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New Technologies and New Spaces: Grangegorman and Brightspace as Innovative Educational Environments

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Introduction and Background
This project seeks to focus on the new learning spaces and technologies afforded by the TU Dublin migration to the Grangegorman Campus. In particular, the fundamental changes driven by the new physical spaces and educational technologies for TU Dublin staff and students moving forward into 2020 and beyond. A competitive tender process from several vendors resulted in the selection of ‘Brightspace’ as TU Dublin’s new dedicated virtual learning environment (VLE). In response to this, our newly chosen VLE – Brightspace – will be at the forefront of these fundamental changes. It is absolutely crucial in this initial experiment phase to explore the innovation opportunities afforded by a purposefully designed campus and how Brightspace can be fully integrated by educators into a collaborative learning experience.

The prospect of working in an entirely novel teaching/learning environment provides both opportunities and challenges for current and future staff. The TUDublin Grangegorman ‘Migration Programme’ outlines the core implications of these changes: (1) enable pedagogical opportunities to maximise teaching methods within the new spaces and (2) change management and staff development to contribute towards an overall enhanced learning experience. In this context, the connection between learning spaces, learning technologies, and the new VLE, will be a dominant theme behind the transition to the Grangegorman campus.

Spatial Design and Theories of Learning
Over the past 50 years, the extent to which architecture and spatial design influence the strategies and practices employed by higher level institutions has come under increasing scrutiny (McClintock & McClintock, 1968). Educational spaces convey a sense of an institution’s teaching and learning philosophy to students (Park & Choi, 2014; Thomas, Pavlechko, & Cassady, 2018), and drives the pedagogical commitment of staff (Finkelstein, Ferris, Weston & Winer, 2016, p. 26). An institution that educates in teacher-oriented rooms while priding itself on student-centred teaching is contradicting its own pedagogical mission (Chism & Bickford, 2002).

Teaching and learning environments have traditionally been designed so as to make the lecturer the focal point of the room, however. Until the early 1950s, behaviourist theorists conceptualised learning “as a simple process of forming connections between stimuli and responses” (Park & Choi, 2014, p. 751). As a result, classroom design was focused on achieving minimum levels of comfort, visibility, accessibility, etc. Many modern classrooms retain these
designs: students sit at desks stacked in tiered rows, oriented towards a podium or projector screen. Such design was appropriate for the dominant learning theories of that time, which reflected the “stand and deliver, sit and listen” means of instruction (Steelcase, 2015, p. 2), or the teacher-centred approach, in which the focus was on the transmission of knowledge from the expert to the novice (O’Neill & McMahon, 2005, p.31).

However, the shortcomings of teacher-driven approaches to learning have been a dominant theme in contemporary scholarship on higher level education. As such, many higher level institutions are replacing teacher focused, ‘sage on the stage’, practices “with those that emphasise the active construction of knowledge through collaborative – or active – learning events” (Thomas et al., 2018, p. 118).

Active learning has its roots in constructivism, which theorises that students must “‘construct’ their own meaning by building on their previous knowledge and experience” (Carlile & Jordan, 2005, p. 19) Cognition takes place when the student processes knowledge and makes it relevant to their own cultural context (Smith, 2004). As a result, constructivist teaching is often accompanied by a decrease in traditional lecturing, and an increase in student-centred activities that “involves students in doing things and thinking about the things they are doing” (Bonwell & Eison, 1991, p. 2). Such activities may include reading/discussion groups; problem and case-based learning; group and peer-to-peer assessment; and collaborative work. Because of these repeated student–student interactions, active learning has often been linked to cooperative or collaborative learning (Stoltzfus & Libarkin, 2016), and has been described as “social, active, contextual, engaging, and student-centred” (Park & Choi, 2014, p. 752).

In recent years, the scholarship has considered how educational spaces can be adapted to reflect these active learning pedagogies. Alternative classroom designs have been conceptualised, such as the Student-Centred Active Learning Environment for Undergraduate Programs (SCALE-UP), Technology Enabled Active Learning (TEAL), and Spaces to Transform, Interact Learning, Engage (TILE). At the heart of each of these models is the conscious design of the learning space to facilitate information sharing, social and collaborative interaction, and individual knowledge creation (Thomas et al., 2018, p. 119). Typically, these active learning classrooms (ALCs) are characterised by circular conferencing tables; moveable seating; and additional learning technologies such as smartboards, tablets, and/or student computer-projection capabilities. ALCs are consciously designed to encourage ad hoc group formation, “interaction within and among groups, and between teachers and groups” (Stefan A. Smith MLIS, 2004, p. 68). Indeed, in one study examining student perceptions of higher education classrooms, students ranked the room layout for interaction and collaboration with others as having the most influence on their perception of the room (Yang, Becerik-Gerber, & Mino, 2013, p. 178; Asino & Pulay, 2019).

