Insight *Briefing*

Seats of Learning

A new world of learning environments

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Foreword

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The traditional structures of work and education were forged in the fires of the Industrial Revolution. They shared many characteristics. They were rigid, hierarchical and based on a patriarchal approach to achieving their aims. In education, this manifested itself in the traditional didactic form that was, until recently, seen as the ideal model, based on teachers, tutors and lecturers imparting knowledge and learning to their pupils and students as part of an agreed curriculum and to an approved timetable. How well this process turned out was checked with periodic testing.

For some time now, people have been questioning this structure and, with it, the design of learning environments. Over the past few decades, we have not only developed the technologies to allow us to learn in new ways, we have also developed a far better understanding of the processes involved. Social changes have also encouraged us to reconsider the roles and structures of education to become more inclusive and diverse. It is one of the new tenets of modern learning theory that different kinds of learning goals require different approaches, the creation of new opportunities and the development of new environments.

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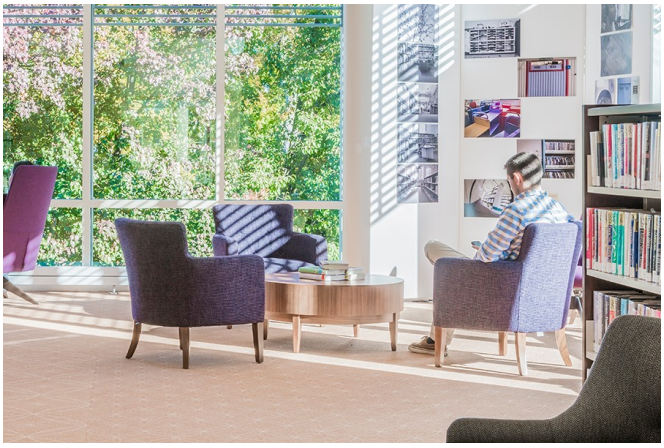
This paper will consider the underlying drivers of these developments and consider how this is reflected in the design of new forms of learning environments, as well as the lessons that can be learned for designers and managers of other types of spaces.

….Oliver Ronald

Seats of Learning



An historical perspective

From passive to active and collaborative learning

Education in the 19th Century was based on a mechanical system in which students were expected to do little more than sit and copy down the words of the people instructing them. It was the essence of rote learning in which students were expected to do little more than listen, absorb and repeat. By the Victorian era this had evolved somewhat, with students taught how to commit thoughts to paper, but even this was limited almost solely to the imitation of what they had been told.

By the beginning of the 20th Century the processes involved were directly analogous to the principles of scientific management that had emerged in the world of work.

Schools and Universities could be perceived as factories for the mass production of units of labour and they were designed along the same lines. While pupils and students were seen as raw materials, the learning environment could be structured with the same linearity as a conveyor built and with the same fixed schedules.

The new disciplines of quality control were emulated with exams, tests and progress reports. The principles of scientific management were evident in the curriculum, teaching methods, assessments and design of learning environments. Even so, it became more commonplace for students to move beyond rote learning and instead express their views on previously unseen texts and information.

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It was not until the late 20th Century that students were asked to indulge more widely in critical thinking. Written texts could be deconstructed and interpreted in the context of wider learning. History could be re-evaluated, scientific theories could be tested and maths and engineering could be applied to solve problems on the student's own terms. The shift from passive to active learning was complete as students were expected to develop expertise and an ability to adapt rather than a mere ability to repeat what they had been told.

The technological and social developments of the past fifty years have pushed these principles even further. Learning has been able to unshackle itself from the traditional settings of classroom, lecture theatre and library to become more immersive, inclusive and collaborative.

What is also apparent is that this new freedom allows us to create different forms of learning environments that are not only closely attuned to the needs of particular forms of learning but also responsive to the needs of individual students.

The solution, as it is in the workplace, is to provide people with choices about where to work and learn

The psychology of learning

Learning is an activity that is hardwired into us. Without it we could not have come so far as a species. So when it comes to designing a learning environment, it is essential to understand that the processes at work are not significantly different to those that drove our hunter-gatherer ancestors on the plains of Africa hundreds of thousands of years ago.

