Chapter 2 - Making education better: implementing pedagogical change through technology in a modern institution

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INTRODUCTION

The student and their relationship to the institution and their discipline is the common thread running through the discourses around the future of higher education in the digital age. Variously described as the client, the customer, the learner, the market and the problem, the student is at the very heart of the function of a modern university. More than an enrolled presence in a virtual or physical classroom, the student is one of the demonstrable representations of how institutional knowledge and the society they enrich, intersect. The student in the digital age can be influenced and connected with higher education in many ways, most of which do not involve didactic instruction, formal institutional structures, Socratic questioning and recall driven assessment. The student might experience a three-year undergraduate programme by taking courses and undertaking assessments on campus. Equally, higher education might be engaging with learning fleetingly through the tiniest fragments of knowledge necessary for their own, unique educational purposes. The student might sit in a classroom, meet their colleagues and build a network of faces, voices and names, or they might engage online, in and through social media, maybe never seeing, meeting or hearing their network of fellow students. They might learn by doing, touching and making objects and knowledge or they might learn through the crowd, where knowledge comes from collective intelligence and problem solving.

These experiential variations are at the very heart of the need for pedagogical change at our institutions. Yet their implementation into teaching and learning strategies is often marked by the taking of dichotomous, heartily-defended positions in the 'fight' for the pedagogical direction of the institution: Traditional versus techno-centric. Student-led versus research informed. New versus old. Affordances versus Resistances. Technologies versus Pedagogies. Service versus Strategy.

MAKING THE CASE FOR PEDAGOGICAL CHANGE THROUGH TECHNOLOGY

In a complex higher education environment, the necessity for pedagogical change and technological innovation is increasingly impossible to ignore (Davis and Sumara, 2009; Greenhow et al., 2009; Greenhow et al., 2016; Timmis et al., 2016). Students are facing the prospect of finding employment at the end of their studies in industries or job roles that do not yet exist (Lizamore, 2017). Institutions are delivering education for increasingly fragmented markets that demand different outcomes, modes of delivery and flexible approaches to learning (Brown and Carasso, 2013). Governments regulate higher education practices, quality procedures and funding as instruments of policy driven socio-economics (Marginson, 2013).

There is a significant body of literature describing the functions, aspirations and activities of a modern university in the digital age (e.g. Pearce et al., 2011; Siemens and Weller, 2011; Beetham and Sharpe, 2007; Brown, 2001; Selwyn, 2012; Siemens, 2005). Many of these studies cite changes, from critical engagements with curriculum and learning design through to how the practices of teaching and learning are disrupted and transformed by technology and social media practices. These assertions of disruption attributed to technology and the need for education to adapt and change in its face are not a recent phenomenon, with James Finn noting in 1960:

> Turning now to education, it becomes apparent under this national and international drive for technological superiority that: (1) those concerned professionally with education have not developed a well-conceived point of view and a position and/or positions concerning technology and education, (2) because of this lack of a point of view and because of certain cultural lag factors naturally associated with education, the acceleration of technological development has tended to by-pass the entire educational enterprise until very recently, (3) professionals in education are not prepared now to deal with the tremendous impact that technology is beginning to have on the instructional process itself as, by the technological process of extension, technology begins to invade education in full force, and (4) the absence of understanding and a point of view among the profession creates a situation where the Neo-Technocrats not only can, but are beginning to move into the field of instruction. (Finn, 1960: 8)

Challenges to the efficacy of implementing strategic pedagogical change through technology have created binary positions and oppositional politics, where technology has been labelled as the enemy of good teaching and the antidote to bad. The activities of online and blended learning have suffered this fate to an even greater degree, with increased global competition, falling completion rates, propriety learning systems (such as the Virtual Learning Environment) dictating how we teach and the disruptive effect of new entrants and start-ups, fracturing the educational offer. Pedagogical change and technology represent critical instruments to support how institutions can navigate and excel in the modern higher education environment. They support both the enhancement of practice and leverage the possibilities of innovation. Working together, they engage the institution with a post-digital society that has been fundamentally transformed by technology.

