care and self-care, and (d) promoting a learning community among students. The paper concludes that effective online learning can be nurtured, even in large classes, by building meaningful connections in situations where students are presented with opportunities to engage with the module content, society, and fellow peer students.

2. Description of the Teaching/Learning Context

The module was delivered to over 250 undergraduate business students at Dublin City University (DCU) and was moved online in the autumn of 2020. The timing of this online teaching coincided with the emerging economic impact of Covid-19 on Irish businesses, especially small and medium enterprises (SMEs). Given that Irish SMEs account for 99.8% of the total number of enterprises and 46.2% of total business turnover (Central Statistics Office, 2018) in Ireland, the contribution of SMEs to the Irish economy is very important. In that context, the manner in which Irish SMEs respond to fast-moving business environments caused by the pandemic has become an urgent issue. One of the aims of the module was to encourage students to engage with their local SMEs to offer them a number of marketing insights by carrying out a marketing research project on their behalf, thus enhancing the students' understanding of how marketing information can be used to assist organisations in diagnosing, evaluating, and solving real marketing issues.

3. Literature Review

Guided by the existing literature (e.g., Arvanitakis & Hornsby, 2016; Deacon, 2012; Farrell & Logan, 2020; Hornsby, 2020; Rose & Adams, 2014), four aspects of the literature were drawn in this paper. First, professional development is recognised as a vital component of strategies to enhance the quality of teaching and learning and to promote educators' self-efficacy (Buczynski & Hansen, 2010). The abrupt shift to online classes caused by the pandemic has generated an immediate need for educators to upskill themselves in terms of their online pedagogical approaches and to embrace the use of different tools and technologies. Relevant online teaching webinars, workshops, and publications have mushroomed at institutional, national, and international levels in a short space of time (e.g., HBPE, 2021; Watermeyer et al., 2021). Educators' learning needs have also now evolved from the initial 'last minute learning before teaching' to more targeted workshops to further enhance the quality of teaching. Professional development and training workshops have played a significant role in ensuring a smooth switch from physical classrooms to online classes. Without this timely training, educators would probably lack confidence in managing online classes, as well as in motivating students' engagement by using a variety of approaches and techniques.

Second, Arvanitakis and Hornsby (2016) have developed a citizen scholar framework where both scholarship and actively engaged citizens can be embedded in pedagogical strategies. The citizen scholar framework directs students towards their responsibilities as citizens in their communities (Hornsby, 2020). Active engagement in communal (societal) problems gives students a motivation to learn, a purpose to carry out the coursework, and a desire to be a citizen scholar. Educators are encouraged to foster learning environments in which attributes of citizen scholars such as resilience, adaptability, and ethical leadership can be developed (Arvanitakis & Hornsby 2016). As Hornsby (2020, p.3) suggests, 'It is within the power of a lecturer to organiz[s]e these spaces to be meaningful experiences', even during the pandemic when most large classes moved online.

Third, the 'ethic of care' has been identified as central to the practice of teaching (Noddings, 2003). The ethos of care of the online learning approach has also been advocated in the literature (e.g., Hornsby, 2020;

Robinson et al., 2017). It has further been suggested that students' perceptions of the context of care in the classroom environment can have an impact on their motivation and behaviour (McLeod, 1997). For example, students tend to feel empowered to ask questions, participate in class and be self-motivated if they feel confident and comfortable in the classroom setting (Deacon, 2012; McLeod, 1997). Creating online pedagogical care is even more relevant as we move to virtual teaching, as a recent student survey shows that nearly 80% of students reported issues with motivation during the pandemic (USI, 2020). However, when the online learning environment is 'open for business' 24/7, the tension between care for students and self-care has never been greater

(Rose & Adams, 2014). A recent study has found that working from home has been considered as a significant contributor to workload intensification and an interruption of work-life balance (Watermeyer et al., 2021). Though educators have shared some useful practices to ease the conflicting demands of home care responsibilities and the provision of pastoral care for students (e.g., FAQ sheets, online synchronous office hours or drop-ins, email hours, discussion forums, teaching assistant support etc.), research into the nature and role of care in online teaching and learning remains limited (Rose & Adams, 2014).

Fourth, educators have noted that, since many students 'may be missing the connections of being physically on campus or having informal chats in the halls and over coffee; a positive online community can help' (HBPE, 2021, p.20). This notion is in line with a recent student survey of the pandemic learning experience, which shows that 36% of students reported having no opportunities to engage with other students through their online learning, and 78% listed peer support as one of the main sources of support for them during the pandemic (USI, 2020). Learning is recognised as a social process, but the social and emotional components of online teaching have been largely neglected in the literature (Deacon, 2012). Online learning communities can only be *communal* rather than *virtual* if they can create a feeling of connectedness, and a sense of belonging and togetherness (Deacon 2012; Foster 1997). A number of useful practices to help create a sense of community and opportunities for students to engage with their peers have been suggested by educators (e.g., actively making time for community, establishing clear community norms for a virtual environment, discussion forums, informal 'hallway' conversations, listening etc.).

4. Reflection on Implications for Practice

Moving to online teaching as a result of the pandemic has been challenging; that challenge is heightened when large classes are involved. The objective of this paper has been to reflect on some key lessons learned through large online classes, drawing upon the following lessons: participating in professional teaching development and training, embedding citizen scholars through course design, and attending to the *affective* and *social* needs of learning. As Figure 1 illustrates, building meaningful connections with students can be achieved through three parallel approaches with the pillar support of educators' commitment to continuous professional development. Some reflective notes on practices are also provided below.

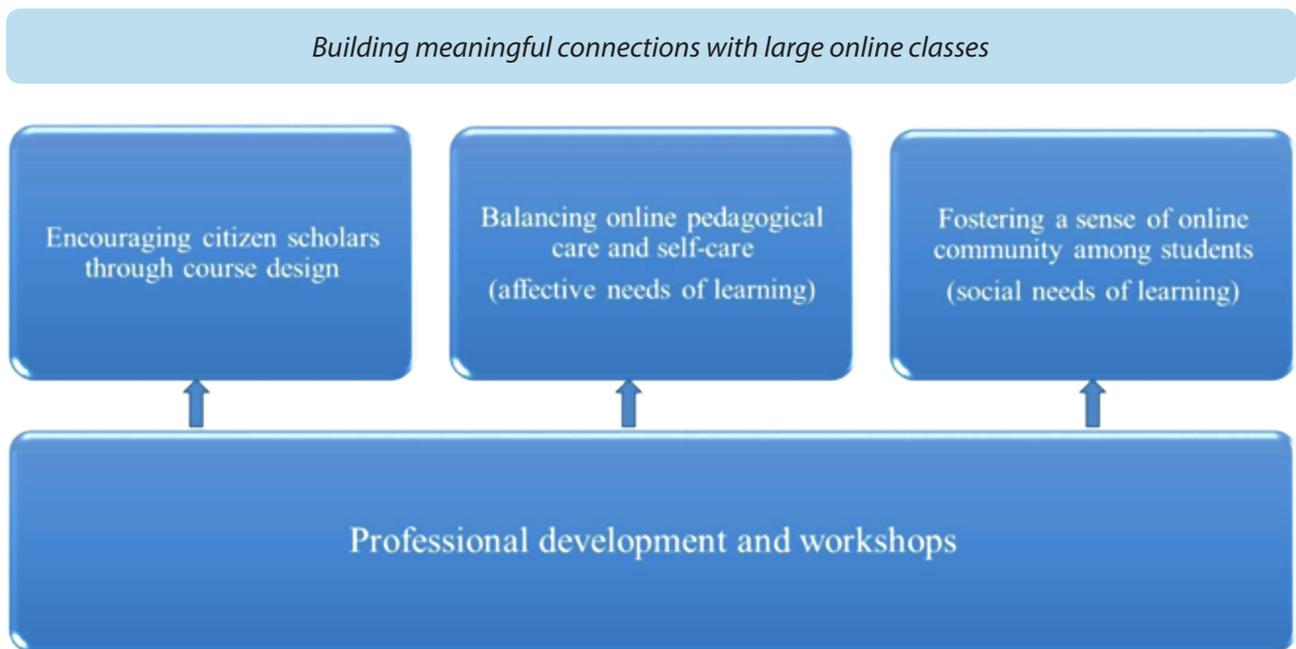


Figure 1. Building meaningful connections with large online classes

Lesson one: *Surfing the sea of online teaching related workshops and professional development programmes.* Global educators have compiled and shared new and emerging best remote teaching practices (e.g., DCU teaching online resource bank, Harvard Business Publishing Education teaching resources). Many educators have upskilled their digital competencies by attending workshops on different teaching platforms, breakout rooms, polls, Vevox, H5P, and various students' online engagement activities. As we are committed to continuous professional development, we might be tempted to try as many engagement tools as possible to maintain students' curiosity and interests, but we need to be mindful that each tool is used to maximise the achievement of the module learning outcomes, not for purposes of entertainment. In the meantime, the sheer volume of online teaching materials can be overwhelming. We must learn to surf but not to drown in the sea of these workshops and materials. As the old saying goes, *do one thing at a time*. Engaging in professional development afforded me the opportunity to explore a range of digital tools to use in my module. However, I used only those I believed supported and enhanced the teaching and learning experience in this large class context.

Lesson two: *Encouraging citizen scholars through course design and assessment strategies.* The project-based module was designed for students to work with local SMEs to carry out a marketing research project to help identify and solve some pressing marketing issues. Students were provided with an opportunity to exercise themselves as citizen scholars (Arvanitakis & Hornsby, 2016) by collaborating with businesses. In total, students engaged with nearly 50 local SMEs with an individual project completion rate of 99%. One of the challenging elements of this project during the pandemic was to carry out most of the primary research remotely (e.g., via Zoom interviews). This purpose-driven assignment motivated students to embrace these challenges through the aspiration of helping their communities. Students also further developed their client management skills, raised their ethical research awareness, and quickly adapted to new ways of conducting research, all of which are important attributes of citizen scholars (Arvanitakis & Hornsby, 2016).

Lesson three: *Balancing online pedagogical care and self-care.* It remains very challenging to attend to the needs of a large number of students online in a work-from-home environment (Watermeyer et al., 2021).

A few practices worked well for this module. For example, a weekly dedicated drop-in clinic was created to address any queries and to calm any anxious students; an FAQ sheet was compiled and made available online for students to consult; there were clear communications with the students regarding email hours and the expected response timeframe; and additional teaching resources such as support from a dedicated teaching assistant was also a great help.

Lesson four: *Fostering a sense of community among students*. Effort was made in this module to encourage a sense of togetherness. For instance, there were some informal check-in conversations before the start of the lecture; a Vevox word cloud exercise was conducted to establish how students were feeling during the mid-term; and an informal Q&A session was held at the end of each class. Discussion forums were also used in another large online class where students were required to evaluate and provide constructive feedback on other groups' work. This exercise triggered rich interactive discussions among the students. The communal learning further fostered a sense of connectivity and togetherness by the students helping each other.

In conclusion, many of us have at different stages felt overwhelmed by the significant number of new protocols that we have to learn and adapt to in this domain. With an open mind toward continuous pedagogical improvement, a caring attitude and a duty of responsibility to our students, however, making meaningful connections with students, even in large online classes, is not mission impossible. As we continue to tackle the challenges and discover new possibilities of online or hybrid teaching, we also need to recognise that we are only human beings and that we are trying our best. As Farrell and Logan (2020, p.37) note, educators should 'allow imperfection to be part of the classroom environment and convey the 'real' you in the asynchronous teaching space'. Ultimately, the goal of moving online is 'not to replicate a face-to-face classroom, but to optimiz[s]e your course for a rich, interactive learning experience' (HBPE, 2021, p.46). By considering the four elements of the module as described above, I hope that I can claim with confidence and pride that the experience of managing large online classes has made me a better educator.

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Enhancing students' feedback literacy through peer-review in large classes

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Abstract

Feedback is an essential element of teaching and learning. In order to use feedback effectively, students must appreciate the value of feedback, understand the language of feedback and how to implement feedback (Winstone et.al., 2017). This paper describes a peer-review activity used to enhance feedback literacy of a large cohort of Early Childhood Care and Education students (104). An increased understanding of feedback may lead to improved academic writing, critical thinking, and higher-grade achievement (Huisman et al., 2018). Implications for higher level teaching include incorporating feedback into curriculum planning, employing the concept of 'feedforward' and higher academic achievement for students (Sadler, 2010).

Keywords: Feedback; feedback literacy; peer-review; assessment; teaching large groups.

1. Introduction

This paper discusses the use of a peer-review activity, facilitated using Peermark on Turnitin to enhance first-year undergraduate students' feedback literacy in a large-group context. Preparations for peer review included feedback training through detailed explanation of the assessment rubric, guided reflective questions and the use of exemplars. Following the peer review activity, students were encouraged to use what they learned from their experience (both as reviewer and reviewee) to enhance their academic writing and performance in their final assessment submission. The aim of this activity was to improve students' understanding of feedback and confidence in discussing, requesting and using feedback, therefore, making feedback for both teachers and students of large classes a more positive experience.