For some higher education institutions, entire campuses have been conceptualised as an extension of the traditional classroom: student cafés have been fitted with moveable whiteboards; lounges with informal seating offer power outlets; classrooms may feature moveable walls that can divide and redistribute space (Steelcase, 2015). The continued growth of mobile learning technologies, in particular, has made spaces outside of the classroom “an integral part of the learning experience, whether students are working alone,
with peers or with instructors” (Steelcase, 2015). Reshaping educational spaces has duly been identified as “a pivotal factor for future success of integrating technology into the classroom” (Asino & Pulay, 2019, p.180). Empirical-based principles for re-designing Technology Enhanced Learning (TEL) spaces have identified academic challenges, learning with peers, experiences with faculty, campus environment and high-impact practices (Weston, Finkelstein, Ferris & Abrami, 2010). Emerging principles for (re)designing TEL spaces aim to address the challenges of a diverse range (both physical and virtual) of high quality and flexible (individual and collaborative) design principles that span spatial layout, furniture, technologies, acoustics and lighting/colour (Finkelstein et al, 2016). TU Dublin’s move to Grangegorman is reflective of these dominant trends in contemporary education.

The Policy Context: EU and National Levels
The TU Dublin policies for learning technologies and environments are embedded within the context of the National Strategy for Higher Education to 2030 (Hunt, 2011) and the Report on the Modernisation of Higher Education (EU Commission, 2013). Both emphasize the increasing emphasis on high-quality learning environments that are driven by state-of-the-art physical spaces and e-learning platforms. The Grangegorman Development Agency (GGDA) - established under Grangegorman Development Agency Act 2005 - has been mandated by stakeholders at the local community (Grangegorman Development Act 2005), government (HSE ‘A Vision for Change’ Provision Policy) and institutional (TU Dublin) levels to adopt a masterplan that provides design principles that will underpin all future development on the new site.

The National Forum (2015) champions “embedding technology in pedagogy at the earliest stages and throughout students’ careers” (p.3). Whilst VLEs are considered to be ‘critical’ to 70% of respondents (National Forum Survey on the Use of Technology to Enhance Teaching and Learning in Higher Education), universal agreement about whether VLEs improve teaching was not established. The enhancement of teaching and learning through purpose built spaces, educational technologies and innovative teaching has received growing attention in learning research (Fortier, 2014). Educational technology has the capacity for transformation of teaching (McAvinia, 2016) and social constructivism has been increasingly influential in framing e-learning scholarship (Laurillard, 2002).

The 2015 Technology Outlook for Higher Education in Ireland (Johnson, Adams Becker, Cummins, Estrada & Freeman, 2015) ranked ‘collaborative environments’ and ‘adaptive learning technologies’ as major long-term (time-to-adoption horizon: 4-5 years) priorities to be harnessed. Key trends accelerating these developments include redesigning learning spaces, advancing cultures of innovation, increased preference for personal technology and rise of digital (including VLE) delivery. The expert report also noted ‘wicked challenges’ (p.8) as ‘scaling teaching innovations’ and ‘integrating technology in teacher education’. In this context, Brightspace can potentially provide a rich environment for Active Collaborative Learning (ACL) that cultivates dynamic and authentic activities (Grabinger & Dunlap, 1995). This is consistent with approaches to deep learning in the digital age (Weigel, 2002) and powerful evidence points to students processing at higher intellectual levels when collaborating (Figure One) rather than when working individually (Entwistle & Peterson, 2004; Steelcase, 2015).
Active Collaborative Learning in Grangegorman and Brightspace

To enact this vision for 2020, the GGDA/TU Dublin Masterplan has articulated innovative design principles that reflect digitally-enabled and co-creative spaces (Figure Two).

The creation of a single campus with a major Academic Hub, central lecture spaces, a Social Hub, Student Hub and shared laboratories and catering facilities all promote and encourage interaction amongst staff and students of DIT. (GGDA Masterplan, p. A2).

