Building the Future of Learning

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The Context

The UK capital investment in school building in 1997 was £700 million. The Schools for the Future (BSF) programme (www.bsf.gov.uk), by comparison, has enormous capital investment that has grown to over £5 billion a year in 2005–06. BSF is the biggest single government investment in improving UK school buildings for over 50 years and aims to rebuild or renew every secondary school in England over the next 15 years. But it is not only in schools that investment is being made — Universities in England, now in receipt of tuition fees, have increased access to capital, and those in Scotland have special funding for estates development. So what can new buildings deliver in terms of learning futures? The BSF programme talks about transformation, 21st-century schools, and about environments that will inspire learners:

> School buildings should inspire learning. They should nurture every pupil and member of staff. They should be a source of pride and a practical resource for the community.

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As well as buildings, BSF also involves significant investment in ICT (Information and Communications Technology) that, combined with investment in staff development, seeks to promote a step-change in the quality of secondary school provision. The Saltire Centre (described below) is also part of an overall strategy that parallels that of BSF by focusing on buildings as part of a tripartite approach with people and technology. The development of the Saltire Centre was accompanied by structural changes in staffing structures and the deployment of a range of technology services. The usual structures of University library service, IT service and student services were integrated into a single University Learning Service, new technologies such as wireless networking and self service online access providing information and support combine with the building in an holistic approach to the delivery of the student experience.

  BSF is an example of one national programme that is indicative of a worldwide interest in educational building. Further evidence of the extent of this interest is documented by the Organisation for Economic Co-operation and Development in both its Compendium of Exemplary Education Facilities (OECD, 2006a) and 21st Century Learning Environments (OECD, 2006b) publications. These publications showcase educational building projects from around the world that are judged to

be the best. The focus of much of this work is on stunning architecture but real success will rely on the interplay and partnership between architecture and educational purpose.

It is clearly educational purpose that should drive educational building projects. To undertake an educational build or refurbishment project and not produce a product that is fit for purpose from the day it opens would be unthinkable. However, important as this is, far more important is that any project must result in facilities that serve the unknown needs of the future. Whilst we know how things are today, predicting what the future might be like is risky, the only certainty being that we do not know what it will be like. Not only is the future unknowable but we also know, as Christensen tells us (Christensen, 1997), that if our buildings are new and innovative they may initially perform less well than current facilities. Hence the dilemma. If we base our decisions on available evidence it is unlikely that we will ever change at all. If we base our decisions on an unknown future it may not measure up to current expectations. It is my view that, faced with this dilemma, we must be prepared to take some risks. Forensic examination of data about the past, the major part of most planning strategies, will not produce innovative solutions for the future. What really matters is the broad lessons we take from the past, the weak signals in the current environment, and our beliefs and values about what we are trying to achieve. We have to imagine the learning futures that we wish to create — and be prepared to be wrong. Such imaginings form the basis of a Creative World View approach to vision, strategy and planning proposed by George Land and Beth Jarman in their book *Breakpoint and Beyond* and described concisely in the following way: '. . . the reference point is the future, not the past. We don't need to fall back on the past for our decisions. Choices are based on alignment with our purpose and our vision for a different world' (Land & Jarman, 1992).

Having a clear vision and purpose, in this context, about the future of learning is a powerful driver of any educational building project that seeks to innovate. Clarity of vision is key to developing the brief for the project and managing the relationship with architects and designers to ensure that the final product delivers the vision.

The Saltire Centre

The Saltire Centre at Glasgow Caledonian University opened on January 30th 2006. The building is organised across 5 floors and has 10,500 square metres of space. It took 3 years to plan and build, cost around £23 million including fit out, and was completed within budget and on time. It is a library, has 1800 study spaces and provides a one-stop shop for the delivery of all services for students at the University. The focus of this article, however, is the role of the Saltire Centre in providing innovative learning space.

Key Influences and Themes

There are many influences on any building project as the project and related conversations with interested parties progress. Some of the key themes in respect of students and their learning that shaped the Saltire Centre, and which are of general interest in respect of educational building provision, were:

(i)   Flexible open space
(ii)   A spectrum of spaces
(iii)   Our expectations of students
(iv)   A role for conversational learning
(v)   Learning as a social process
(vi)   Some characteristics of modern students
(vii)   The recognition of individual difference
(viii) The integration of IT in the building
(ix)   The importance of design
(x)   Third places

Each of these themes which influenced the thinking during the planning of the building is discussed below.