The collaborative Future Happens project (run by the London School of Economics and Political Science and the University of the Arts, London, http://www.futurehappens.org) addresses the difficulties of pedagogical change and technology, arguing that institutions are facing wicked social problems in an environment of resistance, time poverty, competing priorities between research and teaching and pressures and financial imperatives driven by commercialization and the need for profit. Students, staff, employers and the institutional community engage in higher education with different literacies, different ambitions and different aesthetics and technology, and online and blended learning is the lightning rod through which these differences are played out:

> The debates about the potential of technology, the tensions of techno-determinism and the fears of replacement and redundancy have centred the discourse on service rather than pedagogy or research. The problem is that the genie is already out the bottle. There is no going back to chalkboards and overheads and we won't be shutting off the internet any time soon. Technology and the digital are already integral to what we do but the presence of technology does not automatically equate to a shift in practice. (Bryant and White, 2016)

In the context of these intersecting tensions, what is the institutional case for making education better through pedagogical change? The answer to this question will change from institution to institution.

Common to every university in the modern age is that pedagogical change is not about the efficiency or importance of old and new technology. Locating the discussion within debates about the technology and its potential to transform the educational experience for our students can stop us talking about what is more important. What we need to debate at an institutional level is the difference between old and new learning. This is a problem with conflicting values, social system issues, information from research studies and practice evaluations representing often dichotomous positions and where 'the ramifications in the whole system are thoroughly confusing' (Rittel cited in Churchman, 1967: 141).

ADDRESSING PEDAGOGICAL CHANGE AT THE LONDON SCHOOL OF ECONOMICS

At the London School of Economics and Political Science (LSE) in the United Kingdom we have engaged in a three-year strategic programme that was designed in response to a number of critical drivers for enhancing teaching and learning. This programme utilized a design-thinking approach (Meinel and Leifer, 2010) to inform the case for pedagogical change through technology. We started by visualizing the university as a series of overlapping spaces, representing where students, academic staff, professional services teams and society reside and engage in teaching and learning. Central to any pedagogical change programme we proposed to senior management was the necessity of finding commonality within those spaces. This became the centerpiece objective of our 2015–2020 Technology Enhanced Learning strategy (called Learning, Teaching and Technology Futures) which set out to build an engaged and critical learning and teaching community at the LSE.

The first stage of implementing this strategy was to identify the environmental factors that slowed down or potentially resisted the scaling up and sustainability of pedagogical change through technology. Myths build up within institutions about the efficacy of technological interventions, designed in part, to resist engaging in processes that challenge current practice or require significant rethinking of the ways in which teaching and learning are enacted (Bryant et al., 2014). Instead of engaging in the more traditional consultation processes (listening exercises, working groups, committees etc.), we designed and implemented a civic engagement informed approach. Drawing on the principles of crowd learning, digital citizenship and social media practice, a series of innovative interventions were planned using a variety of different team methodologies, such as hacks, crowdsourcing, conversations, debates, provocations and media-making to involve and give ownership to staff, students and the LSE community in the programme of change. The first of these interventions was the LSE 2020 project, a School-wide multimedia conversation about the role of technology in how students learn, work and live.

ENGAGING STUDENTS IN MAKING EDUCATION BETTER

Pedagogical change needed to be led from the centre of the institution, engaging everyone in the need for change, with students as a critical part of that conversation. LSE 2020 is an innovative programme designed to be the catalyst for these conversations. The intention of LSE 2020 is to provide students the opportunity to engage in conversations and make connections with the institution, with each other and through recording and distributing these conversations on social media with people outside the institution. Filming conversations with nearly two hundred students, LSE 2020 focused on how students at the School use technology and social media for their learning, their career and across the ways they choose to live their lives. What emerged were authentic stories of how they study, how they engage with others in that process and what it means to be a modern student at the LSE. LSE

2020 identified how students engaged in collaborative practices such as Google Docs being used for collective lecture note-taking, professional and personal identity (the use of Facebook for group work and peer learning) and the de-location of study from the physical campus into social media apps like Snapchat and Instagram.

