Critiquing The Crit – the influence of technology and creative professional practice on the 21st Century peer learning environment.

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This article explores the importance of the group critique in practice-based arts education and how it is evolving through the digital age citing the development of the College of Arts Digital Crit Room at the University of Lincoln. Through the observation of how the rapid development of technology has potentially impacted negatively upon the usage of the traditional art and design 'studio', the Digital Crit Room project identified how technology may have threatened teaching practices that are critically reliant on a 'studio culture' with peer learning at their centre. Laptops, wireless and mobile technology have encouraged and enabled students to study and create anywhere, but a critical place of peer learning is potentially being eroded.

One of the most effective forms of peer learning in practice-based arts subjects is 'the crit' in which students display their work alongside each other's so that criticism, discussion, comparison and feedback can be offered. The crit is a vital part of arts learning and teaching, offering live feedback from students and staff alike on work-in-progress or completed creative work, but given the potential erosion of the studio where else can this pedagogically valuable activity take place?

Through the definition of a set of design values to inform the creation of a 'destination' learning environment that felt different to other learning spaces on campus, the project team researched into the working environments of the creative industries and compared them to the design of the usual higher education learning spaces. Informed by this activity, the College of Arts Digital Crit Room was created as a new learning space with participatory learning at its heart, that reflected the working behaviours and environments of the professional creative industries.

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'The school should be absorbed into the studio and that the manner of teaching should arise from its character, that is, the studio should not be adjunct of the other teaching programmes. On the contrary, all the teaching programmes should exist only to support the studio and the design problems it is working on, reflecting the reality of professional practice, which is entirely driven by the needs of the project.'
Walter Gropius, 1983

The pedagogy of the crit

When Walter Gropius, Director of the Bauhaus School established in Germany 1919, described the principles of design pedagogy and learning spaces (Gropius, 1983) he emphasised how the effectiveness of teaching is significantly enhanced through peer learning in spaces that encourage collaboration and reflect employer environments.[1] The principle of collaborative learning (van der Linden J. *et al,* 2000) has been at the heart of practice-based arts pedagogy for the last century but the maxim of teaching environments reflecting the professional practice workplace is more variable.

One of the most effective forms of peer learning in arts subjects is 'the crit' (also called the 'critique', 'pin-up', 'review' or 'jury'). Traditionally in a crit, particularly in practice-based disciplines, students display their work alongside each other's so that criticism, discussion, comparison and feedback can be offered. The crit is a vital part of arts pedagogy, offering live feedback from students and staff alike on work-in-progress or completed creative work. The crit can often be a passionate, energetic hotbed of argument and praise, swinging back and forth between fault-finding and disapproval (resulting in supportive suggestions for enhancement) to appreciation and congratulation. As valuable feedback events, they are important to the process of peer review and

participatory learning for the production of creative outputs. As Biggs and Tang note '…arguably the most powerful enhancement to learning is feedback *during* learning' (Biggs and Tang, 2011).

Students learn more effectively in environments that facilitate peer learning and promote the building of relationships with peers and teachers (Peberdy, 2014,12) epitomized in the 'studio', typical in practice-based arts disciplines. Research tells us that student learning, particularly at the deeper levels of Bloom's Taxonomy, is more effective when students fully participate resulting in increased understanding, increased attendance rates and reduced failure rates (Krathwohl, 2002, 212-18). Teaching methodologies that include problem-based learning, team-based learning and collaborative learning all flourish within the studio and when students engage in these instructional styles, their performance increases (Kamei *et al*, 2012). Whilst equipment and the latest technology can facilitate active group learning, the room's layout and design are crucial elements that truly allow this valuable activity to take place.

The impact of technology

The rapid development of technology has potentially had a negative impact upon the student usage of the traditional studio, threatening established and proven teaching practices reliant on peer learning through a studio culture. Laptops, wireless and mobile technology have enabled students to study and create anywhere, resulting in engagement with the studio (a critical place of peer learning) being eroded. Without the peer discussions that explore the success of each other's work, alongside the open-ended, reflective discourse that explores areas for improvement and tests understanding 'students gain an impoverished education' (Boud, 2001:2).