The clear vision is for open, collaborative and innovative learning spaces (academic and social hubs, circular seating and pod/cluster arrangements around educational technologies) achieved through connected ‘spaces’ (Figure Three). The newly appointed architects for the West Quad Business School, Henegan Peng, recently outlined their vision for collaborative learning spaces that seek to replicate the orientation in the workplace environment:

This Quad will feature a range of specialist and shared learning spaces which will cater to the needs of a changing third level education environment for the College of Business. (GGDA Masterplan, p.A2).
This represents a strategic shift away from the siloed, individual, disconnected and limiting nature of conventional learning spaces and virtual learning environments (McAvinia, 2016) for TU Dublin.

There has been an overall recognition of the lack of success in integrating the VLE as a teaching aid. However, if used correctly, VLEs can foster group collaboration through problem-based learning (Logan-Phelan, 2018). The recent #VLEIreland Student Survey offers valuable insights on utilising the VLE to promote greater student and teacher engagement (Ryan & Risquez, 2018). Significant numbers of students and teachers have identified the VLE as a convenient tool for study and communication (Ryan & Risquez, 2018, and a materials repository (Farrelly, Raftery & Harding, 2018).

The results of the #VLEIreland Student Survey show that the vast majority of students – 94% and 83% of student responses in 2013 and 2011 respectively – recognise the value and potential of the VLE (Raftery & Risquez, 2018). Student engagement with VLE platforms is standard practice. Thus, the onus is on teachers to attempt to integrate the VLE into the learning environment. Anecdotally, one of the challenges posed by learning technologies is the siloing effect that apps such as Socrative and TurningPoint can have on students (Rafferty & Risquez, 2018). Given the individuated aspect of many learning technologies, students interface with their screen and not their peers. This can lead to App fatigue; a disengagement with learning technologies through time, and ultimately, disengagement from class. Having a VLE which promotes collaboration and socially-engaged learning might be an excellent way of utilising novel class environments such as those in Grangegorman (O’Rourke, Rooney, & Boylan, 2015).

Given that the design of the Grangegorman campus signals a shift away from the traditional, pulpit-oriented learning environment, teachers are presented with a chance to address gaps in VLE use, particularly during class. Wiggio is a social-media-like platform provided by Brightspace which offers students the opportunity to exchange ideas, blog and post
comments in group forums. Wiggio can be utilised as an in-class teaching aid to promote innovative social learning and collaboration. Groups working at clustered pods can share their contributions with the classroom in real-time through the online VLE, or by projecting their contributions to main screen.

Wiggio can also be utilised to link the classroom, the campus, and the home as connected learning spaces. Given the ubiquity of mobile technology, VLEs have been shown to enhance “student communication and flexibility” (Raftery & Risquez, 2018). A modern and user-friendly platform like Brightspace can augment communication across flexible and movable learning spaces. The Brightspace “Pulse” App offers immediate access to programme/module materials, as well as discussion and brainstorming forums, in the classroom, on-campus, and beyond. As a result, students are empowered to turn any common space into a learning environment.

Results from the #VLEIreland Student Survey have shown that over 90% of students surveyed in years 2011 and 2013 use the VLE from home (Raftery & Risquez, 2018). This trend can be seized upon by teachers – students can be encouraged to use Wiggio as a brainstorming tool at home; to exchange ideas online with peers; and to expand on these ideas in group discussion during class. Thus, the VLE can be used to foment collaboration, social learning and peer idea-exchange, with the added benefit that learning moves beyond traditional knowledge transmission models in the classroom to active learning in connected spaces.

Large numbers of teachers canvassed during a multi-college staff survey noted routine applications/uses of the VLE, such as note dissemination, announcements, emails and assignment collection (Farrelly, Raftery & Harding, 2018). However, among those who recognise the usefulness of VLE’s, it is acknowledged that there is significant scope for reconceptualising the VLE, from repository to an active, collaborative in-class tool in itself (Farrelly, Raftery & Harding, 2018). As noted by the National Forum report, *Building Digital Capacity in Higher Education* (cited in Raftery & Risquez, 2018. p.31):

> The constant emergence of newer and better tools has often resulted in confusion among staff regarding the best tools to recommend and use, and to develop and learn about in their teaching and practices. This may go some way towards explaining the emerging evidence suggesting that key digital resources (for example, virtual learning environments) are not being used to their full pedagogical capacity.

The integration of a new VLE to a novel learning environment should be recognised as a potential opportunity to move away from widely held opinions that the VLE is a poorly utilised technology.