Over the past few decades we have learned more and more about what this means in practice. Learning is not merely about having our brains filled with information, but the development of ideas, application of information, contextualisation and collaboration with others.

It is also about personal development. Learning allows us to better understand the world around us and ourselves. So an effective learning environment will not merely provide us with competency in a subject, as it once did, but the ability to learn a skill and know how to apply it.

This is particularly important in a fast moving world in which we have to adapt to new challenges constantly. The boundless nature of skills is a pre-requisite for life in the 21st Century. This active approach to learning must be reflected in the physical environment.

This is not to say that traditional, passive environments are not needed. Just that we also need to provide active, collaborative surroundings to allow people to learn in new ways.

We should also not underestimate the power of emotions in this regard. It should go without saying that emotional responses to a particular environment will vary from individual to individual but it is equally true that a positive emotional association with a space will improve learning outcomes and provide the user with power emotional associations.

This can create a positive feedback loop in which students seek out a space in which they enjoy learning and know they have their best outcomes. This is partly about comfort, but also about an unspoken feeling about a space.

This response can be affected most obviously by the furnishing, levels of light, ventilation and acoustics. We understand precisely how such environmental factors can disrupt learning and their specific impact on different types of people depending on their levels of introversion or extroversion, age, culture and gender.

The solution, as it is in the workplace, is to provide people with choices about where to work and learn.

One environmental factor that is also important is technology. Access to the Internet is now almost as important as access to fresh water, daylight and air. Indeed the UK's House of Lords recently ruled that broadband should be considered a utility in exactly the same way as water and electricity.

In the context of a learning environment, the challenge is to take it for granted that there is access to WiFi and address the complexities of how the digital environment works in conjunction with the physical environment.

The role of technology

Technology is the core driver of change in the modern world. Indeed we may now consider technology to be the core strategic enabler of learning in higher education just as it is in the workplace. This is not merely about seeing technology as infrastructure but instead as part of the learning environment in exactly the same way as a building.

We may understand this but also acknowledge that, when it comes to forming predictions about the long term impact of technology, we should always be wary of making them with too much certainty. Most forecasts tend to rely on an extrapolation of current trends, when we should know that the complexity of modern life and the emergence of new ideas and technologies are likely to render them useless, at least in the long term. This is invariably a challenge for designers and occupiers of buildings who must meet current needs and anticipate change over the whole lifecycle of a space. So it is important to create spaces that are flexible to cope with the likely direction of change. In this regard there appear to be a number of identifiable trends in technology for learning.

Personalisation

This is not just apparent in the modular nature of a growing number of courses, but also in the environments created to deliver them.

Just as students are offered greater choice in their learning pathways as part of a modular, technology based curriculum based across a number of platforms, so too are we able to create different spaces in which they can learn and work. This can gear the experience both to their specific interests and personal preferences.

This degree of personalisation has spawned a number of new models of higher education. Some courses now offer the option for students to study course materials in their own time via an Internet portal. This type of blended learning has implications for the physical environment because time spent in a building with tutors and fellow students is not focussed on study but instead on collaborative work, problem solving and discussions.

Some courses take this one step further so that even collaborative work is carried out online via videoconferencing or other technology.

This appears to suit some people and may be more applicable in certain fields of study but doubts have been expressed about the learning experience it offers.

The most widely talked about manifestation of this in recent years has been the MOOC (massive open online class) that allows students to access materials and lectures from a remote educational institution. Although interest in the MOOC as a model of learning appears to be on the wane, it nevertheless has proved to be one of the tipping points in the uptake of new ways of creating learning environments.

Data and measurement

As in all walks of life, data is becoming an essential part of the decision making process. In an educational context it allows assessment of a student to be made continuously rather than in the lumps known as exams, improving experiences and outcomes for both students and their tutors and institutions. When such data is agglomerated it aids strategic decision making about courses and processes.