Teaching and the student experience have been transformed by technological developments over the last decade and the benefits such as increased personalisation, inclusivity and accessibility together with the explosion in the number of resources available to teacher and learner alike, can not be ignored. However, the tension between technology and the potential erosion of the studio environment has rarely been discussed. The challenge for educators is to structure

and design their learning environments to inspire peer learning to flourish. Technology enables the place of learning to be relocated and be more fluid but it doesn't necessarily mean that learning is improved as a result.

As well as the challenge to the studio environment, over the last two decades the digital revolution in the working and production methods of practice-based arts disciplines, particularly in the design subjects, has also impacted on the crit. As digital creation has steadily become the norm for students and professional practitioners, large format (A3 size and above), high quality, colour print-outs have become the standard method to review work. Through analysis gathered by working closely with the University of Lincoln Students' Union, the College of Arts identified that in a sensitive, high tuition fee culture (value for money, no hidden costs etc) there was growing concern that print costs were rising for students and the crit was being associated with a financial burden, that was often being shouldered by the student. The opportunity to develop a new flexible learning environment that kept students' costs to a minimum, embraced new technology and with peer learning at its heart, was one not to be missed. This was a chance to explore and develop how technology was *actually used* by students and staff across the arts disciplines and to develop a new learning environment that offered effective alternatives to large quantities of paper print-outs and the associated financial and environmental costs. In addition, the project provided the opportunity to create a learning environment that embraced the technology that students used everyday *out of the classroom* and seamlessly integrate it *into the learning experience*. It was proposed that the design of the room should reflect how today's individuals multitask through the simultaneous use of multiple devices (or 'dual screening') including the common practice of using touchscreen technology alongside traditional paper and pen.

Researching different working environments

The College of Arts Digital Crit Room project team identified the requirement to explore teaching and learning spaces that reflected the workplaces of the creative industries. Given that the 'Creative Industries' designation refers to an extremely wide range of disciplines and workplaces (Department for Culture, Media and Sport, 2001) this was always going to be a challenge, but visits to numerous advertising, design and media agencies, including Google London, informed the project team of

the significant differences between the typical higher education learning space and the contemporary professional creative workplace. Thematic features identified in the workplaces of contemporary professional creative companies included brightness, flexibility and openness, with regularly changing layouts that were less structured, appearing in some cases almost chaotic. The majority of the researched workplaces demonstrated the importance of significant freedom of movement around the environment, reducing as many barriers as possible for staff to collaborate. The continual f coming and going of colleagues was very common in the research findings, as was that of staff being easily able to relocate to differently designed work areas according to task.

A mixture of technology was also evident in the professional environments, combining traditional office materials (flipcharts, noticeboards, notepads etc.) with the latest technology (large screens, multiple devices – many with touchscreens – and mobile working). The furniture in contemporary creative workplaces was also noted: often it was softer, mixed in colour and style, and frequently rearranged according to changing activities. It was identified how flooring design (texture, colour, materials, patterns) was used to identify zones of activity without building walls or installing room dividers. Significantly, in contrast to these themes, many teaching rooms in higher education are designed, or at least fitted out, to follow institutional guidelines and approved suppliers, often resulting in consistency and uniformity. Higher education teaching spaces are frequently required to meet the needs of a multitude of very different disciplines, culminating in the standardisation of layout, equipment provision, furniture procurement and utility.

A multidisciplinary team project team was created comprising the Students' Union, Estates, ICT and College teaching staff to develop the College of Arts Digital Crit Room. It was agreed that it was important to concentrate on *how* students and tutors work, learn and teach in active learning spaces rather than focus on the technology being used. The team agreed that the project was not about hastily installing screens and the latest technology, it was about developing a new learning environment to enhance participatory learning and reflect professional creative environments. To feed into the design of the room the team researched examples of recently completed spaces from across the higher education arts sector, including

the University of Kent's School of Architecture and the recently completed Institute of Art and Design at Birmingham City University. Observations in this review included flexibility of use; the feeling of brightness and airiness; the range of different lighting levels required by different activities; the different learning activities utilised across the practice-based arts disciplines and the resulting variety in room layouts. Combining these findings with the themes identified through visiting professional creative workplaces, it was clear that the room needed to be easily adaptable for a variety of teaching activities, enabling optimum space utilisation and easy movement within the environment during and in-between activities.