(i) Flexible Open Space

The uncertainty about the future mentioned earlier is a key issue. Buildings that we build today are likely to still be in service many years from now and need to remain fit for the purposes of the day. The Saltire Centre has mainly open flexible space that allows reconfiguration to be undertaken relatively easily. This use of open flexible space is an attempt to address the uncertainty about the future of learning. The concept of pace layering (Brand, 1994, Morville, 2005) sees a building as a series of layers that have differing life spans. The site itself has an eternal life, whereas the building structure might last 50 to 100 years. Other layers such as the external cladding of the building or the interior walls might have a life of 20 years with internal design, decoration and furniture lasting for 5 to 10 years. In a rapidly moving world it makes sense to locate the capacity for change in those items with the shortest life span and avoid, if possible, creating some of the layers, such as internal dividing walls, that have a medium term life span and are a potential barrier to accommodating changing activities. In the Saltire Centre, as it is designed primarily around open flexible space, reconfiguration is achieved by reorganisation or replacement of furniture. Making this an open plan building that has its interior environments defined by its furniture, with the potential for change embedding in short life layers of the building, ensures a considerable degree of future proofing.

(ii) A Spectrum of Spaces

There is a natural reluctance in traditional organisations to accept open flexible space where personal cellular space has been the norm. However, as outlined above, the inherent flexibility offered by open plan environments enables easy reconfiguration should this be needed in the future. Rather than adopt polarised views of either open or cellular there are possibilities in semi private space. In the Saltire Centre some of the study space provided is for silent, reflective, study. This is on the top floor of the five-storey building. Whilst much of the space in the building allows and encourages conversation, the 'resource' wall in the atrium ensures that the upper floors are separate and easily controlled environments enabling the quiet environment to be maintained on the top floor.

On other floors between the extremes of the quiet top floor and the highly interactive ground floor there is variety ensuring that somewhere there is some-

thing for everyone. Acknowledging the need for occasional privacy in what is essentially an open plan building, temporary structures have been used to create semi-private spaces. This spectrum between private and open space has received little attention in most educational building projects. The Saltire Centre provides several types of semi-private space from inflatable igloo style offices, bespoke canopies over tables that have writing surfaces on their inner faces, to utility walls that can screen off an area and provide new technology for presentations. These structures not only provide a mid way between open and cellular, but also fit with the life span strategy outlined in (i) above as they are relatively low cost and easily replaceable.

(iii) Our Expectations of Students

Whilst 'curriculum delivery' in universities continues to be focused largely around lectures (now supplemented with extensive online content delivery) backed up with some seminar and tutorial work, what is demanded of students focuses on activities such as group work, problem-based learning, project work, and performance-based assessments. For the student, finding a place to undertake this interactive group work on a traditional campus is not straightforward — libraries traditionally demand silence — so it is no surprise then that many students end up working in the refectory without access to the information resources that they need. This observation initiated an experiment in 2001 with a Learning Café, REAL@Caledonian, in the old Library building to provide much needed interactive learning space. This was never intended to be just a café, cybercafé or internet café — it was a conscious attempt to provide a learning environment that made use of technology, had a wide variety of seating styles and was designed like an open plan office. The success of REAL@Caledonian based on observed use and feedback from users provided a firm foundation for the creation of similar space in the Saltire Centre.

(iv) A Role for Conversational Learning

The Learning Café was developed around the concept of an environment that was for people and their learningful conversations. It was created to be that space in the Library that students could use for their group assignments, problem-solving work, and projects that they are continually asked to undertake. This simple idea is based on the premise that 'all learning starts with conversation' (Seely Brown & Duguid, 2000). At root it is clear that we do not fully understand an idea or concept until we have tested it against the understandings of others. Conversation is the natural human way to do this and should therefore be encouraged between our students and our staff. Like Seely Brown, the Nobel prize winning physicist Richard Feynman recognised the power of conversation, especially when the concept is extended to the personal reflective conversations that we have with ourselves: 'When I was a kid growing up in Far Rockaway, I had a friend named Bernie Walker. We both had "labs" at home, and we would do various "experiments". One time, we were discussing something — we must have been 11 or 12 at the time — and I said, "But thinking is nothing but talking to yourself inside." ' (Feynman, 2000). An important aim of the Saltire Centre was to provide a wide variety of spaces that encouraged conversations of all kinds, those that take place formally

around a table perhaps under a semi private canopy, others that are informal, sitting around on beanbags drinking coffee, and private reflections that are 'thinking to yourself inside' on the silent upper top floor of the building.

(v) Learning as a Social Process

John Seely Brown also believes that 'learning is a remarkably social process. In truth, it occurs not as a response to teaching, but rather as a result of a social framework that fosters learning'. Conversations, and the inevitable accompanying social interaction are central to the Learning Café and the Saltire Centre. This theme of the sociality of learning, which sees knowledge, or indeed intelligence, as both a social construct and a result of social interaction, is rooted in a Vygotskian social constructivist view of the world (Pass, 2004). The configuration of our public facilities as a learning commons that encourages such interaction and capitalises on the power of sociality as a source of learning also challenges our view of what 'social' means on our campuses, lifting it above gratuitous sociality to sociality with educational purpose. Providing an environment that is inherently conversational and offers a social context for the learning that takes place was a key driver of much of the space development in the Saltire Centre.