The study also identified the critical importance of the systems and platforms we provided to students such as the Virtual Learning Environment and Lecture Recording. The distinction between these technologies and the ones they used to support their own learning could not be marked. In simple terms, students used the institutional systems to support achievement, obtain the grade they needed and to effectively complete the requirements of the course (Liote and Axe, 2016). The technologies and practices they engaged with outside of their formal learning activity (lectures, classes, readings, assessments, etc.) supported metacognition, network development and sociality. These technologies were out of the direct control of the institution and rarely embedded in curriculum and assessment. The most critical insight to come out of LSE 2020 was the realization that knowing how students study and engage in managing their own learning with technology is critical to realizing the strategic ambition of the School. It triggered analytical, pedagogical and change management processes designed to seed and scale innovation-rich interventions in teaching and learning. The rest of this chapter will look at these processes in detail through the lens of three case studies.

CASE STUDY 1: STUDENTS AS PRODUCERS

The aim of the Students as Producers (SAP) initiative was to transform the student experience from one that was primarily didactic to one that prepares the learner for the challenges of work and practice and engages them in their own learning, through making. Building on the findings of LSE 2020, we identified that the learning experience for students was a complex and agile process in the post-digital age. Communications, knowledge acquisition and sharing and assessment work were activities that were undertaken to deliver assessment requirements in time for deadlines. More importantly though, in the context of value judgements made by students concerning the time, attention, effort and focus required to pass at the level of achievement they were seeking, these activities often occurred outside the classroom, off campus and virtually. Bringing together the way students were being taught and the ways in which they managed their own learning was critical. Students were acquiring skills in communication, collaboration, problem solving and digital literacy through their learning activities. These skills enhance their capability to learn as students of their discipline through face-to-face teaching and assessment.

The SAP initiative was a series of interlinked projects which were all built on the principle that learning can be enhanced through making. Making is a fundamental learning practice that transgresses many disciplines from science and engineering through to creative arts and social science. Making is both a practical skill and a tactile experience. Making takes knowledge from the two-dimensional (hypothetical and theoretical) to the three-dimensional, adding in experience and a holistic sense. Making realizes vision and planning, incorporates creativity and makes knowledge real. Building a bridge on paper is very different to seeing the bridge as a model (either real or virtual).

The cornerstone project of SAP was a course in the International Relations Department called IR318: Visual International Politics, led by Professor William A. Callahan and Darren Moon. Previously assessed through an unsighted final examination, there was a misalignment between the pedagogical intentions of the course and its mode of assessment. In redesigning the course, the academics involved engaged in a process of pedagogical change, using technology to embed the change into

highly blended methods of delivery and to enable students to learn about visual social sciences through making (in this case, the technologies involved were digital film and the subsequent sharing of creative making practices with the wider community through social media). The redesign of the curriculum led to 50 per cent of the final assessment being undertaken through the making of a ten-minute collaborative documentary film by students about an aspect of visual international politics (Figure 2.1).

Participating in the learning engendered a sense of trust between the teacher and the student. It afforded students the opportunity to acquire and apply trans-disciplinary skills arising from making, sharing and critiquing the work of others. Counter to the relatively closed world of traditional assessment, the use of social media to share the final documentaries with the wider International Relations community meant that students became aware of their voice and identity as emerging social scientists. Their documentaries were shared outside the confines of their classroom and their teacher, opening up access to networks of other scholars, practitioners or the interested public. Knowing that their films were going to be shared also changed how they made them, how the narrative was structured and what visual messages were appropriate. It created a sense of experiential authenticity, replicating in a relatively safe space the learning that comes from the practical and real experience of making.

Another critical component of the success of IR318 was the capacity for students to construct their professional identity through making. This manifested itself in several different ways, from the skills the students were able to bring to prospective employers around knowledge transfer and visual representation, to the showing of their work as professional visual social scientists in the form of a gallery exhibition of their documentaries, which was open to the public. The films were demonstrable and shareable examples of their learning. They could be shared in job applications, with employers or as part of a professional portfolio.

Note: This film probes the cultural politics of the post-9/11 era.