The project team developed the objective of creating a 'destination' 21st Century crit environment that would have impact and gravitas, adding distinction and a sense of theatre to the arts learning experience. In this context the word 'destination' was borrowed from retail design (WiseGEEK, 2016) to indicate a space which was not simply a renamed room, but a facility that offered desirable and unique features so that it became an attractive option for teams to bring their students out of programme 'owned' studios for an enhanced learning and teaching experience. In other words, a 'special place' for a 'special event' that learners and teachers would want to go to and that felt different to other spaces on campus.

Bringing together the findings of the creative industry workplace review and the findings of reviewing recently completed arts environments in higher education, the team agreed a set of five design values to guide the process of designing the Digital Crit Room and influence decision making. The five values were as follows:

1. The project would be led by from good teaching practice, not led by technology
2. The project would create a space to provoke and encourage innovations in learning and teaching
3. The project would create a room that would have an accessible and professional feel (quality, simplicity, usability)
4. The project would create a room that reflected the workplaces of the creative industries, where 'destination' spaces promote ideas and collaborative working

5. The project would not exclude proven analogue modes of displaying and critiquing work (valuing pixels, but not pixels over paper)

The design of the room

The College of Arts Digital Crit Room was built over the summer of 2016 and was available for teaching at the start of the academic year 2016/17. The new environment enabled students and tutors to engage in crits in an interactive, flexible learning space and was an exemplar of how a learning space can be, in both its usage and design. Each element was carefully designed, taking into consideration the variety of ways that the space could be used for effective peer learning and teaching. The technology, furniture and design in the Digital Crit Room were all informed by the users and their particular needs, the design themes of professional creative practice workplaces and the agreed project design values. Importantly, the project team recognised that technology would be an *integral* part of the room design rather than an adjunct.

The room was designed to be used in a wide variety of ways and, as such, the room had no 'front' (see Fig. 1). The design of the room placed the emphasis on students learning through activity rather than tutors teaching (Peberdy, 2014, 13). By not having a 'front' or default layout, the room effectively encouraged teachers to consider how to use the space at the start of every session and promoted equal engagement with all the different learning technologies housed within the room.
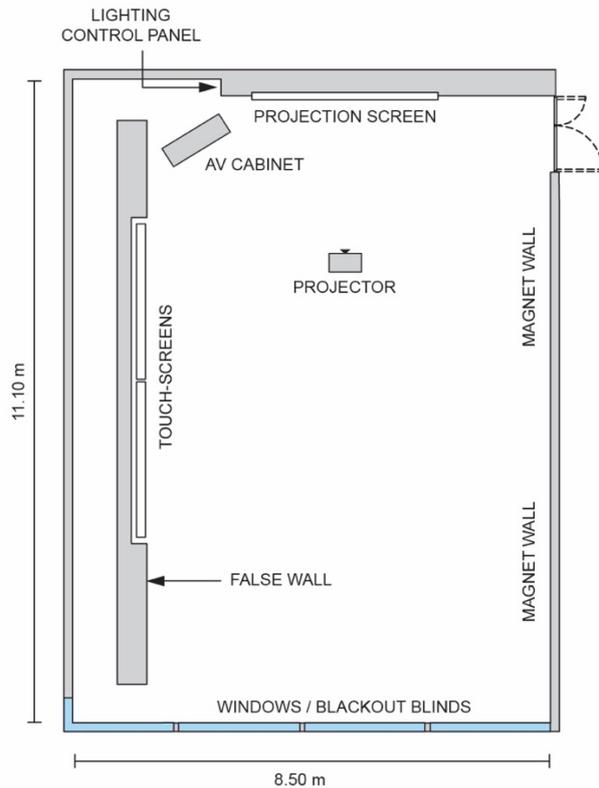
Figure 1: Diagrammatic plan for the Digital Crit Room

The room was designed to be virtually furniture-free (see Figs. 1, 2 and 7). A false wall allowed for any equipment to be stored out of sight. Thirty-five chairs with tablets were made available but kept behind the wall together with three folded tables. The project team chose not to include desks as they believed this would define how the space would be used and restrict the movement and activities of learners and teachers. It was agreed that it was important that users had the freedom and flexibility when they entered room to use the space to suit their activity. Therefore, a condition of using the room was for users to always return it to its empty/default state. As the room design did not prescribe its use, the teacher or students were obliged to consider the layout and choice of equipment that best facilitated their particular learning activity.