2. Description of the Teaching/Learning Context

2.1 Class Profile

This activity was undertaken with a large group of first-year undergraduate students studying Early Childhood Care and Education comprising 104 students. They received some input in smaller group tutorial sessions. Due to the COVID-19 pandemic, all teaching and learning was facilitated via online platforms.

2.2 Teaching Approach

The specific teaching and learning approach for this paper is the use of *Peermark* on *Turnitin* to facilitate a peer-review activity in order to enhance students' feedback literacy. Students were required to submit

a short draft section of their essay. They then had to review two peers' draft submissions. Students were awarded marks towards their final module grade for engaging in this activity. Prior to reviewing, the assessment rubric and associated language was explained, exemplars were used and questions were discussed to structure the reviews. Students were given one week to complete the reviews which were required to reach a set word count before completion. All reviewers and reviewees remained anonymous throughout the process to facilitate honest, constructive feedback. After all reviews had been submitted, students could access their peer feedback and had the opportunity to discuss it in class and use what they learned for their final essay submission.

3. Literature Review

3.1 The Role of Feedback

Feedback has the potential to impact students' development (Hattie & Timperley, 2007). However, this development depends on the implementation of what the learner gains from their received feedback. The feedback process is double-sided; the giver and receiver must both have an active role. Simply, feedback is only really useful if the student decides to act upon it (Nash & Winstone, 2017). This can often influence the lecturer as they feel there could be 'extra work' (time consuming and effortful) in providing feedback for every student that may not access it, let alone use it (Winstone & Carless, 2019). Even students who express their wish to receive feedback, or those that complain they do not get enough, may not use the feedback they receive (Jonsson, 2013). This could be due to several factors, for example, they receive the feedback too late (the final submission deadline has passed); they may not understand the feedback they are given; the feedback may be in the form of statements of what is incorrect/needs to be improved, with no suggestion on how to do so; and how the feedback may relate to other modules/assessments. It may also be as simple as the students are not willing to try to use the feedback they receive (Winstone et.al., 2017).

As mentioned, to implement the feedback students receive, they need to be able to understand and interpret it (Sadler, 2010). This can also be referred to as the student's 'feedback literacy'. This involves requesting feedback, creating, and implementing feedback, as well as making judgements on academic work (Carless & Boud, 2018).

3.2 Feedback in Large Classes

In order to facilitate student feedback literacy development in a large class context, teachers need to have the necessary knowledge and pedagogic skill to implement and practise effective feedback processes. They must also have positive attitudes and dispositions towards student learning and provide opportunities for feedback training. This also lessens the practical challenges involved in feedback processes that arise with large group numbers (Carless & Winstone, 2020, Winstone & Carless, 2019).

It is important to consider the development of the student's self-regulated learning skills in relation to feedback (Nicol & Macfarlane-Dick, 2006). Students need to feel motivated and a sense of ownership over the assessment process (Orsmond & Merry, 2011). This also links with socio-constructivist views of learning

where the students are active in their learning and the teacher with feedback acts as a facilitator or guide (Thurlings et al., 2013). Students also require the time to implement the given feedback, for example, before the final submission for the module (Carless, 2020).

Feedback also needs to be more than just a positive or negative comment. It should include an explanation for the mark given, details on what was done well, identify weakness and suggestions on how to amend these - this is not always possible given the demands of a large class (Sadler, 2010). We cannot assume the learner knows how to use the given information (Boud & Molloy, 2013). It is essential to consider how the student interprets the feedback, not just what was intended. This points us towards the idea of 'feedforward'. From the beginning of the learning/assessment process, students need to understand the requirements of the assignment task, how it will be assessed and the criteria or rubric that will be used (Sadler, 2010). An effective way to achieve this is through the facilitation of a peer-review activity.

3.2 Peer Review

For students to be truly feedback literate, they must both give and receive feedback (Molloy et al., 2020; Noble et al., 2020). This can improve writing performance (Huisman et al., 2018). When engaging in a peer review activity, students develop their understanding of the application of criteria, are exposed to different approaches and perspectives and compare it to their own writing (Nicol et al., 2014).

Students must try to go beyond judging their peers and give a detailed explanation as to why they are critiquing this way (Sadler, 2010). Students should have access to exemplars to aid awareness of what they are looking for and aid their feedback competence. Sadler (2010) sees four main targets for peer feedback (addressing the task, achieving purpose, explanation of judgement in reference to assessment criteria and crucially, advice for improvement).

Co-construction of learning happens through discussion, investigation, and shared interpretations (Price et al., 2011). Therefore, it is important that the teacher provides a secure environment, where students' self-esteem is safe, they are supported, and they feel others are being honest with them. It is the role of the teacher to model appropriate behaviours and language (Carless & Boud, 2018). The potential impact of feedback is enhanced through this relational pedagogy and approachable atmosphere (Price et al., 2011). Facilitating peer-review through user-friendly online software where students can remain anonymous both giving and receiving feedback create this atmosphere.

4. Empirical Methodology / Data

4.1 Key Findings Based on Student Survey (n=31)

- All students strongly agreed/agreed they learned from engaging in the peer review activity.
- 97% of students strongly agreed/agreed that they have a better understanding of feedback after engaging in the peer-review activity.
- 97% of students strongly agreed/agreed they now have a better understanding of the assessment rubric.

- 84% of students felt they learned more from reviewing peer's drafts than from the feedback they received.
- 93% of students now feel more confident asking for, accessing, and using feedback after engaging in the peer-review activity.
- 90% of students felt their final submission was better because they engaged in peer-review.
- 84% of students expressed a desire for more support with their feedback literacy.
- All students strongly agreed/agreed they would take part in a peer review activity again.

5. Analysis of/ Reflection on / Implications for Practice

In a large class context, facilitating peer review activities can be challenging and time consuming, however, using peer-review software allows the teacher to focus on the feedback training aspects of peer-review, rather than the organisational aspects. As students were already registered on the virtual learning environment (Moodle), Peermark automatically assigned two drafts to each student and presented the pre-set questions on each review for students to answer. Peermark also created a list for the lecturer to check who had submitted the drafts and who had completed their assigned reviews. Peer-review allowed all students to receive individualised feedback from two sources without excess time or stress on lecturers and students.

Assigning marks for participation in the peer-review activity enticed all students to engage; this was key to ensure all students gave and received reviews. Upon reflection, students expressed that they would have liked more feedback training using exemplars before reviewing and suggested reviewing in pairs or small groups to allow discussion of different ideas and perspectives in future peer-review activities in large group classes.

Feedback provision at the end of the semester was straightforward despite the large student number as the lecturer could refer to the assessment rubric knowing that students were familiar with the grading criteria, language used, and that they had developed an awareness of the overall role of feedback for learning and development.

It is hoped that this intervention benefited students' learning experience in several ways. Students now have an awareness of grading rubrics and may take them into account across various modules over their four-year programme. Students have begun to develop their feedback literacy and understanding of the importance of feedback, its use and the terms commonly associated with feedback. This was most likely their first experience of peer review so has laid the foundations of critical thinking skills for future use.

It is also hoped that facilitating this activity at the mid-point of the semester aided students with entering the academic writing mind frame and encouraged them to read around the topics covered in class. By having a draft deadline date halfway through the semester, students were less likely to put off beginning their essay the last week of term. This gave them more time to develop arguments, read, draft pieces, and

proofread before submission. They may also have been exposed to wider references and points of interest that they had not previously considered.

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The opportunities and challenges of emergency, remote learning for large class students during the Covid-19 pandemic

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Abstract

In April 2020, the Dublin City University (DCU) Educational Trust launched the Covid-19 Research and Innovation Hub, which was designed to address key challenges arising globally as a result of the Covid-19 pandemic. The research findings presented in this paper emerge from one of the Hub's technology projects, entitled 'Moving Large Classes Online' (Farrell et al., 2021). This research project was evaluative in nature with the aim of illuminating the innovation (Parlett & Hamilton, 1972) of promptly moving large, face-to-face classes online in the immediate response to the Covid-19 pandemic at DCU, Ireland. While the overall research illustrates both the staff and student perspective of emergency, remote large class teaching and learning from March - May, 2020, this paper specifically focuses on the opportunities and challenges faced by large class students during this unprecedented move online. Findings from the data are shared and implications for addressing the opportunities and challenges are addressed.

Keywords: *Large classes; COVID-19; remote teaching; online learning; isolation; accessibility*

1. Introduction

In April 2020, the Dublin City University (DCU) Educational Trust launched the Covid-19 Research and Innovation Hub, which was designed to address key challenges arising globally as a result of the Covid-19 pandemic. The research findings presented in this paper emerge from one of the Hub's technology projects, entitled *Moving Large Classes Online* (Farrell et al., 2021). This research project was evaluative in nature with the aim of illuminating the innovation (Parlett & Hamilton, 1972) of promptly moving large, face-to-face classes online in the immediate response to the Covid-19 pandemic at DCU. The focus of this paper is on the student experience only.

2. Description of the Teaching/ Learning Context

On March 12th 2020, DCU, like many other higher education institutions globally, closed its physical campuses to curb the spread of Covid-19. This led to the remote, emergency delivery of all undergraduate

and postgraduate programmes, including the 300+ large class modules across the University's five faculties.

For the purposes of this paper, the term 'large class(es)' refers to undergraduate and postgraduate modules with 100+ enrolled students. Staff and students were surveyed using a questionnaire comprising open and closed questions. Survey respondents were frequently reminded to comment only on their experience of large classes. This data was supplemented by a systematised scoping review of relevant literature.

3. Literature Review

This section explicates the opportunities and challenges of large class teaching and learning. It also presents findings from recently published literature that illustrates how the higher education community globally experienced the sudden pivot to remote teaching and learning during the first wave of the Covid-19 pandemic.

3.1. Opportunities and Challenges of Face-to-Face, Large Class Teaching and Learning

Much of the literature focuses on the opportunities of face-to-face, large class teaching and learning. One of the greatest opportunities is the increased diversity amongst students in large cohorts, which more accurately reflects life outside of the classroom (Auslander, 2000). The inherent energy of large cohorts is another great opportunity associated with large class teaching and learning (DeRogatis et al., 2014). This energy is a two-way process, where the class teacher first invests time and energy into preparation for the module. Then, once energised, the teacher receives and responds to feedback from their class, which energises and motivates students in their learning. The teacher is a key person in any class but arguably more so in the complex large class context (Farrell et al., 2021) wherein students are motivated by large class teachers who nurture a caring learning environment (Straits, 2007).

The challenges associated with large classes are also reported in the literature. In particular, the feelings of disconnect amongst the large class community, both from staff and student perspective, is evident (Mulryan-Kyne, 2010). It is more difficult for students to form relationships with teachers (Auslander, 2000). The distance between teachers and their students is often increased (Cole & Kosc, 2010), which makes it increasingly difficult to maintain eye-contact with students and to encourage active involvement in the lecture (Nicol & Boyle, 2003). Mulryan-Kyne (2010) also indicates that student behaviour in the large, face-to-face classrooms, e.g. lateness and talking, can be much more difficult to manage.

3.2. Transitioning Face-to-Face Classes Online during the Covid-19 Pandemic

In March 2020, the majority of higher education institutions globally moved face-to-face programmes online. It should be noted, however, that this provision for online learning is not the same as planned online learning because the former brings teaching online in an emergency context (i.e. in response to the Covid-19 pandemic), while the latter plans for student learning in the virtual classroom from the outset of module preparation (Eaton, 2020; Hodges et al., 2020).

Undoubtedly, the emergency provision for online teaching and learning proved challenging for both staff and students as the virtual learning environment (VLE), which was previously seen as supplementary to the

face-to-face one (Yusoff et al., 2020), was now the primary conduit for instruction (Anzovino et al., 2020). The main challenge experienced by staff was creating an online classroom environment that nurtured student-teacher collaboration (Roache et al., 2020) and the caring learning environment, which motivates students (Straits, 2007).

Nonetheless, the overnight pivot to online teaching and learning presented opportunities. In particular, literature emerging in the last year or so suggests that the sudden provision for asynchronous learning increased the accessibility of higher education. For instance, the availability of pre-recorded lectures and recordings of live sessions allowed for greater flexibility, providing students with the opportunity to review class material at a suitable pace, time, and in a suitable environment (Creechan, 2020; Gierdowsky & Galane, 2020). In addition, the pandemic context perhaps heightened the reciprocal empathy between students and teachers, allowing an ethic of care to be embedded (Hornsby, 2020) in the online environment. Moreover, the sudden move to the online environment created a situation wherein most higher education teachers had to think about every element of their pedagogy (Farrell et al., 2021), including those teaching large class cohorts. Having said that, most of the literature appearing over the period of the pandemic, did not specifically refer to large class cohorts with some exceptions e.g. Hornsby (2020).