Source: The film can be watched at https://vimeo.com/165850479.

Figure 2.1 Scene from an IR318 documentary called Beard Goggles, directed by LSE students Abinaya Dhivya Mohan, Alice Tayla and Eser Sarachoglou

More widely, the SAP initiative used small grant funding and the support of a team of learning technologists to initiate student-led making projects across the majority of the departments in the School. Extending making from the context of media and storytelling, we supported projects that were co-created student-led research projects in learning analytics, designed approaches to games-based learning, and launched student-led journals of undergraduate research in government and media studies. Students as Producers remains a grassroots initiative, with many of these projects having been seeded from the success of earlier pilot projects.

The critical lesson we learnt from the initiative was that pedagogical change requires the active engagement of the programme/course team, working together to design an approach to blended learning that engages students to be part of the process. The voice of the teacher and the student were far from passive in the process. It was critical that academics owned these projects, participated in evaluating them and shared their experiences with colleagues and the sector. It was also critical that students actively engaged with the projects, fed into (and sometimes led) rigorous evaluations and reviews and were advocates for their experiences with other students. It was also critical in courses like IR318 that assessment was not the only pedagogical process that was enhanced. Embedding students as producers required the integration of different skills and literacies at a delivery level, from media making and collaboration through to critical thinking. These projects used a form of blended learning, that supported knowledge acquisition and application through the consumption and making of media, playing games, simulating practice, creating a public identity, sharing research and engaging in fun, creative and challenging learning activities.

CASE STUDY 2: LEARNING SPACES, BOTH PHYSICAL AND VIRTUAL

The requirements and uses of modern teaching and learning spaces are shaped by changing approaches to pedagogy and by the expectations of learners within the context of their study, social interaction and assessment needs (Brooks, 2011). The physical teaching spaces of the LSE are in the main traditional and struggle to cope with the challenges of active learning, the agile use of multimedia (both from the academics and the students) and the need for spaces to support an almost infinite variety of experiential learning conditions. The learning spaces available to students to study collectively or independently are in short supply, spread across the School in small pockets and sometimes located within departmental offices that are not accessible to every student. The LSE 2020 project identified that students undertake around 90 per cent of the learning outside of the classroom and the face-to-face teaching time allocated to courses. They use both physical spaces located inside the School (the library, cafes and interstitial spaces in corridors, stairwells and outside classrooms) and outside (home, local cafes and bars, other universities close by) to engage in online and blended learning. They also utilize virtual learning spaces, some provided by the institution (the Virtual Learning Environment for example) and others that are owned by themselves (social media, collaborative tools, mobile devices) to facilitate communications, reflexive dialogue, reflection, collaboration, creativity and community (McLoughlin and Lee, 2010). This presents a number of challenges for the School. The lack of collaborative space puts student pressure on courses wanting to move to group-based assessment. Where students use their own devices for learning, issues such as the lack of collaborative space have significant impact on student satisfaction and how students use and 'live' on the campus.

The aim of our learning spaces project is to develop an engaged, innovative and modern approach to supporting student learning inside and outside the classroom. Using a connected approach to the collaborative design of learning and teaching rooms, we bring together all the stakeholders in a

proactive reimagining of space as a precursor to the architectural and building planning. These events share teaching and learning practice and allow the participants to describe how space enables and inhibits the kinds of teaching and learning they want to do. It is critical to run the events in situ, so that the location, with its specific light, atmosphere and environment, shapes the design of the space. We usually, where possible, involve expert project managers, architects, furniture consultants and mechanical engineers in order to locate the discussion within the physical capabilities of the space.

One critical aspect of the learning spaces project is to support students engaging in different activities as part of the daily learning journey. Students described their optimum learning spaces as flexible (different ways in which they can use the space and move about in it), user friendly (natural lighting, bright colours, plants and natural decorations), flooded with power and data (ubiquitous, reliable Wi-Fi, media sharing capability, power) and productive (zoned for different types of work, available for use at the right time). A project to design space that just delivered on these student requirements would have produced an environment that was usable and adaptable by students to support their learning, but not necessarily innovative. The singular importance of pedagogical change, however, could not be ignored in this design process. The types of learning and the benefits that arise for the students from working with each other to understand and engage with critical discourses and disciplinary tensions are driven by how the pedagogical approach is set out in the curriculum.