Figure 2: In its default state, the room is virtually furniture-free with equipment kept out of sight behind the false wall. Chairs with tablets and folded tables are available but packed away.

The space featured two high-definition (HD, 4K) 84-inch ProWise touchscreens (see Figs. 3 and 4) which rise and lower at the touch of a button ensuring accessibility for all users. Significantly, each of the large touchscreens had sixteen active touchpoints facilitating particularly effective group working. Each screen had high quality integrated speakers and numerous inbuilt USB ports. A Windows 10 PC was built into each screen allowing each screen to work independently, increasing flexibility and functionality.
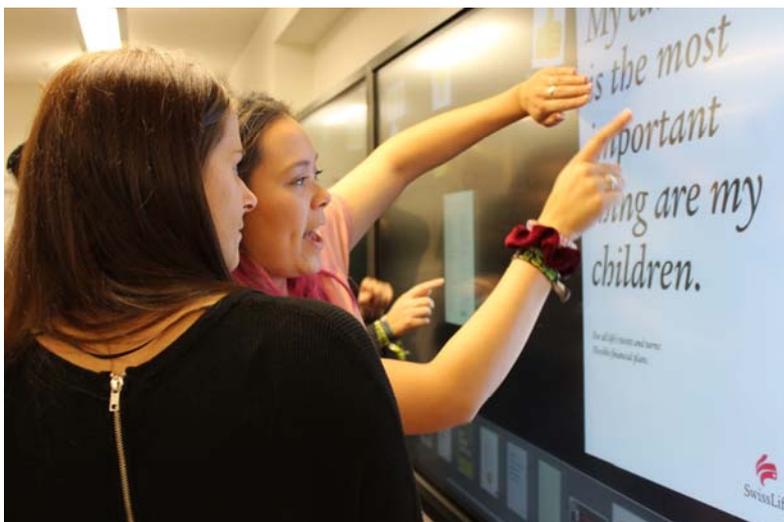
Figure 3: The high definition touchscreens were selected to display imagery at the highest possible quality.

Figure 4: Each of the large touchscreens had sixteen active touchpoints facilitating effective group working.

Installed third party software was initially kept to a minimum and, where possible, free software or Windows 10 features were utilised. For example, Microsoft Surface Collage, a free app on Windows 10, was used to effectively display multiple pieces of work at a single time (see Figs. 3, 4 and 5). Users were able to move and resize multiple pieces of work quickly and easily, facilitating detailed examination and comparison. To remove the need for students to carry USB storage devices and to stop the usual time-expensive activity of students queueing up at the start of a session to copy their work onto the computer, a secure Dropbox account was created that was synced to all the computers in the room. Students and staff were able to upload their work ahead of the session so it could be accessed quickly and easily in the lesson. The project team decided that the software installed in the room needed to be as straightforward as possible and initially kept to a minimum. This helped staff and students, in the first instance, to get used to using the equipment and not be intimidated by the new facility. New software with additional capabilities has since been introduced according to need, on a case-by-case basis.

Figure 5: Microsoft Surface Collage, a free app on Windows 10, was used to display multiple pieces of work on a single screen allowing for sophisticated comparison and detailed examination.

In addition to the two large HD multi-touch screens, the room was equipped with an HD projector and fixed, reflective projection screen connected to a desktop PC, Blu-Ray player and speakers. The projection screen was framed to clearly define it and to focus users' attention. The framing of the screen demonstrated the commitment to attention to detail and professional standard of the facility (see Figs. 2 and 7). A document camera was also installed for the sharing and examination of texts and objects at high levels of magnification and resolution.