4. Empirical Methodology / Data

Three sources of data were collected as part of this evaluative research: (a) surveys of students and staff enrolled/working on large class modules from March - May 2020; (b) a rapid, systematised literature review, which was used to collate and determine what was already known, understood, and experienced by others (Gough et al, 2017) in relation to large classes, and online teaching and learning; and (c) data relating to the teaching supports provided by the DCU Teaching Enhancement Unit to large class teaching staff, e.g. engagement with online support resources on Loop and attendance at professional learning workshops. By analysing this data, the authors were able to ascertain the various experiences of large class staff and students during the emergency pivot to remote teaching and learning in March 2020. This analysis highlighted the main opportunities and challenges faced by large class students.

4.1. Increased Flexibility and Accessibility

As outlined in the literature review, the unprecedented move online increased the accessibility of module content. This is largely due to the increase in asynchronous teaching and learning activities, e.g. readings; videos; and recordings of presentation slides. Thirty- two per cent ($n = 108$) of students surveyed by the authors indicated that this was the most advantageous aspect of online learning. Open-ended responses from students also suggest that the availability of lectures on-demand made remote learning more accessible for students:

“Some lecturers, once finished, would put the recording of the lecture up onto Loop. I felt that this was extremely helpful as, due to being at home/being surrounded by distraction and the lack of the physicality of actually being present in the lecture hall, my attention tended to drift at some point and I sometimes missed some important pieces of information. [ST172]”

Staff views mirrored those of students in terms of their perception that the main advantages of online learning were the provision of additional online resources (36%, $n = 17$) and the opportunity for students to engage with materials asynchronously (21%, $n = 10$). Open-ended questions also elicited positive responses with regard to the accessibility of recorded lectures:

“Recorded lectures, so students could revisit. Students with accessibility or language issues have additional chances to engage with content [S36]”

4.2. Feelings of Disconnection in the Online Teaching Context

The sense of disconnect experienced in the large, face-to-face classroom (e.g. Cole & Kosc, 2010; Nicol & Boyle, 2003) was heightened during this unprecedented move online. In our survey of large class teaching staff, 85% ($n = 40$) of staff felt a strong feeling of disconnection with their students, with 56% ($n = 24$) reporting less personal interaction with students in the large class online teaching context. Some of the staff responses to open-ended questions further illustrate this feeling of disengagement with the student cohort:

“The biggest difference for me was the lack of teacher/student engagement ... in the big class, I speak to students as they enter the room; I walk all around the lecture “theatre” ... for me, teaching such a large group online was much “flatter” than F2F and, as a teacher, I found that difficult [S15]”

Students also reported feeling more isolated. In response to our survey, 65% ($n = 225$) of students either agreed or strongly agreed that they felt more isolated in the online large-class context than they did when learning face-to-face. This negatively impacted student learning, with one student reporting limited engagement with online lectures:

“I was easily distracted being in my own room. I missed my friends. I did not attend a lot of the lectures online and, unfortunately, I did not study half as much as I would have done in classes [ST104]”

5. Analysis of/ Reflection on / Implications for Practice

The issue of presence and connection is discussed across the literature on large class teaching and learning, with both staff (e.g. Auslander, 2000; Cole & Kosc, 2010; Mulryan-Kyne, 2010) and students (e.g. Suchman, Smith, Ahermae, McDowell, & Timpson, 2000; Arvanitakis, 2014) experiencing a sense of isolation. The data from our research indicates that this sense of isolation is emulated in the online space as a result of reduced synchronous teaching and limited peer-to-peer and student-teacher interactions.

Going forward, creating a strong teacher presence, which is a very important aspect of online pedagogy (Ní Shé et al., 2019), is an important consideration especially in the large class context whether online or face-to-face. A balance of synchronous and asynchronous engagement supports teacher presence. Synchronous learning activities, in particular, provide opportunities for students to communicate with

their large class teacher in real-time, e.g. synchronous sessions can be a useful space for students to ask questions and debate module content. The provision of asynchronous learning activities, however, increases the accessibility of remote, emergency teaching. This is of benefit to all learners, as evidenced in our survey of large class staff and students.

In addition to these measures, the teacher may also choose to create a short, introductory video for their class. This video might outline module learning outcomes, lecture timetables, or whatever is deemed appropriate by the large class lecturer. The lecturer should also encourage discussion using discussion forums on the VLE. This will help to reduce the isolation felt by large class students working remotely in the online space.

In conclusion, this paper has explored the opportunities and challenges faced by large class students during the first wave of the Covid-19 pandemic in DCU. Going forward, the large class teacher should focus on striking a balance between asynchronous and synchronous learning activities to nurture social interaction and to ensure accessibility for all learners. This will align the emergency remote teaching of large classes with best practice outlined by a range of researchers (e.g. Ní Shé et al., 2019; Yusoff et al., 2020). The full suite of implications for practice may be found in the final report on this research (Farrell et al., 2021) and on the resource created for DCU large class teachers (Farrell et al., 2020).

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Using UDL to redesign face-to-face, large class modules for the online, asynchronous environment

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Abstract

Following an initial emergency response to the Covid-19 crisis in March 2020, the higher education sector commenced planning for an extended period of remote teaching for the academic year 2020/2021. Such planning in Dublin City University (DCU) included the development of guidelines for hybrid learning, providing professional development opportunities for academic staff and redesigning programmes for hybrid and online learning contexts. In this context, it was necessary to redesign two face-to-face synchronous, 5-credit modules in religious education on the Bachelor of Education programme, each module comprising 400 students, into engaging, asynchronous, online formats. This paper explores the redesign of these modules with a particular focus on how the principles of Universal Design for Learning (UDL) informed the transformation of the modules for an asynchronous online learning environment.

Keywords: *online learning; Universal Design for Learning (UDL); asynchronous; presence; COVID-19; e-portfolio; large class*

1. Introduction

This paper explores the redesign of two face-to-face synchronous five-credit modules in religious education on the Bachelor (Hons) of Education (BEd) programme at Dublin City University (DCU) for an asynchronous online learning environment as part of the initial emergency response to the Covid-19 crisis. This paper will: [1] offer an account of the teaching and learning context of the modules, [2] review literature in the area of large classes, online teaching and Universal Design for Learning (UDL), and [3] provide an account of the redesign modules using the UDL guidelines.

2. Description of the Teaching/ Learning Context

The concurrent four-year BEd primary teaching degree at DCU Institute of Education is one of the largest cohorts in the university, but also one of the larger ITE programmes funded by the State in Ireland (Sahlberg, 2019) with an intake of over 400 students each year. Following an initial emergency response to the Covid-19 crisis in March 2020, DCU developed guidelines for hybrid learning; provided professional development opportunities for academic staff; and supported the redesign of programmes and modules for hybrid and

online learning contexts. In this context, it was necessary to redesign two face-to-face synchronous 5-credit modules in religious education on the BEd programme, into engaging, asynchronous, online formats.

Prior to the Covid-19 crisis, the modules were organised in a traditional face-to-face synchronous fashion with a plenary lectures in large lecture halls, and some small group seminars (30 students). The seminars involved significant active-learning by way of practical engagement with the *Catholic Preschool and Primary School Religious Education Curriculum for Ireland* (2015; hereafter CPPREC) and its corresponding programme *Grow in Love* (Veritas Publications, 2015-2019). Students were required to submit a traditional academic written essay at the end of semester for both modules. The size of the cohort and the practical character of seminar sessions presented a challenge for moving the modules online, augmented by the fact that the modules were not allocated synchronous teaching slots by the faculty.

3. Literature Review

Literature on teaching large classes in HE is typified by the challenges associated with the context (Allais, 2014); the dominance of the knowledge-banking dynamic (Stoerger & Kreiger, 2016); and the hindering of student performance (Hornsby & Osman 2014). The issue of presence and connection in the large class context is often questioned by teachers (Auslander, 2000; Cole & Kosc, 2010) and students (Arvanitakis, 2014; Cuseo, 2007) who find themselves isolated and disconnected. The quality of education and student experience are, as Hornsby and Osman (2014) highlight, the pedagogical aspects that are most affected by class scale. The size of a large class can often lead to a view that options for assessment are limited (Kerr, 2011) and that “continuous assessment is not manageable” (Farrell et al., 2021, p.31). Validity is often cast aside for the sake of reliability (Snowball & Boughey, 2012), i.e. multiple choice questions as the exclusive assessment method. Amid the Covid- 19 crisis, each of these challenges came into greater focus.

Dunlap and Lowenthal (2018) found that “...the highest number of recommendations shared by experienced online educators fell into the ‘presence’ theme...” (p.84). Teaching presence is defined by Anderson et al., (2001) as “the design, facilitation and direct instruction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes” (p.5). Meaning-making by way of sustained dialogue is the primary concern of cognitive presence, whereas, social presence is ultimately concerned with “the projection of oneself as a real person within the online environment” (Ní Shé et al., 2019). Finally, teaching presence is accomplished by way of the design of learning environments, corresponding activities and the accommodation of the intersections betwixt and between these three presences (Ní Shé et al., 2019). In taking account of the recent pivot to online teaching, Buckley et al. (2021) suggest that these presences are key pedagogical elements to be considered in terms of the “provision of opportunity for student interaction and engagement in the convergence of the large class and online contexts” (p.5). In coordinating an online course, cultivating a sense of a learning community can assist in meeting the needs of students who may feel isolated in an online teaching context (Dunlap & Lowenthal, 2018).

UDL offers guidelines for curriculum development that are informed by three principles:

[1] multiple means of engagement – “stimulate motivation and sustained enthusiasm for learning by promoting various ways of engaging with material”, [2] multiple means of representation – “present information and content in a variety of ways to support understanding by students with different learning styles/abilities”, and [3] multiple means of action and expression – “offer options for students to demonstrate their learning in various ways, e.g. allow choice of assessment type” (CAST, 2018). These principles serve as a guide to professional practice to ensure equity of learning for all students, enhancing and enriching the educational experience of all students by integrating flexible methods of teaching, assessment and service provision.

4. Reflection on Practice

In redesigning my modules for the online environment key principles for good practice in technology enhanced education were followed (Ní Shé et al., 2019): [1] encourage student- faculty contact, [2] encourage active learning, [3] respect diverse talents and ways of learning (Gorsky & Blau, 2009), and framed by the principles of UDL. The concept of ‘presence’ was of principal importance to the effective transformation of the modules (Anderson et al. 2001; Dunlap & Lowenthal, 2018; Feng et al. 2017; Garrison et al. 1999; Trammel & LaForge, 2017). It was essential to take a holistic approach (Delors, 1996) ensuring that students were enabled to participate in authentic learning moments or educational ‘happenings’ (Aldridge, 2017), events in which students encountered and actively learned something new as opposed to merely completing a task.

4.1. Multiple Means of Engagement

Guided by the UDL principle of multiple means of engagement (CAST, 2018), the asynchronous nature of the module allowed for flexibility in terms of students engagement with course content. In order to motivate and encourage student participation, a module handbook was created for each of the Moodle) module pages containing all of the necessary information for students to successfully participate including module navigation information, learning outcomes; assessment brief; reading list; and conditions of the lecture-tutor relationship, i.e. expectations of students and faculty, and communication procedures.

Clarity in communication supported students in transitioning to an asynchronous environment encouraging meaningful engagement with the module content (Dunlap & Lowenthal, 2018; Edwards et al., 2011). ‘Presence’ was a central component in the module redesign (Buckley et al., 2021; Dunlap and Lowenthal, 2018). Each chapter of the module book, alongside any text-based content, contained a pre-recorded video wherein I spoke to students providing further explication of key points and direction in terms of successfully engaging with the module content. These videos contributed to the building up of both social and teacher presences (Baran et al., 2011; Dunlap & Lowenthal, 2018; Guasch et al., 2010; Smits & Voogt, 2017; Trammell & LaForge, 2017).

4.2. Multiple Means of Representation

Moodle books were created for each lecture topic, providing structure, consistency, ease of content access and clarity around associated tasks (Dunlap & Lowenthal, 2018). Pre-recorded videos were utilised for general announcements embedded alongside textual announcement, to ensure that module content was available in multiple formats (CAST, 2018) and contributed significantly to the establishment of relationships between students and lecturer (Dunlap & Lowenthal, 2018; Gorsky & Blau, 2009; Trammell & LaForge, 2017). Guided by the UDL principle of multiple means of representation (CAST, 2018), all content was accessible in multiple formats – video, texted-based, audio etc. (CAST, 2018). The need to ensure that content was available in multiple formats was heightened as the cohort included students following the Irish Sign Language (ISL) pathway in the BEd s.