One project that drew on these insights was the Clement House Rotunda project. Taking an underutilized stairwell that had become a dump for old, broken furniture across six floors, we piloted our process for embedding pedagogical change in the design of learning spaces (Figure 2.2). The result was six innovative learning spaces that drew on insights from students about what they wanted from learning spaces as well as integrating in unique ways the modes of study and learning critical to International Relations and more widely to students studying social sciences.

Source: Photograph courtesy of Learning Technology and Innovation, London School of Economics and Political Science, UK.

Figure 2.2A and 2.2B Clement House stairwell at the LSE prior to refurbishment (Top) and Clement House Rotunda learning spaces – café floor (Bottom)

Supporting learning modes such as collaboration, creativity, community, connectivity, and conversation, these spaces used agile and lean technologies, inviting architectural design, warm lighting and bold colours to create spaces that the students felt they owned. Innovative teaching and learning approaches, such as those mentioned in the first case study on media making, were supported through collaboration desks and software that supported making. Finally, one of the learning experiences we wanted to pilot in these spaces was immersive learning. Immersion stimulates the creative aspects of cognition, creating highly social sites of learning (Johnson and Levine, 2008). In a building with few windows, we wanted each space in the Rotunda to reflect the political world that International Relations scholars will inhabit. Naming each space after a global city, with pictures and colours to further reflect that city reminded the students of the global impact of their studies. The final touch was the creation of two transit zones between the classrooms and the Rotunda where short films are shown for students waiting to go into class, ranging from student-made documentaries to a custom-made animation that explores the role of LSE in shaping global politics. The impact of these fleeting exposures to images of London, its people and the reach of the study of social sciences cannot be underestimated. They create an environment that changes the way the space is seen. It is no longer a building, a broken stairwell, a corridor or a classroom. These spaces have character; they are active and they encourage their use for learning aligned with and supporting the ambitions of pedagogical change.

Critical to the process is a post-occupancy evaluation of redesigned spaces. For the Clement House Rotunda project, we used a mixture of participant observation and cognitive mapping to ascertain how the spaces were used for learning (Wilson et al., 2017). Some of the key findings from this research included the following:

● Based on qualitative feedback, students liked: the convenience for attending lectures and seminars; times when there are fewer people and lower noise levels; access to plug sockets; the innovative and modern design; the informal, comfortable and cozy ambience; and the variety of furniture;

● Students used multiple devices and resources during a single visit and nearly half of those observed consumed food or drink while in the spaces;

● Occupancy of these previously disused spaces was fairly high with at least one floor being occupied during 93 per cent of observations while during 63 per cent of observations at least one person was on each floor;

● Thirty-three per cent of respondents used the spaces for study even though they were not waiting or between classes;

● The majority of students used the spaces for individual rather than group study while appreciating the potential of the spaces for group work.

CASE STUDY 3: CROWDSOURCING LEARNING

In 2015, the LSE launched a cutting-edge civic engagement and open education project with the intention of leveraging and magnifying the power of the community and the 'massive' in an accessible, free programme. It enabled learners to engage in debate, co-produce content and come to a common agreement about the need for and the content of a UK Constitution. Constitution UK involved over

1500 community members and groups, who debated the relative merits of competing clauses and then refined them to a manageable number. The end result was a community produced 8000-word constitution generated from over a million words of debate. The project used a social media platform (Crowdicity) to support effective community-led ideation and learning. It also drew on other social media platforms to recruit community members (blogs, Facebook and Twitter) and to summarize the large scope of the debates for new entrants (Storify). The Constitution UK project was designed to facilitate a democratic approach to participation and learning, where knowledge was not broadcast from a sage on the stage but emerged from a community participating in open debate, ideating and solving problems collectively and democratically.