A 'magnet wall' (see Fig. 6) was installed in the room that lined the entirety of one wall and utilised the latest developments in metallic plaster. The wall had a softer appearance than other types of metallic facility (traditionally created by fixing sheets of metal to the wall), was noise absorbent and blended seamlessly into the space. Careful attention to detail was paid to the choice of magnets to ensure they were high quality, strong, visually appealing, tactile and easy to remove.

Figure 6: The Magnet Wall allowed for the seamless transition between touchscreen, projector and traditional 'pin-up'.

The coloured carpet in the Digital Crit Room (see Figs. 2, 7 and 8) made the space feel noticeably different to the rest of the University of Lincoln teaching environments. The patterns of coloured tiles created 'hotspots' that identified zones of activity. A diagonal 'road' of dark grey patterned tiles leading from the door to the far corner was created to draw users into the room and direct their movement within the space. The fragmented and apparently serendipitous design reinforced the freedom and flexibility inherent in the learning environment.
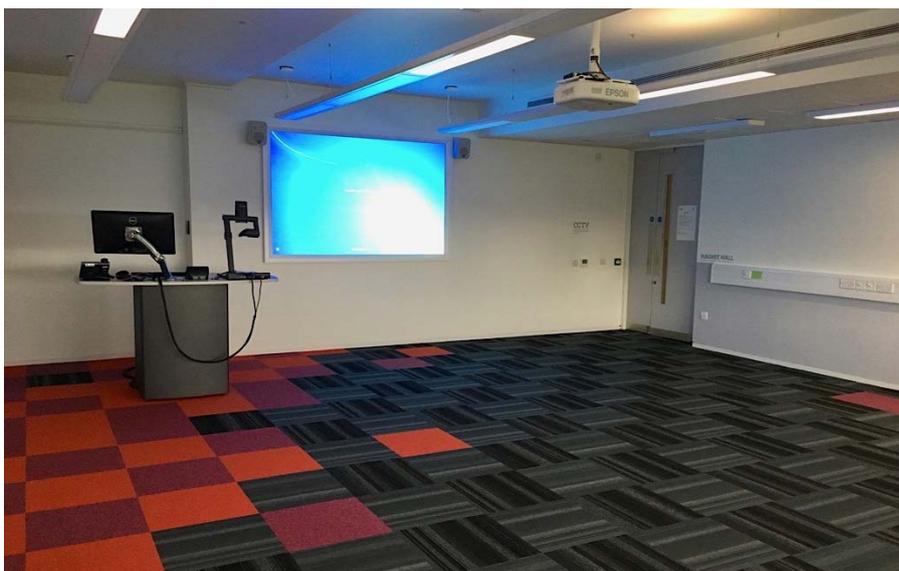

Figure 7: The carpet design made the space feel very different to the rest of the campus learning environments. The framing of the reflective projection screen was another example of the commitment to attention to detail and professional standard of the facility.

Figure 8: The fragmented design of the flooring reinforced the freedom and flexibility inherent in the space.

The Digital Crit Room was equipped with an impressive, customisable LED lighting rig (see Figs. 2 and 7) hanging from the ceiling. Each of the seventeen lighting units was set-up to be individually programmable with highly accurate dimming features controlled through a bespoke lighting control unit (see Fig. 9), inspired by the design of the 2002 Apple iPod 'touch-wheel'. The familiar and intuitive touch-wheel and mini touchscreen design allowed users to select pre-set scenes optimised for particular areas (or chosen technology) or to smoothly, manually adjust the lighting levels according to need. Light and, just as importantly, dark were used to zone and define activity areas around the room. Combined with high quality blackout blinds, the room was designed to facilitate the effective and dramatic illumination of any teaching activity.

Figure 9: Lighting for the room is controlled by the intuitive touch-wheel and touchscreen unit allowing users to select pre-set scenes optimised for particular areas and activities.