Video and audio content required translation by ISL interpreters or, at the very least, the use of captions. By offering course content in multiple formats, a personalised learning experience was created for students within which their diverse talents and ways of learning were being actively respected (Gorsky & Blau, 2009).

Redesigning the seminars posed the greatest challenge. In reimagining this synchronous format for an asynchronous context learning technologies such as, H5P, discussion forums, quizzes and Zoom recordings were utilised (Carril et al, 2013). The redesigned seminars began with a pre-recorded video of a conversation between members of the Religious Education faculty around a specific seminar topic, further reinforcing the social and teacher presence in the module (Baran et al., 2011; Dunlap & Lowenthal, 2018; Guasch et al., 2010; Smits & Voogt, 2017; Trammell & LaForge, 2017), as well as ensuring students encountered a diversity of voice (CAST, 2018). To facilitate active learning in the seminars, students engaged with necessary content by way of interactive H5P presentations.

Peer-to-peer engagement and feedback was reimagined by way of interactive H5P presentations and student discussion forums (Mbatl & Minnaar, 2015; Smits & Voogt, 2017). Each H5P presentation ended with a s task that required students to engage with content from either the *CPPREC* (2015) or *Grow in Love* (Veritas Publications, 2015-2019) and post their insights on Moodle discussion forum monitored by faculty. This created a degree of spontaneity accommodating the hermeneutical movement from knowledge to understanding by deepening the relationships between members of the online learning community by way of dialogical or conversational interaction (Baran et al., 2011; Dunlap & Lowenthal, 2018; Guasch et al., 2010; Smits & Voogt, 2017; Trammell & LaForge, 2017).

To further enhance social and teacher presence as well as diversity of voice within the module (CAST, 2018), podcasts with various professionals from the area of religious education were recorded and made available on Moodle.

4.3. Multiple Means of Action and Expression

The traditional end-of-semester essay was transformed into a three-part continuous assessment motivated by the desire to further enhance student agency, ownership and understanding of the module content (CAST, 2018). Students created personal e-portfolios containing two critical reflections that focused on two to three artefacts from the course content and one meta-reflection on their learning journey Embedding

choice enhanced student-agency as students could utilise various media formats, i.e. text-based content, audio, video etc., within their portfolios. A detailed rubric was made available at the beginning of semester which provided transparency in assessment process. Guided by the UDL principles, students were awarded marks not only for content knowledge and depth of reflection, but also for creativity, design and innovative use of ICT (CAST, 2018; Donaldson, 2018).

Conclusion

The redesign of the modules was, for the most part, successful in terms of meeting the needs of large cohorts. It would be disingenuous, however, if it was not made explicit that the redesign and co-ordination did cause increased workload, encountered predominately at the developmental stage of the modules, i.e. during the redesign process. Once the modules were up and running, the workload became more manageable. Student feedback indicates that they were satisfied with the modules but that a blended or hybrid approach would be more appropriate to their specific needs, aligning with the insights evident in the literature (Farrell et al., 2021; Ní Shé et al, 2019). While teaching online is certainly different (Ní Shé et al, 2019), many practices are transferable to the face-to-face environment. Aspects of the redesigned modules will be retained if there is a return to face-to-face delivery. The opportunities for novel learning moments offered by the use of interactive H5P, podcasts and reflection-based assessment methods should be embraced by academics teaching large classes, especially if they wish to move beyond the view that a limited traditional lecture- style pedagogical approach is the only viable teaching method for large classes environment (Farrell et al., 2021). Utilizing the principles of UDL as a frame of reference for pedagogical redesign was important as the students and I were unfamiliar with the experience of asynchronous teaching and learning.

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The experience of drawing courses in higher education large classes during the Covid-19 pandemic scenario

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Abstract

Representation techniques -in particular freehand drawing- in the Product Designer's activity play a fundamental role in describing the different phases of the project development: the "ideational" phase, the "intermediate" phase, and the "technical - documental" one.

Because of this role, at Politecnico di Milano Design School we are trying to improve the effectiveness of representation courses by innovation in teaching activities used with relatively large classes. The process started during the academic year 2017/2018 with the revision of two foundational courses of the first year of BSc in Product Design: "Drawing Studio" and "Methods and Instruments for Design".

In March 2020, the covid-19 pandemic forced us to change the methodologies and tools quickly. Some methods and tools used in the emergency have performed above expectations. This work aims to describe methods and tools used in a fully online teaching environment having to teach a "hands-on" subject such as freehand drawing in large classes.

Keywords: *Design representation; drawing; online teaching; product design; large class*

1. Introduction

In the early days of March 2020, just before starting the academic year (AY) 19/20 second term, the restrictions in free movements due to the covid-19 pandemic faced us with a significant challenge for university teaching. In the space of a few days, we had to retune all the didactical programs designed for traditional in-person education towards a fully online teaching environment.

The Politecnico di Milano university has invested heavily in acquiring software tools and training teachers with dedicated lectures and workshops in a short amount of time to support the teaching staff in this sudden transition. First, the university provided a framework of tools and general indications. Then, each professor had to develop specific procedures to adapt the content to the courses' needs.

This paper will investigate the tools and methods in which freehand sketching was taught in fully online teaching mode. Afterwards, a critical evaluation of these methods and tools will be made, and the effects they had on the students' work results will be analysed.

2. Literature Review

The research has been based on the idea that design has a pervasive dimension and specific cognitive properties (Cross, 1982; Oxman; 1999; Schön, 1983) and that representation techniques in the product designer's activity play a structural role in describing better the different phases of the project development (Celaschi & Deserti, 2007): the "ideational" phase, the "intermediate" phase and the "technical/documental".

In this scenario, analogical freehand sketches still play an essential role in teaching the disciplines of representation. Freehand sketching on paper is still the most intuitive and fastest way for industrial designers to describe their ideas, visions, and draft projects (Henry, 2012).

For product designers, a good skill in freehand drawing is consequently crucial for two different reasons: for a better self-refinement of the initial idea because "to draw 'in order to' design also means drawing 'while' designing and designing 'while' drawing" (Maldonado, 1987, translated from p. 59) and for better communication of the idea (Pasca, 2010).

Therefore, the challenge we faced is how to teach freehand sketching online to a relatively large class (60/70 students) at a technical university while maintaining the experiences that took place during in-person teaching. These included watching the teacher drawing, delivering, revising, correcting sketches and, finally, debating with the students. Active learning is the best way to empower student engagement (Grunert, 1997) and maintaining the high levels of engagement and interaction between students and lecturers is fundamental

(Hornsby, 2020). The concept of what constitutes large in terms of higher education class size remains contested, and a large class may be understood very differently depending on the discipline of study and the nature of the learning task (Hornsby & Osman, 2014). In this context, teaching a very "hands-on" practical skill of freehand sketching to first-year students required very high levels of interaction between students and lecturer and ongoing formative assessment and feedback. Arguably, this represents a large class and challenging teaching and learning context in disciplinary and pedagogical terms. Additionally, from this experience, possible opportunities to make the teaching of drawing at the university level more effective will be assessed. Some of these opportunities made teaching more inclusive (Holmes, 2018) during the pandemic. This was true for some sensitive groups as well as the day-to-day issues students faced that were difficult to address individually in a large classroom. Lastly, methods and tools that can be used in ordinary teaching once this will be back carried out entirely in presence will be identified for a relatively large class (60/70 students) at a technical university while maintaining the experiences that took place during in-person teaching.

3. The Teaching and Learning Context

In this paper, two courses were analysed: "Drawing Studio" in the first term and "Methods and Instruments for Design" in the second one. The number of students in each course was 60 and 70 respectively, with most of the students connected from Italy.

The purpose behind this work is to maintain or increase the high-quality of the Design School's teaching. The software initially made available by the university was Microsoft Teams (second term of AY 19/20). This software was then replaced by Cisco Webex Meetings (first term of AY 20/21). During the first two months, teaching was carried out in blended mode, with part of the students in the classroom and part online from remote locations; in November 2020, teaching switched entirely online due to the worsening of the health situation. A few considerations before describing the tools and methods used:

- The technical setup is essential. It should be as smooth as possible, and it should meet the demands of the teaching situation (Müller, 2020). The teacher's internet connection must be broadband, especially for uploading (video transfer).
- In addition to all tools made available by the university, teachers must be creative by adapting tools to his/her own needs.
- It is necessary to base the student's evaluation on objectives to be achieved instead of checking in an exam and searching for alternative approaches to evaluation (Hornsby, 2020).
- It is necessary to be aware that interactions need to be managed and guided much more in online situations.

Therefore, below is a description of the procedures chosen and their relationship to the teaching of freehand drawing.

3.1. Cameras

Two cameras were used during the lessons: the first was the computer's webcam to frame the speaker, the second was a top-view camera pointed at the desk. During a typical lesson, the professor's webcam remained on, the top-view camera was switched on only as needed, and the students kept their webcams off.

While having the teacher's webcam switched on is a standard procedure in all courses, using a top-view webcam makes students see the body's movement during drawing operations. This method allows students to learn by seeing through their mirror neurons (Freedberg & Gallese, 2007; Cattaneo & Rizzolatti, 2009), which activate when we see an action being performed, as drawing is (fig. 1).

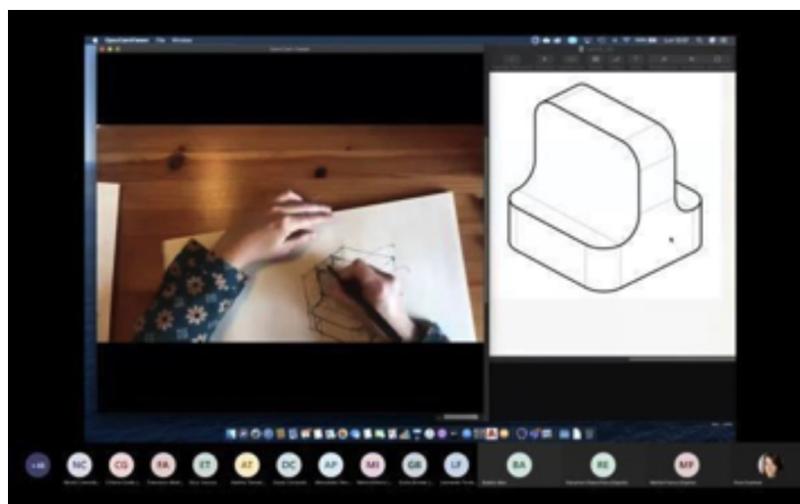


Figure 1. Screenshot highlighting the screen sharing layout during exercise execution.

Screen sharing was enabled with moving image optimisation: this compression tends to optimise the movement visualisation, maintaining a high framerate at the loss of the quality of the single-frame sent. However, the movement of the teacher's hand is transmitted with a sufficient degree of fluidity.

3.2. Recordings

The recorded videos lasted four hours, as the duration of each lesson, because no post- production was ever done. In this way, the videos were made available in a short time. The possibility of recording videos was also used as off-line support for some communications or exercises' clarification. However, the recordings were not intended to substitute lessons attendance, except in exceptional cases due to health emergencies. The lesson, by its nature, must be attended in real-time because it is also made up of digressions, jokes and anecdotes, aimed at more significant involvement of students.

3.3. Assessments and Feedbacks

The exercises submissions were made digitally. Two methods were used: the submission of the exercises made during the lesson time and the submission of the exercises made as homework. The submission of the exercises in the class had the additional purpose of verifying the confirmed attendance of students during lessons. The homework assignments were always launched with an explanation text, links to videos and websites that could further support. In both courses, they were also asked to complete a sketchbook with sketches and various graphic experiments.

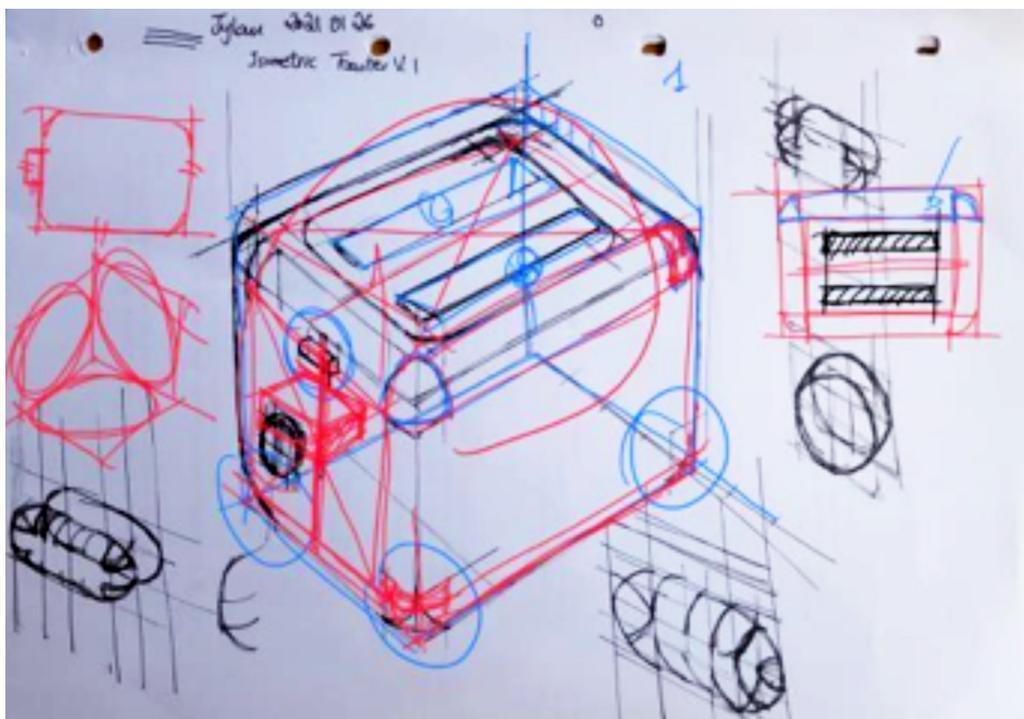


Figure 2. Reviewed drawing with tablet (red and blue strokes).