The design model drew tacitly on the application of a number of conceptual pedagogical and engagement frameworks such as peer learning (McLoughlin and Lee, 2007, 2010), incidental learning (Marsick and Watkins, 2001), digital pedagogies (McLoughlin and Lee, 2007, Siemens, 2005), crowd learning and ideation (Wexler, 2011) and the use and acquisition of crowd knowledge and crowd value for specific problems (Erickson et al., 2012). As with our other projects, a design thinking approach (Meinel and Leifer, 2010) was used to help structure the activities, the learning pathway through the project and higher-level trans-disciplinary skills that would be needed to deliver on the project's ambitions. We drew on participatory practices such as online civic engagement (Mossberger et al., 2007), crowd wisdom and collective intelligence (Levy, 2015) and digital citizenship (Ohler, 2010). This was not a traditional educational project, with learning outcomes and an aligned pathway towards mastery or expertise. Instead, we positioned learning as something that was incidental, tacit and exploratory. In this context learning might happen spontaneously and arise out of social structures, experiences or interactions (Johnson, 1999, Knowles, 1970, Marsick and Volpe, 1999).

Constitution UK had no specified readings and no lectures. There was no explicit dissemination of established theory. There was just a series of challenges for the community members and a semi-gamified process of engagement where points were allocated for different forms of participation (ideas, voting, commenting). The project was informed by the assumption that learning can occur in informal spaces, supported by both peer and academic engagement, but not privileged by either, effectively flipping the role of the academic and academy. There was no defined entry point for the project, members were able to start as soon as they had registered and to jump straight in to being part of the community.

The size of the community grew over the duration of the project, with new members still joining in the final week. The project facilitated the creation of publicly visible educational situations within an emerging and often agile democratic dialogue (Andersson and Olson, 2014, Linders, 2012). These situations emerged at non-sequential points within the project, as new users entered, old users came back to the group and the community embraced and rejected opinion and thought leaders that arose from within the community itself. These capabilities supported the capacity of the crowd to be more than a collective of individuals, but a learning community. It demonstrated how learning collectively was not a passive process, facilitated by the one to many communications of the lecture. Learning collectively was a process of learning within the community, from the community and outside the community. It was these lessons that were the most transferable to other educational contexts such as more traditional face-to-face programmes, online provision and executive education.

This project actively involved staff and students along with an extended, diverse and engaged network of participants. It challenged traditional ways of teaching online, eschewing the tropes of the 'course in a box' model (videos and readings, weekly progression, task orientation, iterative measures of success/feedback). The intention of this project was to develop a more engaged pedagogy, where learning emerged through the experience of making, engaging, debating, defending, leading and

refining within the context of a crowd of engaged citizens. This was the engaged and critical teaching and learning community we aimed to create as part of our strategic plan. This approach was not without its risks, especially in the febrile social media world of fake news, Brexit and political polarization. One of the challenges in opening education up to a wider community is how to embrace diversity of views in a positive and productive way. Through a combination of pedagogical and technological design and the shared commonality of wanting a solution to a problem, this project experienced an almost overwhelming sense of positivity and engagement.

The model also challenged the established role of the teacher in providing the expert knowledge and ratification of learning. The lead academic for the project (Professor Conor Gearty) conducted Twitter conversations, interjected into debates as a discussant and addressed contributions in a weekly thought piece. He took the project on the road to Town Hall style meetings to engage with the people directly and helped create a fertile and positive learning environment for all involved. Professor Gearty described his role and the importance of the project:

> We are enormously proud of it, though we claim credit only as midwives to the efforts of others rather than writers in our own right. For what you see here is truly the work of a 'crowd'... who availed of the chance we gave them to knuckle down as constitutional players... and suggest, argue for, persuade and promote any parts of the country's new proposed constitutional order... The thousands who participated took what was not only an open book but a blank one too and over two exciting years they filled it with what mattered to them. (Cooper, 2016: 455)

Constitution UK was a critical intervention in how the School thinks about students working together, both inside the School and more widely in our community, our alumni and the society we are a part of. The realization that group work is more than simply throwing students together around a table or multiplying the length of an essay by a factor of five is making courses leaders look more deeply at how their teaching and learning is structured. It is generating interesting experiments in flipping lectures and classroom activities, with courses using the capacity of the crowd to debate substantive social science conundrums, work collectively with students across the world on issues of poverty and negotiate delicate political agreements through the mass playing of a board game.