The main technology involved in this process is the learning management system (LMS), an application for the administration, documentation, tracking, reporting and delivery of courses. LMS applications are used by nearly all Higher Education Institutions.

A 2014 survey found that 99 percent of institutions already had an LMS in place, and on average, 85 percent of faculty use it, whereas 56 percent of students report using the LMS in most if not all of their courses.

The same ideas about continuous data can be applied to the physical environment. For example, room booking technology not only improves the day-to-day access tutors and students have to different learning environments, they also accumulate data about which spaces are used most and in what ways, allowing decision makers to divest or reassign spaces to create the most effective mix.

The integration of physical and digital space

According to the NMC Horizon Report: 2015 Higher Education, more universities are creating "emerging models of education" such as the flipped classroom, in which content is delivered online and lecturers use their time with students to discuss and explain rather than to disseminate knowledge.

This can work across institutions, allowing them to share expertise and resources. This requires the creation of spaces that incorporate "large displays and screens to enable collaboration on digital projects".

As a result, the report concludes, university classrooms will "start to resemble real-world work and social environments that facilitate organic interactions and cross-disciplinary problem solving".

The new goals of modern learning environments

- ***More efficient use of space***
- ***Sharing of knowledge***
- ***Learner centredness***
- ***Use of technology***
- ***Identity***
- ***Group cohesion***
- ***Facilitating creativity***
- ***Inclusivity***
- ***Accessible to all***
- ***Preparation for world of work***
- ***Empowering***
- ***Flexible***

Australia's University of Western Sydney is given as an example of a university that has updated its curriculum to take account of the new realities.

"By 2016, all undergraduate courses will be offered in blended form," the Horizon report explains. "To support this new structure, the university created collaborative learning spaces that support group activities outside of classroom settings through mobile furniture, dual projection screens, and maximized wall-writing surfaces."

The most obvious manifestation is the shift away from desks arranged in lines facing a tutor towards more relaxed and collaborative settings

The four forms of learning environment

There is no universal solution to the challenge of designing effective learning environments, but a contemporary approach should largely reject the didactic model and instead focus on four key characteristics as outlined below. It may be that certain spaces are able to offer one or more of the needs addressed here. It could be that they are each distinct. In all cases they should intersect, provide choices and support instructors and students in making the right choices.

We should also acknowledge that many of the roles of these spaces can be fulfilled outside of the institution.

Focussed learning can take place in a student's own rooms as well as a library. Collaborative work is just as likely to prove successful over a coffee as it is in a formal meeting space. These things have always been true.

Learner centred space

The shift in the use of physical space towards more active and collaborative learning models is inevitably reflected in its design. The most obvious manifestation of this is the shift away from rooms in which desks are arranged in lines facing a tutor or lecturer towards more relaxed and collaborative settings. This format is rooted in the outmoded models of learning from our past.

A team based environment on the other hand is learner focussed. It may consist of circular tables or soft seating. It is unlikely to focus its attention on the 'front of the room'. Teams of students work collaboratively with the instructor working as their mentor or guide.

It is likely that technology will support this idea. Rather than having a single projector operated at the front of the room, wireless networking enables everybody to act as presenter, either projecting work from their own device or sharing it remotely with others. In this scenario, the instructor is able to guide learning via their own laptop or tablet.

Focussed space

Everybody needs time to acquire and develop the knowledge they need to support their ideas, creativity and interactions with others. Focus is essential. The traditional setting for such work was often the library or a private room and those remain essential, often providing us with a model setting for such work. Such settings are inherently rich in the information needed to acquire a deep and broad knowledge of a particular subject or discipline.

This is particularly important when it comes to contextualising knowledge by providing the context for knowledge, offering up different sources of information to enrich the learning process and a setting that allows for focus and critical thought. Students should be surprised by what they learn and discover, not the interruptions of neighbours or devices.

Assessment space

The process of assessment, both continuous and test based, should also be reflected in specific types of learning environments.