As suggested in some studies of student's engagement, a more holistic, socially embedded conceptualisation of feedback given to students is needed (Price et al., 2011).

For this reason, a significant part of the course was allocated to collective feedbacks, which was made possible by online delivery and screen sharing. Occasionally, lecturers used a tablet to fix the submitted drawings (fig. 2) directly. The collective review was chosen to allow each student to understand their own mistakes: several feedbacks are the best way for students to overcome their difficulties.

3.4. Results

The quality of students' work has been as good as, if not better than, the classes that had attended the course in previous years. In some cases, the difference between the drawings produced in the first few weeks and those delivered at the end of the course was genuinely remarkable (fig. 3).

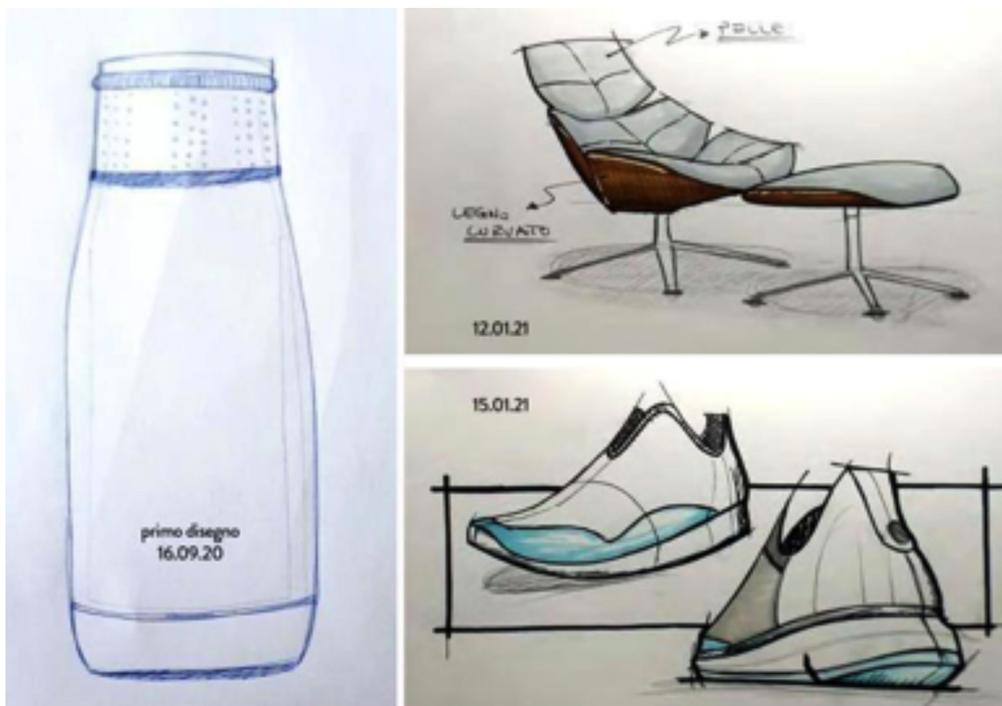


Figure 3. Comparison of a drawing made on the first day (left) and two made at the end of the course (right) by the same student.

4. Conclusion

For a product designer, the expressive ability through drawing is fundamental (Eissen & Steur, 2016). Therefore, it is necessary to develop and encourage this ability from the first lessons of the degree course. Even if assisted by digital technologies, drawing remains an analogical gesture that involves hand-eye coordination and the ability to perceive and analyse shapes and proportions (Coradeschi, 1986). Due to the manual nature of the subject, organising the two courses online was very complex and required a refinement of methodologies that have not yet fully achieved.

The isolation and distancing required to contain the effects of the covid-19 pandemic forced a review of many of the teaching methods usually used to adapt them to the online modes of remote teaching. In the case described in this paper, these changes have nevertheless made it possible to activate the use of specific tools and adopt certain methodologies that could bring a valuable improvement to classroom teaching once the current restrictions have been lifted.

The top-view camera has been the most successful tool to be maintained, also in face-to-face teaching. Indeed, using it instead of the blackboard allows all students to see in the same way and allows teachers to draw in the same position as students do.

Recordings should only be those necessary for the explanation of exercises. Regardless, recordings produced during lessons are not considered a substitute for attending the lesson in real-time. In order to include any students who are unable to attend the class for health reasons, whole lessons could be streamed.

The number of exercises and the collective reviews has proved to be an excellent teaching tool integrated with the horizontal teaching scenario in face-to-face courses. Overall, it is believed that this experience could become an essential source of innovation both within university teaching in general and in design teaching processes with relatively large cohorts.

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Flipping the flipped classroom online

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Abstract

The intensification of digital technologies in higher education is prevalent and has become a necessity for current practice on a large scale. In re-acting to the global pandemic, a previous model of the flipped classroom to support 436 pre-service teachers learning required reimagining to facilitate teaching and learning in the online environment. This article reports on the combination of digital instructional tools to engage students in asynchronous and synchronous tasks while implementing the principles of Universal Design for Learning. The HTML5 software package (H5P) was integrated within the online course management system Moodle to promote all students' flexible and self-directed learning prior to participating in a small group synchronous Zoom class with a Faculty member, using PowerPoint and online apps. The integration of technology into higher education large classrooms and the use of UDL as a framework by academics in designing the curriculum going forward, presents an opportunity to support the affective and cognitive learning of the diverse student population in large classes.

Keywords: *Asynchronous and synchronous learning; online teaching; Universal Design for Learning, digital instructional tools, large sized class.*

1. Introduction

The COVID-19 pandemic has and continues to impact pedagogical practices across all sectors of the education continuum, propelling higher education institutions into an era of online teaching and learning dependent on the use of digital tools and various online learning platforms. The movement from traditional face-to-face teaching that was enhanced by digital technology to a fully online learning experience that is contingent on technology, has presented challenges and potentially new opportunities for academics and students alike. Prior to the global pandemic, digital technology facilitated a blended learning experience in higher education institutions with the prominence of the 'flipped classroom' teaching model becoming a pedagogical feature. The design of the flipped classroom (Baker, 2000) enables students to engage with content prior to class to facilitate more interactive and experiential learning in-class. This would suggest that this pedagogical model is effective when working with pre-service teachers, who need to develop discipline knowledge, while simultaneously, practicing and refining application. This illustrates the intricacies of teacher education programmes which are underpinned by learning about teaching and, teaching about teaching (Loughran, 2005). However, this article will detail how "the thoughtful fusion of

face-to-face and online learning experiences" (Garrison & Vaughan, 2008, p.5) for a large class underwent a further 'flip' when the traditional face-to-face component of a module moved online, leading to the re-design of the online learning experience using the Universal Design for Learning principles and capitalising on digital instructional tools such as the HTML5 software package H5P integrated with the online learning platform, Moodle.

2. Description of the Teaching/ Learning Context

The impetus for reviewing and consequently, redesigning the teaching and learning context that will be reported here, was to move traditional face to face teaching to an online learning environment for a class of 436 students. This large class were registered to complete an early childhood mathematics education module as part of their second year of the Bachelor of Education initial teaching education programme at Dublin City University during January to April, 2021. In previous years, this module was designed on the premise of being a flipped classroom whereby, approximately 400 students would have engaged with material online independently (asynchronously) in advance of a small group (approximately 40 students) face-to-face two-hour workshop. However, on reflection of previous practices, the asynchronous activities lacked variety as they primarily focused on online reading material that was more applicable to a particular type of learner. This may have contributed to the perceived lack of engagement or completion of the activity that was observed by faculty members when drawing on the students' learning in the face to face workshops. Consequently, faculty members were allocating increased time introducing the content presented in asynchronous material as it predicated the experiential learning experiences in the workshops, leading to reduced time for student-faculty interaction and feedback. This implied that the rationale for the implementation of the flipped classroom teaching model was counterproductive, meaning that the nature of the asynchronous activities required consideration and redevelopment.

The need for the redesign of the teaching and learning activities for this large class was further amplified when the face-to-face small group workshops pivoted to synchronous online teaching using one-hour Zoom meetings. Replicating the interactive and hands on nature of the face to face workshops on Zoom would prove challenging but the means to do so required investigation so that the pre-service teachers would learn about early childhood mathematics but also the teaching of early childhood mathematics education. Echoing Loughran's (2005) understanding of teacher education, the principles and pedagogies used to teach the content needed to be modelled by teacher educators to inform the students' future teaching and prepare them for teaching. In response to the current teaching landscape, this meant that pre- service teachers need to be prepared to teach children, either face-to-face and/or online. This remit posed many challenges for the faculty members teaching online and particularly for the early childhood mathematics education module where discussing and collaborating in small groups of peers while handling concrete resources and manipulatives is central to good early mathematics pedagogy (Dooley et al., 2014; Gifford, 2004).

In an effort to support the students' engagement, learning and their future teaching, the Universal Design for Learning (UDL) framework (Centre for Applied Special Technology, (CAST), 2018) was utilized when

redesigning the flipped classroom to establish an active learning pedagogical method that integrated a mixture of asynchronous and synchronous activities. The UDL principles of Engagement, Representation, Action & Expression were adopted in an effort to ensure that the student population within the large class could access and participate in the weekly flipped classroom comprising of asynchronous and synchronous learning experiences. In advance and in preparation for a live Zoom workshop which was based on a PowerPoint presentation and the integration of online apps, the student engaged with H5P interactive content comprising of activities and tasks that varied each week. H5P is an open source content creation tool that hosts a range of multi-media resources and facilitates the incorporation of UDL when designing teaching and learning experiences. The H5P presentations and teaching materials to complement the Zoom workshops were made available on the students' online learning platform, Moodle. Appendix A illustrates a sample of the flipped classroom activities that aimed to accommodate learner differences and variability of the 436 pre-service teachers learning about early childhood mathematics education. Feedback was sought from the students midway through the semester to ascertain the students' perspectives on the activities in terms of their affective (positive learning experience) and cognitive (actual knowledge gain) learning. While the feedback was largely positive about the teaching and learning experience, feasible suggestions that were offered by the students, were reflected in the flipped classroom activities for the remaining weeks of the semester. On completion of the module, students were again requested to provide feedback on the changes made, and on this occasion, it would appear that the asynchronous and synchronous activities suited the students' learning. Nevertheless, in considering this positive student feedback, it was important to note that relying solely on student perceptions may not be indicative of assessing student engagement and academic achievement stemming from the flipped classroom (McNally et al., 2017).

3. Literature Review

Universal Design for Learning is a pedagogical framework that aims to provide an equal and inclusive learning experience for students and which caters for differences of learning approaches (CAST, 2018). A universally designed curriculum provides a range of options for engaging students in the learning process and takes into consideration that no single approach will work for all students (Spencer, 2011; Saap, 2009). As indicated in Appendix A, UDL is established on three core principles 1). Multiple means of engagement (the "why" of learning) 2). Multiple means of representation (the "what" of learning) and 3). Multiple means of action and expression (the "how" of learning). Teaching and learning can be accessible for all students by intentionally planning options for i) learner engagement, ii) content representation and iii) learning expression, using instructional design concepts, pedagogical knowledge, and instructional technology (Capp, 2017). Kumar & Wideman (2014) corroborate that underpinning pedagogical practices with UDL can have a positive influence on increased flexibility, social presence, reduced stress, and enhanced success of students' learning. Therefore, when UDL is embedded in the design of the teaching and learning experience, the diversity of learner needs, styles and abilities can be accommodated for, making the framework particularly applicable in supporting the inclusion of students in a large class (Dean et al., 2017).