TOP DOWN? BOTTOM UP? MIDDLE OUT

Many pedagogical change programmes in higher education use either a bottom-up or top-down approach to implementing pedagogical change. Bottom-up change is where small funded projects go from ideation to pilot phase and generate momentum for change from the success of these initial pilots. Bottom-up change is a model that assumes a tipping point where enough projects involving a range of staff shift the entire momentum of the organization towards the change. Top-down change is where the institutional leadership, through policy, strategy and reward and recognition, lead change from the front, aligned to the strategic intentions of the university. Both bottom up and top down often fail to deliver sustainable and scalable pedagogical change. They can struggle to embed the personal and institutional commitment required to bring change about for the majority of the organization. They are subject to the capacity of the enthusiastic thought leaders and innovators or the inconsistencies arising from the complex pressures and expectations placed on university leadership. The challenge is to design your own unique approach to developing a culture of acceptance, engagement with change and the how you challenge the behaviours of resistance. We developed an approach to pedagogical change we called Middle Out. This approach is underpinned

by the belief that successful change is embedded and owned when the projects seeding change are successfully scaled and sustained. Middle Out targets the limited resources available for change at projects that offer scale, connection and/or stimulus. Projects informed by the Middle Out approach create momentum within the institution to motivate the majority of staff to participate in change. Studies on technological innovation dating all the way back to Rogers (2010) in the 1960s note that engagement with innovation in an organization is distributed along a bell curve, with participants in change, ranging from innovators to laggards. Middle Out focuses on the point where the majority of stakeholders reside, namely the middle of this bell curve. These people do not actively resist change but they are not generally the first to take risks. Our strategic approach is to work with projects and people that afford the greatest possibility of encouraging, supporting, inspiring and leading the people in the middle of the bell curve towards and through pedagogical change. These projects are designed with the organizational mission clearly in mind and with the twin capacities of scalability (can the project lead to innovations in different disciplines or wider contexts?) and sustainability (will the project continue to be implemented and developed once the funding and/or support ends?). Middle Out projects can take three different forms: *scaling projects that have institutional impact; connecting approaches that cross function, discipline and faculty; and stimulating change through high profile, highly visible interventions.*

Scaling Projects That Have Institutional Impact

Scale represents an opportunity to test initiatives and effect fundamental shifts of practice within an environment where pedagogical change is critical: large cohorts; full programmes; first-year courses; and major policy areas such as assessment or curriculum redesign. Scale means having enough resources, staff and support to engage in change at a substantial size and scope. Scale gives you enough variation and dilution to see if the change or strategy actually works, evaluate it effectively and make the case that if it works at scale, then it will work in smaller instances and at a local level.

At the LSE, one of key projects that draws on this form of Middle Out change is to extend gaming and play as pedagogical change into the study of social science by running a games-based learning project in the School's common core undergraduate general course called LSE100. The game itself was designed by early career teaching staff, learning technologists, academic leads and enhanced by play tests with students and staff. The first pilot in 2017 saw over 1100 students, 32 teachers play a game closely integrated into the learning outcomes of the course. One hundred and thirty-seven separate sessions of the game were run in one week, with over 3200 students planned to play the game in 2018.

Connecting Approaches that Cross Function, Discipline and Faculty

Initiating change through connection builds on the strengths of disciplines and knowledge and shares those strengths in trans-disciplinary ways. Middle Out works by building networks of practice, virtual and physical within institutions. It supports the sharing of expertise through cross-functional projects, whole-of-team interventions and impactful dissemination of practice. Connection draws together teams from cognate and tangential disciplines to approach change from a multidisciplinary perspective. Connection encourages these teams to take their success and knowledge back to their disciplines and cascade change from within. In other instances, it is a simply a community of practice sharing common experiences from engaging in change across disciplines.