The impact of the Digital Crit Room

One year on and it's now possible to review the effectiveness of the College of Arts Digital Crit Room. The room has been very well used with more than 400 teaching sessions throughout the 2016/17 academic year across all the schools in the College. Students have been able to book the room themselves outside timetabled sessions and this has also proved to be very popular. It has been particularly interesting to note that the room has had a much wider and positive appeal than initially forecast. The original concept for the room was based on the perceived erosion of studio culture and yet programmes beyond the typical art, design and media disciplines have also taken full advantage of the new learning environment. BA (Hons) English staff and students have utilised the room to collectively peer review and mark-up creative writing manuscripts; BA (Hons) Conservation and Restoration students have used the HD document camera to collectively examine texts and objects at high levels of magnification and resolution; and BA (Hons) Creative Advertising students have used the two side-by-side large touchscreens to critique radio adverts (by listening to an audio file on one screen and view the script on the other). It is worth noting that all of these activities would have previously taken place in more traditional teaching environments but reports suggest that the learning was more effective due to increased student engagement and a higher quality experience. It is a testament to the effective design values of the

Digital Crit Room project that the new teaching environment has appealed to disciplines beyond the traditional practice-based studio subjects.

The feedback from staff and students has been universally positive (University of Lincoln Student Life video, 2017) and requests for additional similar spaces to be created in the College of Arts and across the campus are becoming ever frequent. Highlighting the positive feedback from the students, the Digital Crit Room was awarded 'Student Impact Award' by the University of Lincoln Students' Union at the annual 'Individual Merit and Team Achievement Awards' in October 2016.

The practice-based disciplines that have traditionally considered the studio as an integral part of their learning experience (e.g. art and design subjects) have made great use of the Digital Crit Room to explore the role of the studio and explore alternatives. The most common use of the room by these disciplines has been for a special 'end of project' crit. The concept of a destination teaching space that feels and looks different to the subject's usual day-to-day teaching environments has really captured the imagination of staff and students alike. Feedback from learners and teachers from practice-based art and design disciplines suggests that a 'destination' space more accurately reflects the working methodologies of professional practice, i.e. the studio is where the majority of work is *created* but it is *presented and evaluated* in a very different space. The Digital Crit Room project has helped staff and students recognise that in the art, design and media professions the presentation of work usually takes place in the creative company's client-facing meeting room or at the client's offices and, crucially, *not in the studio*. By developing and creating the Digital Crit Room the College of Arts has enhanced the teaching of arts subjects by recognising and more accurately recreating the different activities of professional practice. Interestingly, the concept of a virtual, online crit room has been discussed but, in the author's experience, no affordable software or systems exist yet that successfully bring together groups of learners (or practitioners) to intuitively share their visual outputs at the necessary quality for natural and effective peer-learning. One improvement that has been identified since the room opened is the addition of high quality webcams and microphones to the large touchscreens to enhance the utility and experience of connecting online with remote collaborators,

such as classrooms in other institutions or visiting lecturers. These will be installed for the start of the next academic year.

It is possible to recognise the impact of this project beyond the space itself. The thinking and values developed through the Digital Crit Room project are now influencing the major refurbishment projects across the University of Lincoln's Brayford Pool campus, where highly-specified digitally enhanced shared learning spaces are being created. Rather than simply duplicating the Digital Crit Room, these new learning spaces are being informed by the project's design values, thinking and processes. The College of Arts Digital Crit Room champions innovative digital learning in practice-based arts subjects, which have in recent times perceived technology as a threat to the culture of the studio. The project has identified and demonstrated the need for the creation of innovative teaching spaces that have peer learning at their centre and that focus on enhancing participatory learning in environments informed by the workplaces of professional practice.

The challenge facing educators today is to structure and design their learning environments to embrace the latest technology whilst enabling peer learning to flourish. The Digital Crit Room demonstrates how Gropius' philosophy that the character of the studio (and its unrivalled effectiveness to foster a peer learning culture) and the working methodologies of professional practice can be effectively brought together in a 21st Century higher education learning environment for practice-based arts disciplines.

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FILM for online publication:
Students in the Digital Crit Room discussing its success

Embed link for this film:

<iframe width="560" height="315" src="https://www.youtube.com/embed/eWU1aMs060U" frameborder="0" allowfullscreen></iframe>