In the teaching and learning context reported here, the combination of the digital instructional tools H5P, PowerPoint, Moodle and online apps, assisted with the application of the UDL principles while

simultaneously, expediting active teaching and learning in the online flipped classroom. Brame's (2013) definition of flipping the classroom means "students gain first exposure to new material outside of class, usually via reading or lecture videos, and then use class time to do the harder work of assimilating that knowledge, perhaps through problem solving, discussion, or debates". In relating this pedagogical practice to a revision of Bloom's taxonomy (Anderson & Krathwohl, 2001), Brame argues that the flipped classroom affords students the opportunity to participate in lower levels of cognitive work like gaining knowledge and conceptual understanding outside of the class and consequently creates time and space to engage in higher forms of cognitive work (application, analysis, synthesis, and/or evaluation) in class with the support of peers and a faculty member. Research indicates that students can be kept highly engaged when using this flipped classroom model in higher education as it fosters empowerment of students to self-direct their learning by managing their learning pace and self-regulating their learning (Reyna et al., 2020; Barnard et al., 2009). Although digital technology and active learning support this instructional model, it should be highlighted that social presence and teacher immediacy are contributing factors to successful student engagement and participation in the flipped classroom (Gunter & Kenny, 2014). Faculty members who wish to adopt this instructional model should ensure that the curriculum is driving the teaching and learning experience, as opposed to the availability of technology (Shelly et al., 2012). Similarly, Long et al. (2017) recognise that effective teaching with technology requires understanding the mutually strengthening relationship between technology, pedagogy and content to develop appropriate and context-specific instructional strategies. In doing so, can lead to a positive impact on all students' affective and cognitive learning both inside and outside of the large classroom (Dean et al., 2017).

4. Analysis of / Reflection on / Implications for Practice

As a pedagogical model, the flipped classroom has its challenges for implementation. For example, the development of online learning materials is time-consuming and requires digital competency and skills using the technology, in this case the use of H5P. Training was provided by the University's Teaching Enhancement Unit to assist with the initial introduction to H5P but it was through experimentation, student feedback and reflecting on UDL, that the potential of H5P as an instructional tool to provide an inclusive learning experience became apparent. The integration of digital technology into higher education presents an opportunity to transform traditional pedagogy and is of particular relevance in these unprecedented times;

Rather than lamenting the fact that the role of teacher education and indeed of the University in a world of super complexity is now radically changed, it is perhaps even more exciting to be a part of this era as it has unbounded possibilities, unknown unknowns, space for risk and experimentation, permission to be uncertain and insecure, and contains the awkward spaces in which we can find some of those unknown unknowns (Ling, 2017, p.570).

As the teaching and learning context discussed in this paper illustrates, the implementation of the UDL framework can support academics in curriculum design whereby enabling an inclusive learning environment that will continue to be of critical importance post-COVID, whether the instruction is face-

to-face or online. The modelling of applying UDL to teacher education is of significance too as it grants pre-service teachers an opportunity to engage in experiential learning of the pedagogical practices that they will implement when providing an inclusive education to children in the future. On reflection of the changes made to the module this year, further transparency and explicit communication of the rationale for the pedagogical approach adopted would have further enriched the educational experience for the pre-service teachers. While the paper documents how the UDL principles were aligned with the flipped classroom model using a combination of digital instructional tools and active learning specific to an early childhood mathematics education module, it offers an insight into how academics can effectively meet the diverse needs of a large class without compromising the quality of teaching and learning.

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MOOC on a Bachelor's degree final project (TFG): Prototyping and design

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Abstract

This paper deals with a didactic project that includes the design of a brief online course as a massive open online course (MOOC) aimed at large-scale interactive participation. In addition to traditional course materials such as videos, readings, and problem sets, it provides interactive-user forums that help build a community for large groups. On this purpose, the current paper attempts to show how this type of short courses can support tertiary education. One of the goals of the present MOOC is to help students to write their Bachelor's Degree Final Project (TFG), following a scaffolding strategy on a step-to-step account (Da Cunha, 2016; Cargill & Connor, 2016). A total of 1422 students from a Spanish distance education university (UNED) took the course in its first edition in March 2021. The course evaluation survey draws the conclusion that the scaffolding strategy followed in most of the video recordings fulfilled participants' expectations.

Keywords: UNED; MOOC; TFG; distance teaching; large groups; scaffolding

1. Introduction

One way to support pedagogical research in distance learning is the creation of Innovative Didactic Groups (IDG) that contribute to the implementation of innovative experiences in teaching practices for large groups, paying attention to a specific pedagogical orientation as expected from university teachers (Prosser & Trigwell, 2014). Teaching Innovation Groups are, in fact, work teams who collaborate in a stable manner in the implementation of innovation and teaching improvement activities at tertiary-level institutions¹. To this end, the largest Spanish University of Distance Education (UNED) provides institutional support, in the form of professional recognition, as incentives for the activities organised by their teachers².

It is in this framework that the MOOC described in this paper focuses primarily on the design of relevant tasks for university students to complete their Bachelor's Degree Final Projects (TFG, using the Spanish term). The MOOC addresses most Spanish-speaking audiences from all over the world, which is challenging but extremely rewarding as has also been shown in other recent pedagogical experiences for large groups (Farrell & Logan, 2019; 2020).

1 <https://www.uned.es/universidad/inicio/institucional/IUED/innovacion-docente/grupos-innovacion/grupo-57.html>

2 <https://iberoeconomia.es/mercados/uned-la-universidad-espanola-mas-alumnos-matriculados/>

2. Designing the MOOC's Scaffolding Methodology

As its title indicates, the MOOC "Writing the final Degree paper (TFG) in 6 steps" involves a scaffolding methodology, since the course attempts to break up the learning into modules, providing a tool, or structure, with each of them. All learning modules consisted of video recordings and we followed UNED Abierta's guidelines to offer recordings that could break the routine and generate attractive content. All the video clips had a very limited and simple language, avoiding too many technicalities. Since the MOOC methodology also sought to awaken student's curiosity and promote social learning, a number of forums were organised to discuss the learning evidence in a collaborative and fun way. By designing a series of self-assessment tests, students were expected to get into the distance learning context quickly so that they could work independently for their own purposes. We ensured that the short videos followed a logical sequence, so that we could follow the scaffolding methodology mentioned above. Following Pop & Salzberg (2015), the MOOC also included supplementary materials for supporting alternative student needs.

3. MOOC Proposal

3.1. Goals

There were three main objectives that the MOOC attempted to meet as a supportive learning resource. Firstly, we wanted to guide students in the acquisition of the necessary and specific skills in the process of preparing their final paper required to complete their degree, which is part of the requirements of most official university degree courses. Secondly, we attempted to provide students with resources and conceptual and methodological strategies that facilitate the writing process from preparation, to design and final writing. Thirdly, we aimed at letting students complete a series of tasks of (self) evaluation of the acquired knowledge in a collaborative fashion.

3.2. Participants

The MOOC addressed two groups of participants. First of all, the MOOC was intended to help students of official Bachelor's degrees in any field of specialty (Experimental Sciences, Health Sciences, Social and Legal Sciences, Humanities, Technical Education and Humanities). In addition, the MOOC also addressed faculty of official university degree courses who were interested in following a scaffolding methodology for their students in the final degree courses who are not very familiar with the writing of academic papers (Da Cunha, 2016). As many as 1422 students participated in the first course edition which included a questionnaire for research purposes as we discuss below.

3.3. Timing

The course was intended to have a maximum duration of 25 hours as student load and, therefore, it consisted of approximately 4 weeks, which also allowed students to have a flexible pace of work. The MOOC was firstly announced in October 2020. The course started on February 15, 2021 and ended on March 15, 2021.

3.4. Video clips

The MOOC was based on the IEDRA web-platform which follows the UNED Abierta educational structure for most courses³. To begin with, participants were given some guidelines to understand how this type of courses worked. As explained above, these brief courses made a relevant use of short videos in the form of video clips as an essential e-learning resource. They were distributed within the different modules which revolved around relevant content for learning how to organise academic information and write final degree papers. Each module included a number of open questions, such as those found in Table 1, to raise interest on the course topics concerning each module.

Table 1. Module open questions

Module	Open Question
Module 1	<ul style="list-style-type: none"> ■ What is a final Degree paper (TFG)? ■ What are the stages and the structure that I must follow for its preparation?
Module 2	<ul style="list-style-type: none"> ■ What strategies should I follow in order to write a good abstract and choose the right key words? ■ How can I write a good introduction? ■ What should I take into account in order to find an appropriate and attractive title for my final degree paper?
Module 3	<ul style="list-style-type: none"> ■ What steps should I follow to review previous studies related to the topic of my final degree paper?
Module 4	<ul style="list-style-type: none"> ■ What elements should I keep in mind for the design of my own methodology?
Module 5	<ul style="list-style-type: none"> ■ How should I report my results and their discussion? ■ How can I draw relevant conclusions?
Module 6	<ul style="list-style-type: none"> ■ How can I make citations and include bibliographic references? ■ What type of information should appear in final annexes? ■ What other issues should I take into account to include information? (the use of tables, pictures and graphs

3.5. Tasks

After each video clip a series of tasks were included to let students work on their own knowledge. Self-assessment tests and discussion forums were added so that students could raise their related questions. Finally, a course-evaluation survey was delivered to all participants to conduct future research and to check the validity of the design.

3 For an overview of the courses offered by UNED Abierta visit the following website: <https://iedra.uned.es/>

Not all the participants completed the survey but we obtained a total of 182 students' responses. According to 95.6% of respondents, the course fulfilled their expectations, and 95.6% would recommend it. The degree of satisfaction was measured through a 1- 4 Likert scale. The most valued aspects of the course were: the video clips (3.38), the topics addressed (3.36), their own learning process (3.34) and their understanding of the course contents (3.34).

3.6. Forums

As mentioned above, being part of MOOC forums is crucial for collaboration. The level of discussion and interaction is helpful for knowledge acquisition and to enhance the effects of learning (Zhao et al., 2014). To support students' participation, a tutor was hired to exclusively focus on keeping the large group's forum discussions. Students not only exchanged ideas and shared queries, but could also benefit from co-building knowledge with their peers.

4. Conclusion

Writing Bachelor's Degree Final Projects (TFG) is one of the main concerns of students enrolled in universities today. The MOOC presented in this paper crucially revolves around the main steps required to complete TFGs, addressing large groups. According to most respondents the implemented scaffolding strategy with and through videos was motivating since they felt inspired to take action during the TFG writing process. Arguably, this approach led to the development of a high-quality educational system which is accessible to all students worldwide. In other words, an e-learning platform such as this can improve traditional education methods in distance learning, especially, for large groups. The question is how, if ever, students might take further responsibility for their own learning process, but this remains open for future research.

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A problem-based group task for exploring quantitative research design and analysis: facilitating collaborative problem-solving with large classes online

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Abstract

This paper explores the adaptation of a problem-based group activity for teaching large classes online during the Covid19 pandemic. Semi-structured discussion, active learning and provision of a positive collaborative atmosphere are foregrounded as priorities in the adaptation process for maintaining learner engagement online. The need for expanding and refining instructional prompts was identified as an unexpectedly useful implication of the developmental process likely to feed back into large class face-to-face teaching in the future.

Keywords: *Collaboration; problem-solving; quantitative methods teaching; large class*

1. Introduction

In this paper I reflect on experiences of adapting a small-group, collaborative learning activity for use in an online teaching environment with large classes during the Covid19 pandemic. While some commentators have sensibly warned that “simple ‘onlinification’ of face-to-face lectures will not result in positive experiences for academics or students” (Lee, n.d., para. 7) my aim here is to share a rather more positive example of intentionally emulating aspects of teaching that have been argued to be challenging with “large classes” (Kirstein & Kunz, 2015) in online teaching contexts (Stone & Perumean-Chaney, 2011).

2. The Learning and Teaching Context

The task presented is situated in a two-hour teaching session on quantitative research methods courses. Sessions combine limited direct instruction interspersed with collaborative activities for smaller sub-groups: “facilitating a ‘small class feel’... breaking up a traditional lecture into smaller segments and incorporating active learning activities.” (Lynch & Pappas, 2017, pp. 199-201). In this example, learners are guided to collaboratively explore the concepts of sampling, inference and correlation without the need for demanding numerical calculations.

This activity has been used with undergraduates and postgraduates in Journalism Studies (50 students), Education Studies (up to 70 students) and Medicine (20 students) at one higher education institution in the

United Kingdom. Though not the largest groups of students on such programmes, “the effects of class size are varied and contextual” (Mulryan-Kyne, 2010,

p. 176) and these classes are considered “large” in the sense that a pedagogical approach “not usually thought to be appropriate for large group situations” (Kirstein & Kunz, 2015, p. 223) is being used in “environments where the quality of student learning may be impacted, negatively, by the number of students in the class” (Hornsby & Osman, 2014, p. 719).