One of the most important outcomes of the SAP initiative was to form a community of practice for academics and staff interested in visual social sciences. Community members have developed training programmes in documentary filmmaking and narrative storytelling, supported five new projects to start using documentary films as a form of assessment or learning and have run their first international conference on visual social sciences in 2016. The members of this group work together to enhance their pedagogical approaches, share practice, encourage others to experiment and build skills and capabilities amongst the wider academic community.

Stimulating Change Through High Profile, Highly Visible Interventions

Pedagogical change can accelerate through the effervescent effect of a successful and impactful catalyst project. These projects are not always the biggest, the most visible or undertaken by the most senior staff. These projects attract attention through their audacity, the innovation, their success or the persuasive power of the project team and leader. Stimulus is a powerful motivator for change as it empowers people to take risks in terms of teaching and learning. These projects generate not just inspiring exemplars but engender a real sense that this kind of change is achievable.

Potentially stimulating change is happening all across the LSE, with some of it happening under the radar. LSE Innovators is our way of recognizing and sharing these projects with the wider School community. These cases are focused on the academics, their philosophy for teaching, how that inspires their pedagogical approach and what others could learn from them. We make short profiles of these staff to share online that celebrate their work, their passions, their techniques and their reflections, which are widely shared inside and outside the School. A significant number of change projects that we are running have been seeded through other academics being inspired by these cases (http://lti.lse.ac.uk/lse-innovators/).

CONCLUSION

The transition from traditional face-to-face modes of teaching and learning to media-rich, student-centred and pedagogically innovative practices is by no way complete at the LSE. The seismic but ultimately underwhelming impacts of Massive Open Online Courses demonstrated clearly that institutions can move quickly to engage in pedagogical change with technology (Kumar et al., 2017; Soylev, 2017, Allione and Stein, 2016).

The LSE decided to not be a part of the scramble to attract thousands of students to drop-out of their open education offerings. Instead we took a different approach to online learning. We stepped back and interrogated what it meant to do an LSE education in the post-digital age. We set out a vision for our future that we are still delivering today. That vision runs parallel and sometimes contrary to other strategic directions and objectives within the School. In a complex, multi-disciplinary, research intensive environment this is not a bad thing. It creates tensions, debates and competition for resources. But these tensions make the change and the education it is focusing on better. It interrogates change to a degree that blind zealotry does not. It forces change to be informed by people, by research and by commitment.

The Middle Out approach we have taken represents a pace of pedagogical change that affords the opportunity to allow that change to become part of the fabric of the organization. It connects with the governance and regulatory environments to ensure that online and blended pedagogy is not seen as something that is outside the norm. Middle Out advocates for change that ripples out from the centre,

facilitating innovation and technology to make contextualized pedagogical change across the spread of programmes, undergraduate and postgraduate cohorts, local and international provision.

Both the strategic approach and the initiatives mentioned in this chapter are very much works in progress. One of the advantages of a model like Middle Out is that growth is organic and sustainable as opposed to rapid and sometimes out of control. We continue to see real growth in projects that support diversified modes of assessment. Programmes and courses are increasingly seeing the benefits of blended and online learning to support and structure how learning is undertaken outside the classroom. The approach the LSE is taking in terms of teaching, learning and technology is very much considered and contemplative, but always moving forward, engaging both the excited and innovative thinkers and the less risk-taking majority. The critical factor for us is the assertion that we want to make education better for our students. That outcome can be achieved in many different ways and the activities I have described here are just a few of them. The political. social, technological and economic environment that these projects reside in is complex, forceful, unrelenting and often out of our control. It influences the literacies and skills that learners bring into their education. It dictates the knowledge that jobs require of graduates. It shapes how our disciplines are evolving. It defines success or failure for our institutions. Online learning and pedagogical change are critical instruments for teachers, for programme leaders and for the wider institution to respond to this environment in an agile and informed way. They provide both a sense of responsiveness and the capacity to widen the educational base of the institution, defying competition and leading from the front. They can be unique selling points for institutions; ones that define both their relevance to society and in turn shape society through the integration of successful students into it.

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