In a modern context this is most obviously manifested in the chance to offer students feedback and guidance on their work and development, based in part and increasingly on the data that their

There's nothing new about agile working

One of the most talked about office design trends right now is activity based working. The principle itself is pretty simple: it means work that is based on a range of specific activities which people do in a number of different and appropriate locations. Because it is something of an alternative to the tradition of personal workstations and because it allows people to work both in a traditional workplace (albeit in task specific zones) as well as other places, it is usually associated with the wider trend towards more flexible forms of working.

It is also somewhat controversial; partly because it is seen as something of a radical departure from what we might still consider mainstream office design. And yet, in an historical context, it is activity based working that is the norm.

When seen in this light it is the idea of one person working at one desk that stands out as a peculiarly 20th Century idea, beginning with what is widely seen as the first truly modern office, Frank Lloyd Wright's Larkin Building from 1903 in New York State, which lasted until technology became more mobile during the 1990s and authors such as Frank Duffy and Franklin Becker captured the idea that the office could become a series of spaces in which people could work depending on what they needed to do.

But even in the 1990s there was nothing really new to all this. In fact most of us are introduced to this idea at a very early age. It is school and later higher education that provides the archetype of the building for learning, sharing, working quietly, interacting and taking breaks. Students, lecturers and teachers alike move constantly to the best space for what they need to do; classrooms, labs, break areas, gyms, computer rooms, workshops, seminar rooms, media spaces, assembly halls and whatever, each fitted out with the right furniture, materials, resources and equipment. Schools embody activity based working.

work generates by itself in real time.

Formative assessments of this type typically work best with direct, face to face interactions. This might include feedback on reports, papers, work in progress. Often these will take place on a one to one basis and in private.

So the setting becomes about the interpersonal relationship between student and instructor and should be part of a continuous if not intrusive process of monitoring and development.

Summative assessments on the other hand take place at the end of a period of work and often in a single hit.

These are the tests and exams that may be specific to a particular course or as part of nationally agreed assessments for qualifications. The exam room, with its constraints on interactions and interruptions remains the closest remaining adaptation we have of the traditional didactic model.

While formative assessments are one of the most obvious manifestations of the changing ways we learn, the summative assessment proves that somethings never change, if only because there is no better way we have yet discovered.

Collaborative spaces

Community based environments are essential in the context of what we now understand about how people learn. These are the setting that can create positive feedback loops of development for those people that use them to collaborate. Mistakes or a lack of understanding are not punished as they had been in the past, but treated as a chance for individuals and the group to improve. This encourages personal development and the formation of new ideas.

Although on the surface these may look somewhat like traditional classrooms, the processes involved and the culture represented are very different. This change in focus should be evident in the design of the room.

As it is in a business setting, this could include focus on the centre of the group, not its apex. This should emphasise that the contributions of all members of the group are valid and not just those of the instructor or the extroverts of the group itself.

Conclusion

Throughout our history we have never had a better chance to create outstanding learning spaces. We have never known more about how people learn and we have never had such powerful technological and cultural tools at our disposal to help them do this in the ways that suit them best as individuals and part of a group. This is an opportunity we should not miss by clinging to old models of didactic learning that have their roots in a different world to the one in which we now live.

As in all walks of life, the settings we create should reflect these new norms. They should acknowledge that different people learn in different ways and offer them a choice of types of learning and the spaces in which they take place. They should reflect the complex processes that take place over a period of learning and personnel development and provide the bridge between the digital and physical worlds of learning.

Above all they should foster creativity and personal development, build strong relationships, look the future and offer everybody a sense of pride in what they do and where they do it.

We have never known more about how people learn and we have never had such powerful technological and cultural tools at our disposal

About Boss Design

Founded in 1983, Boss Design is one of the UK's market leading manufacturer of high quality office seating, upholstery and tables, and enjoys global success within this design-led sector.

The company leads by example and continues to improve on the delivery of an intelligent and evolving portfolio, whilst maintaining the best ethical standards. Now employing more than 200 people across the globe, Boss Design has a wealth of experience in helping to enhance customers' corporate environments, offering choice, reliability and exceptional service.

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