Prior to mandated moves to online teaching, these sessions took place in workrooms or lecture theatres where learners’ engagement with small-group activity could be monitored and guided by circulating the teaching space (Kirstein & Kunz, 2015; O’Hanlon et al., 2019). These sessions have subsequently been taught online using the Blackboard Collaborate (BbC) platform during a period of Covid19 related restrictions. Though BbC can facilitate many of the structures of the aforementioned teaching-format (e.g. “Breakout Groups”, Blackboard Inc., 2021), lecturer oversight during small-group session-phases is restricted to visiting with one group at a time and limited feedback from learners via a text-chat facility.

3. Principle Aims of the Task Design – Inclusive, Active and Enjoyable Collaborative Learning

3.1. Fostering a Positive, Enjoyable Experience of Research Methods Teaching

I selected this particular activity for review due to the potentially dry character commonly associated with quantitative methods teaching (Bailey, 2019; Williams et al., 2008) and because my pedagogical response to such a challenge has previously been dependent on the affordances of traditional teaching spaces and in-person, face-to-face teaching.

A central tenet of my approach has been to ensure that student-centred tasks should be enjoyable undertakings in their own right. I use semi-guided problem solving activities as a catalyst for the interpersonal communication so-hindered by the move to offsite learning for many students, not be confused with the notion of “student satisfaction” in the consumerised, neoliberal sense but instead as a more personal, emotional state of happiness during the learning process (Elwick & Cannizzaro, 2017). Similarly, from the teachers’ perspective, the enjoyment I draw from my practice has been quite dependent on the in-person interaction of the lecture theatre and the classroom for many years, aspects of my professional role that I perhaps did not fully appreciate until they were so abruptly curtailed. I am hopeful therefore that efforts to facilitate collaborative and productive discussions – as evident in the plenary feedback following the tasks themselves – will also provide a positive, pleasant space for learners to connect in a manner at least partially analogous to the lecture theatre and seminar room.

3.2. Inclusive, Active Learning

The design and adaptation of this task aligns with Hornsby’s suggestions (2020) to prioritise active and collaborative learning opportunities whenever teaching online, and that that these opportunities are particularly important for learners in larger classes as a means of “promoting cognitive elaboration,

enhancing critical thinking, providing feedback, promoting social and emotional development” (Mulryan-Kyne, 2010, p. 180, citing Cooper and Robinson, 2000). In light of the quantitative subject-matter, these principles also complement Bailey’s advice (2019) to not only “Do something with real data, right away...” but – as a potentially intimidating bivariate data activity – to design a task where “the conversation proceeds in commonsense terms and avoids statistical jargon, it will be accessible to all students, providing a foundation for statistical reasoning” (2019, sec. 3). The task-design also integrates a “playful” dimension (Nørgård et al., 2017) with the device of an undisclosed variation of the dataset between groups discovered only in the subsequent plenary discussion.

4. The Correlation and Sampling Task

Students are placed into small subgroups (around five students) where they may annotate on- screen resources, discuss task content verbally using their microphones or contribute ideas using a text-chat facility. The brief is to select a sample of eight points of bivariate data from a synthesised “population” of values (Figure 1), plot these points by-hand on the axes provided, then to consider descriptive and inferential aspects of the analysis process: describe the correlation observed in the sample then reflect on the degree to which the group might make an informed assertion about the population they have sampled from.

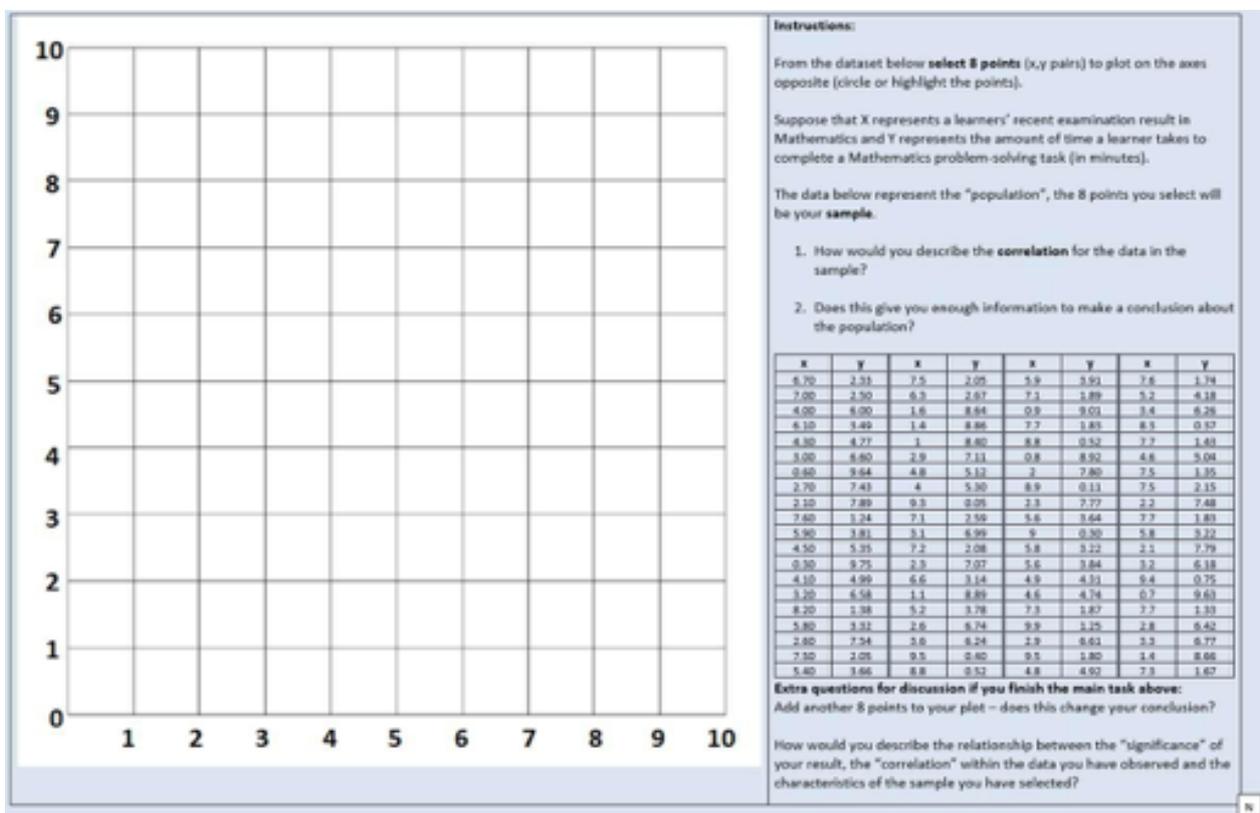


Figure 1. The format of the “Correlation and Sampling Task” (one of three possible versions provided to students)

typically focus on the sampling process itself to begin with, recognising that the random selection of cases could give rise to different results across groups, and it is useful to consider these competing and possibly surprising complications in tandem.

The plenary discussion is structured to progress broadly through successive layers of the SOLO taxonomy (Biggs & Collis, 1982; Stålné et al., 2016) beginning by asking students to simply report on the correlation observed in their selected sample and moving towards more sophisticated and evaluative comments. Task-groups identify a range of patterns in their data including positive and negative correlations of various strengths and, in some cases, no obvious correlation whatsoever.

It is not uncommon for students to notice that they have focused entirely on the abstract, mathematical features of the task and have neglected the context the data were referring to. The revelation that groups in fact received different datasets is dealt with in a deliberately playful manner, where students' "failure is not only encouraged, but a necessary part of the learning paradigm" (Nørgård et al., 2017, p. 272). The discussion proceeds – organically or with some prompting from the lecturer – towards exploring the uncertainty arising from students' initially confident proclamations of having found "the answer", the inherently limited strength of inferences made on a small sample and the importance of expressing a statistical result in terms of the variables and research context under examination (Gal, 2004; MacInnes, 2014; Payne, 2011).

5. Reflection on Implications for Practice

The reflection on pedagogical priorities necessitated by an unexpected shift to "emergency remote teaching" (Hodges et al., 2020, para. 5) during the Covid19 pandemic has been an intriguing if challenging experience. I realised how centrally my teaching practice is guided by the principle that "active learning can be of great benefit to students who can find themselves in larger class sizes during their higher education experience" (O'Hanlon et al., 2019, p. 3). I am also mindful that the unexpected move to mandatory online teaching presented a positive opportunity for my own learning, and the refinements necessary to make this task-type work in an unfamiliar environment – reflecting on classroom management routines and guidance and using these to provide prompts for student-centred activity – are likely to be beneficial for teaching with even larger classes face-to-face in the future (Stone & Perumean-Chaney, 2011; Lynch & Pappas, 2017). It is therefore my hope that this paper might demonstrate a more positive view of the potential for adapting existing pedagogical approaches involving collaborative discussions for use across offline and online modes and the subsequent points of learning for practitioners teaching in such spaces.

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The positive impact of educational technologies in a large class context

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Abstract

Large classes usually bring up images of a large group of students with only one lecturer to 'look after them'. The focus is on the challenges and difficulties but the advantages of large classes for both students and lecturers are under-reported. Yes, there are extra difficulties and challenges, but there are also benefits. There is the extra buzz that is generated when students are gathered together, either face-to-face or online, and there is more of a sense of occasion. There can be a feeling of anonymity that can be difficult for some students, but helpful for others. It is useful for students to be able to compare themselves with others – if they can do so anonymously. This paper looks at the benefits educational technologies can bring to large class teaching and learning.

Keywords: Educational Technologies; large classes; VLE quizzes

1. Introduction

Large classes usually bring up images of a large group of students with only one lecturer to look after them'. The focus is on the challenges and difficulties but the advantages of large classes for both students and lecturers are under-reported. Yes, there are extra difficulties and challenges, but there are also benefits. There is the extra buzz that is generated when students are gathered together, either face-to-face or online, and there is more of a sense of occasion. Farrelly et al. (2018) report on the benefits of Virtual Learning Environments (VLEs) and these are particularly relevant for large classes. This paper looks at the benefits of VLEs and related technologies including sharing resources, online collaborative writing, online webinars, electronic assignments and quizzes in the context of large classes.

2. Educational Technologies

Educational Technology have been used in education for many years. They range from basic use of a Virtual Learning Environment (VLE) to advanced Virtual Reality (VR) environments where the learners can have a realistic immersive experience. There are many different frameworks to analyse and leverage the effectiveness of a particular digital technology in teaching and learning. Davies (2011) proposes a framework that considers awareness, praxis and phronesis (i.e. practical competence and wisdom). Bond et al. (2020) report on the increased engagement of students when digital technologies are used in teaching and learning. This section provides five different ways that technologies that can make a difference.

2.1. Shared Resources

An obvious use of educational technologies is a Virtual Learning Environment (VLE). This allows the lecturer to share files, recordings and links to other online resources with students in an efficient manner. At a very basic level, the use of a VLE avoids the need for physical printed handouts to be provided to students saving valuable lecture time and issues around absent students missing out on the handouts. The students can access the resources anytime, anywhere and on whatever device they have available to them. Providing information for 400 students takes the same amount of time as providing it to 40.

2.2. Online Collaborative Writing

Many large classes are formed by default when students from different disciplines/ cohorts/ programmes take a module in common and this can be a challenge, especially if they have different timetables. Online Collaborative Writing (OCW) can overcome some of these problems and give students a chance to learn key 21st century transversal skills and competencies (Limbu & Markauskaite, 2015). Olson et al. (2017) outline both synchronous and asynchronous online collaborative writing approaches. The use of electronic documents also enables the lecturer to review students' work and provide feedback (Nicol & Macfarlane Dick, 2006) both during a project as well as at the end of a project and this is something that can be more challenging with a paper-based approach, especially with large classes.

2.3. Online Webinars

In many higher education institutions, there are a limited number of large lecture theatres available. This means that it can be difficult to schedule lectures for mixed cohorts (Vrieling et al., 2017) and may mean that classes are scheduled in not-so-popular slots, or classes have to be split up into different, smaller groups and this raises the issue of ensuring consistency of quality across the different groups. Leaving aside the pivot to online teaching and learning due to the Covid-19 pandemic, the ability to conduct online webinars with a large group of students can be an interesting addition to the teaching cannon. Lecturers and students may be suffering from webinar-fatigue at the moment, but the benefits of webinars, if they are conducted correctly, should not be forgotten. They can be recorded and provide an element of flexibility for students. However, they also offer an alternative way of interacting with students. For example, some students appreciate the ability to ask questions (anonymously) during an online session. They might feel more comfortable in the online environment compared with the challenge of asking the question publically in a large class where the fear of asking a 'silly' question might prevail (Sun & Chen, 2016).

2.4. Electronic Assignments

Aside from the difficulties of designing and setting assignments for a large group of students, even the processes around submission, marking and dissemination of results can be quite challenging. Using a VLE can take away a lot of the pain involved. Students can submit their work electronically and the lecturer can see who has submitted late or not submitted at all. Extensions can be granted to individual students based on their extenuating circumstances. VLEs usually have a rubric associated with each assignment and this can make the marking and dissemination of results a lot easier. This is useful if there is more than one person involved in the marking process as it is easier to check for consistency across assessors. As the marks

are already embedded in the system, the process of disseminating the marks is usually very straightforward and may simply involve making the results visible to students.