**Conclusion**

With the migration to the new Grangegorman campus on the immediate horizon, now is a timely opportunity to consider the engagement with and usefulness of the VLE as an educational space. This is particularly so in light of widespread academic sentiment (Farrelly, Raftery, Harding, 2018) that VLE platforms are “highly successful in enabling the administration of learning but less so in enabling learning itself.” (Educause, 2015, p.2) TU Dublin’s engagement with a new VLE in a consciously designed campus provides an
opportunity for development and augmentation of teaching methods and tools in a frontier learning environment.

However, changing the room and furniture layout while incorporating learning technologies are not enough to sustainably embed active learning practices. In order to truly transform teaching and learning practice, design modifications must be accompanied by pedagogical training and continued professional development programmes (Thomas et al, 2019). In the immediate term, TU Dublin should continue to dedicate resources to upskilling faculty in the fields of pedagogy and technology. Continued professional development programmes and technical training on the Brightspace platform are time-intensive process however. It is imperative that these considerations inform TU Dublin as it commits to a teaching philosophy as the first technological university in Ireland. Staff confronted with the forthcoming migration should be given the time, confidence and training (McAvinia, Ryan & Moloney, 2018; Thomas et al., 2019; Stoltzfus & Libarkin, 2016) to conceive the VLE as a pedagogical tool which stimulates debate and extracts best value from TU Dublin’s new spaces.
References


A beginner’s/staff guide to

GRANGEGORMAN & BRIGHTSPACE AS INNOVATIVE EDUCATIONAL ENVIRONMENTS

This user guide seeks to focus on the new learning spaces and technologies afforded by the TU Dublin migration to the Grangegorman Campus. The practical steps below are designed to maximize pedagogical opportunities and teaching techniques by connecting the new learning spaces, technologies and VLE.

Harnessing Connected Spaces

The prospect of an entirely novel teaching/learning environment provides opportunities and challenges for current and future staff.

It is crucial in this initial phase to explore the innovative opportunities afforded by a purposefully designed campus and how Brightspace can be fully integrated by educators into a collaborative learning experience.

How can I start to innovate in my new learning spaces?

Contemporary teaching and learning scholarship advocates replacing teacher focused, ‘sage on the stage’, practices with those that emphasise the active construction of knowledge through collaborative or active learning events (Thomas et al., 2018, p. 118).

Such activities may include:
- Reading/discussion groups;
- Problem and case-based learning;
- Group and peer-to-peer assessment, and;
- Collaborative projects

What pedagogical opportunities does the Grangegorman campus offer?

Grangegorman provides for open, collaborative and innovative learning spaces.

Collaboration is encouraged through connected ‘spaces’ that encourage collective interactions among users:
- Academic and social hubs, clustered seating arrangements oriented around learning technologies, movable furniture, informal learning spaces

This represents a strategic shift away from the siloed, individual, disconnected and limiting nature of conventional learning spaces and virtual learning environments (McAvinia, 2016).
How do I blend active learning strategies online and the new teaching spaces in Grangegorman?

Brightspace provides a user-friendly platform for online discussion, resource sharing, and collaborative mind-mapping across digitally connected spaces in the Grangegorman mobile campus.

Brightspace drives collaboration and socially engaged learning through:
- Gamifying learning - releasing content after the student engages with certain resources, and awarding badges for sustained engagement.
- Allowing for in-class and online quizzes.

The Brightspace Pulse App also allows for immediate access to content and social features, both in-class and in open-use learning spaces:
- The in-app Wiggio platform can facilitate remote group work, or can be utilised as in-class discussion tool.
- Teachers can moderate, facilitate and contribute to ensure best value from these features.
- Examples: Virtual debates, TEDEd lesson and flipped learning.

Benefits for Students

Student learning experience should reflect a fusion of new learning spaces and novel aspects of Brightspace...

- enabling a blended learning approach - using novel physical environment with group-based features such as Wiggio - each pod/group's blog contributions can be published in class in real-time to facilitate discussion;
- these types of class experience will encourage further engagement with the "mobile campus" - encourage VLE use in class as an educational resource in itself, rather than a notes repository used at home;
- having a VLE App with immediate access to content and group-based learning forums will revolutionise student engagement;

Useful References

- TU Dublin Website on the Move to Grangegorman (https://www.tu.ie/grangegorman/movingtograngegorman/)