2.5. Quizzes

Probably one of the best and most enjoyable contributions that educational technologies can bring to the teaching and learning process is quizzes. They can be used for formative assessments in the form of self-tests whereby students can check their understanding of a topic and get immediate feedback and this is beneficial for their learning (Epstein et al., 2002). Quizzes can be used for formative or continuous assessment or even a terminal exam if used correctly (Farrell & Logan, 2019).

Quizzes can also be used in a classroom or lecture setting to check on students' knowledge and also to give students an opportunity to compare their knowledge with that of their peers. A lecturer can ask questions via an online quiz at the start of a lecture to gauge students' prior knowledge of a topic before deciding on what areas to focus on during the lecture. The anonymity around online quizzes can enable students to answer questions more honestly than if they were in a lecture hall. Not many students would feel comfortable putting their hand up in response to the question "Hands up if you are having great difficulty with topic x" in a large group, but may feel more comfortable doing so anonymously online. Online quizzes are particularly useful for large classes where it is difficult for lecturers to ask students questions and more importantly, to get answers and feedback from students. They enable the lecturer to provide immediate feedback to a large group of students in an efficient and effective manner.

3. Discussion and Conclusion

Educational technologies can contribute to making teaching and learning more enjoyable to teach large classes. Farrelly et al. (2018) report that lecturers are generally positive about using VLEs but there are difficulties around their full adoption, particularly time related. Benefits include the lecturer being able to provide educational videos that can be reviewed many times by students rather than having to explain something many times. Students will be happy with the flexibility offered to them by the use of online resources. Tucker and Abbasi (2018) report that students often have mixed views of group work. Students may not enjoy working on group projects, but working on online shared documents can provide a convenient way for students to interact with each other and also offer transparency as to individual contributions to the project. Hornsby (2020) notes that small group work can offer a feedback mechanism for large classes. While some students may not enjoy the 'remote' element of a webinar, some students enjoy them and in some cases, may feel they are closer to the lecturer than in a face-to-face classroom situation. Webinars are usually more challenging for lecturers as it is more difficult to 'read the classroom' and more advance preparation is required to ensure a beneficial session. Many lecturers would agree that setting, marking and disseminating results of assignments are not their favourite part of teaching. While educational technologies will not completely take away the 'pain' of the assessment process, they can help to make the overall process easier. Finally, online quizzes, both in-class and on the VLE, can make learning

more interesting for students. They and the lecturer can enjoy seeing the responses to different quiz questions in class (either face-to-face or online) and be amazed/surprise/amused? at the various answers. Educational Technologies can make a positive difference in the large class teaching context.

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PHELC 2021: Summary of workshop output

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Introduction

The third PHELC symposium was planned as an online event from the outset because of the ongoing global pandemic. This symposium was the first run as an independent event (the previous two symposia were pre-conference workshops associated with the Higher Education Advances (HEAd) Conference). While the pandemic did not allow us to meet in one geographical location, it did enable people from all over the globe to join the symposium which would have been impossible if we had a face-to-face event. The diversity of participants, viewpoints and discussion was wonderful. Going forward, as symposium convenors, we will need to take into consideration the benefits of both face-to-face and online engagement for, what has now become, our annual PHELC Symposium.

Due to the greatly increased number of participants this year, we were able to use the workshop timeslot to explore large class pedagogical practices from a range of different perspectives. Overall, the focus of the symposium was informed by two underpinning points of exploration this year:

- a) To identify the advantages of the large class context in the first instance rather than to focus on the inherent challenges as a starting point, although, obviously, some challenges were identified over the course of the symposium.
- b) to revisit the focus of the previous year's symposium (transitioning large face-to-face classes online) to identify potential lessons learned.

Four questions were posed as a basis for four breakout room discussions:

1. *The terms 'lecture' and 'large class' are often thought to be the same thing. Is this true?*
2. *What elements of online learning and teaching are useful for F2F large class contexts?*
3. *What are the main advantages of a large class cohort and how can these advantages be maximised?*
4. *What are the similarities and differences of teaching large versus small classes?*

Breakout Room 1: The terms 'lecture' and 'large class' are often thought to be the same thing. Is this true?

The viewpoints in this room were mixed. In the first instance, there was some variation in how participants perceived the terms 'lecture' and 'large class' in their own right. Attempts to quantify the term 'large class' exposed a variety of opinions across a range from 70 to 200+ students. Some participants highlighted the fact that the quantification of 'large' differed depending on whether or not the class was online or face-to-face, with lower numbers perceived as 'large' in the online context. This seems to have been associated with active student participation and the perceived increased complexity in managing active learning approaches such as discussion groups, think-pair-share and so on in the online context. Participants also referred to the physical spaces usually assigned to large class cohorts, highlighting the constraints those spaces sometimes impose on the possibility of enabling active learning approaches and learning tasks rather than the number of students *per se*.

The term 'lecture' was conceptualised by participants in two different ways. Some saw it as a verb relating to a particular pedagogical approach whereby the teacher talks at the students primarily, with little opportunity for students to express themselves during class. Others saw it as a noun synonymous with large class cohorts, usually in lecture theatres. In both cases, whether perceived as noun or verb, the term 'lecture' did not seem to be associated with small classes at all. Interestingly, while participants noted that one to one interaction was possible when large classes were taught face to face, this was reported to be more difficult online. Some participants thought that large teaching spaces could support active, experiential and social learning while others did not find this to be the case.

Breakout Room 2: What elements of online teaching and learning are useful for face-to-face large class contexts?

This question initiated a lively discussion, with participants identifying a range of lessons learned from moving online which could enhance face-to-face large class teaching and learning. Overall, there was a desire to translate the new 'culture' from the 'country of' online to the face-to-face context; generally, participants expressed a willingness to embed good, online pedagogical practices to the face-to-face context when teaching large classes.

Recorded classes: Moving online created the opportunity to easily record live classes which is not necessarily available in the face-to-face context. There was general agreement that the recordings of sessions were useful for a variety of reasons:

- They increased student autonomy to engage if they missed the live session.
- Students were provided with the opportunity to review material from the taught session which was particularly useful if students forgot key points and also for clarification of understanding. Again, participants linked this use of the recorded classes with student autonomy underpinned by the flexibility of being able to access the recording at a time suitable for themselves.

- Engagement with recordings was further enhanced coming closer to assessment deadlines because these provided a platform for revision alongside other assignment elements such as reading lists.
- Students could decide which elements of the recorded classes they wished to review, giving them responsibility for and autonomy in managing their own learning.
- Pre-recorded teaching was also viewed as valuable for many of the reasons cited above.

However, participants did identify some drawbacks associated with provision of recordings which related primarily to the potential procrastination of students who, over time, allow a build-up of recordings rather than pacing their engagement over the course of the semester. Some participants also reported that some of their students struggled to motivate themselves to engage asynchronously.

Chat box: This feature of the online environment was viewed by workshop participants as very advantageous for large groups in particular. Participants reported greatly increased engagement in terms of questions from students in particular compared to the face-to-face context. The main reason cited for this was the 'safety' students seemed to feel in relation to asking a question in text versus aloud in a large classroom. Participants were anxious to create that 'safe' situation in the face-to-face context and there was general agreement that this could be easily transferred.

First years were singled out in particular, with workshop participants acknowledging that they had only known the online context in the higher education setting and many of them had also experienced extensive periods of learning online towards the end of their second level education. Participants concluded that the prior online experience of this cohort in particular should be harnessed where possible, especially in relation to their confidence in asking questions in the large context.

Breakout Room 3: What are the main advantages of a large class cohort and how can these advantages be maximised?

Often, the focus of discussion on large classes is on the challenges they present and sometimes the discussion extends to how those challenges might be addressed. This workshop group had some interesting views on the inherent advantages of large classes.

- The large class creates energy and momentum to engage a whole cohort in a common endeavour.
- There are elements of every module and programme which just need to be addressed once. A programme with a large student cohort needs to interrogate the function of small versus large classes and how the two interact. It is likely that in many instances, some elements of teaching are repeated on multiple occasions unnecessarily and could be addressed once with a full cohort, then explored in more depth if necessary, in smaller groupings.
- Assessment for learning can be particularly effective in a large class because students can contextualise their understanding and knowledge within the wider group understanding. The teacher can too, which may be very effective in informing and directing the teaching decisions

around instruction, curriculum and assessment. The overall understanding of a large class cohort may be invisible when divided entirely into smaller groups, especially as this often implies a number of teachers who just have an overview of their own group(s) and often, the overall understanding of the class is lost in that complexity.

- Large groups are particularly useful in terms of guest speakers and panels. The impact of the guest speakers is magnified and if the panel presents a diverse range of views on a particular topic, they will likely resonate with the diversity inherent in a large student group. It is energising for the guest speakers also to have the opportunity to explore their ideas and experiences with a wider audience.
- Consideration of classroom management is important with large groups. Collaborating with student representatives who can engage their peers in the various elements of a taught session during class bridges the gap between students and teacher.
- Creating a whole class online forum on the virtual learning environment (VLE) with the full cohort can enhance engagement and enable the teacher to catch some aspects of the live class which may have gone unnoticed with a very large group. Also, participants felt it was important that students have an opportunity to see questions their peers are asking at a full-cohort level because it reduces the sense of isolation a large class can create. This can be used in-class to capture questions / comments students may have but are reluctant to ask aloud or it may be used asynchronously before and after class. Participants linked this viewpoint to their experiences of online teaching and the fact that the VLE was now viewed more as a classroom rather than a repository for materials and therefore, a place where student/teacher interaction could continue.

Breakout Room 4: What are the similarities and differences of teaching large versus small classes?

The participants in this discussion group examined this question from the perspective of both teachers and students. Initially, the discussion revolved around the quantification of the term 'large class' with the group finally agreeing that 100+ students could be considered a large cohort of students, an interesting conclusion in itself, given the discussion in one of the groups above.

Teacher perspective: The participants in this workshop agreed that there were a number of similar responsibilities on the teacher whether working with groups that are perceived to be small or large. These responsibilities included:

- Careful preparation and planning
- Time management
- Building relationships between teacher and students
- Creating a sense of class community

- Duty of care
- Creativity on the part of the teacher in designing the learning experience

However, the group also agreed that there were challenges to enacting some of these responsibilities when teaching at scale. For example, facilitating interaction between students and teachers as well as between the students themselves is more difficult to manage with large groups of students, particularly when the numbers are in the hundreds. Participants also agreed that there is a different energy in small groups compared to large ones, with the latter context sometimes seeming more controlled, limited and sterile. Interestingly, some participants saw the smaller group as a 'safer' context for the teacher because they felt more comfortable and competent in that context compared to teaching very large groups of students.

Perceived student perspective: The participants articulated their perceptions of the student view in terms of large versus small classes from their own experience as teachers. In terms of similarities, the following were identified:

- Tasks and activities are similar
- Regardless of size, students need a sense of teacher presence albeit that this may manifest itself somewhat differently in each context
- Students still have a responsibility to develop their own knowledge and understanding of subject matter

Participants also identified what they perceived to be the difference between large and small classes for students, including:

- Quiet students often prefer large classes because they are not 'put on the spot' to speak, which can happen in smaller workshop and seminar groups, creating anxiety.
- However, for other students, participation can be impacted; students who feel 'safe' to speak up in small groups may be very reluctant to do so in a very large group. The smaller class cohort can feel more comfortable and intimate, especially as students get to know each other over the course of a semester, year or programme.
- Student expectations regarding the teaching and learning dynamic may be very different for small and large classes. For example, they may anticipate little or no demands on their engagement beyond listening, in the large class context whereas they expect to speak, engage in group work and so on in smaller classes.
- Timetabling was also identified as an important consideration in terms of student engagement; when multiple large classes are timetabled consecutively, student engagement, motivation and attention can wane in comparison to back-to-back small group timetabling.

A Final Word

The default perception of higher education classes which comprise many students, sometimes hundreds, can be based on the limitations that such classes present. Thanks to our keynote, lightning talk and short paper presenters, the focus of the PHELC21 Symposium moved that perception forward to identify the characteristics of large classes which are advantageous and useful. In many respects, when higher education teachers rise to the challenges presented by large classes, teaching and learning is enhanced precisely because we have to consider our teaching at a much more detailed, deeper level than might be the case with smaller cohorts. The engagement of our participants in the workshop element of the symposium and indeed, throughout the symposium, enriched the event. As convenors of the symposium, we (Anna and AM) will consider how we can maximise inclusion of those participants who would like to join us online and those who value face-to-face engagement when planning for the fourth symposium in 2022 so that we continue to grow our community of practice and learning.