(vi) Some Characteristics of Modern Students

Our students are members of the creative class — the majority of them will take up posts in professions with a high component of knowledge and information-related work. Research into these creative class people (Florida, 2000) identifies shifts in their attitudes such as preference for experiences: 'Experiences are replacing goods and services because they stimulate our creative faculties and enhance our creative capacities. This active, experiential lifestyle is spreading and becoming more prevalent in society . . .' (Florida, 2000). Making our buildings 'an experience' is a fresh perspective that demands we think about their look and feel in considerable detail. With the advent of the personal computer and ubiquitous connectivity we imagined that the need for place and community might reduce. Not so says Florida's research: 'The death-of-place prognostications simply do not square with the countless people I have interviewed, the focus groups I've observed, and the statistical research I've done. Place and community are more critical factors than ever before . . . the economy itself increasingly takes form around real concentrations of people in real places' (Florida, 2000).

It is clear that successful 21st century universities will be those that relate to, and compete with, real world experiences, ensuring that they remain relevant to the broadest possible section of society. The importance of thinking of our buildings as experiences cannot be underestimated. The designer Karim Rashid expresses this well in point number 43 of a 50-point manifesto: 'Experience is the most important part of living, and the exchange of ideas and human contact is all there really is. Space and objects can encourage increased experiences or detract from our experiences' (www.karimrashid.com). In the Saltire Centre these thoughts caused us to reflect on how we could use design (see below) to make the building an experience.

(vii) The Recognition of Individual Difference

The spaces in which we work, live, and learn can have profound effects on how we feel, how we behave, how we perform and can affect different people differently. This is not an exact science — but spaces can also limit the possibilities of our activity, restricting us to old modes of working and thinking. Importantly, the learning spaces we develop have the potential not only to change the way that we work but also to play to our individual difference and preference. If we design our learning spaces with the variety that exists in our learners we will be providing the maximum opportunity for each and every learner to achieve. It is clear from research in educational psychology that we all have a wide range of facets to our personal intelligence (Gardner, 1999a; Gardner, 2006) — and consequently are all differently intelligent. Much of the debate on Multiple Intelligence theory focuses on the number and 'types' of intelligences and the nature of intelligence itself, missing the key point, as identified by Gardner (Gardner, 1999a) — the recognition of individual differences in intelligences which challenges not just our one size fits all educational system but its inherent unfairness. As Gardner states: 'In times past, schools have been uniform, in the sense that they taught the same materials in the same way to all students, and even assessed all students in the same ways. This procedure may have offered the illusion of fairness, but in my view it was not fair, except to those few blessed students strong in the linguistic and logical domains. If one seeks an education for all human beings, one that helps achieve his or her potential, then the educational process needs to be conceived quite differently' (Gardner, 1999b). One clear message emerges from this — the existence of individual differences and the inherent variety of needs exhibited by learners.

These recognised differences form a basis for the current thinking by government and others on personalisation (OECD, 2006c). The launch document for the BSF programme mentioned earlier states: 'The key to the Government's vision is learning personalised to the needs, interests and aptitudes of individual pupils'. However, such personalisation represents a daunting challenge: '. . . to what extent should the individual fit the system or the system the individual?' (West Burnham & Coates, 2005). Can we really develop an education system that plays to the skills, abilities, capabilities and landscape of intelligences of the individual? Can we afford not to? Personalisation, then, is a powerful idea not just driven by a government agenda for schools, but also by the potential of new technologies, and ideas in current educational thinking.

An education that acknowledges individual difference rather than ignores it demands a new approach to what it provides and how it provides it. In the context of learning, the Saltire Centre had to have the capability to respond to this variety of need and the flexibility to respond differently at different points in the university year. For example, pre-examination pressures are likely to demand more individual study environments whereas assignment deadlines might require more peer group collaboration so, not only variety, but also the capacity to reorient areas of the building within an academic year were important and again required flexibility. Experience with the Learning Café and the clear need to provide a wide variety of learning space drove us to provide a multiplicity of microenvironments in the new building described by our architect, Colin Allan, of Building Design Partnership, as from the monastic to the mall. Some of these have been briefly described above

in the section on a spectrum of spaces. Other elements of creating different look and feel to the spaces in the building are covered below in the section on design.

(viii) The Integration of IT in the Building

Technology is an important strand of the tripartite approach mentioned above. However, despite over 30 years of the use of IT in education, we have generally had limited success, a point acknowledged by Charles Clarke, former minister for education in England, in his introduction to *Fulfilling the Potential — Transforming teaching and learning through ICT in schools*, where he states 'However, the potential for real transformation [with ICT] remains largely untapped'. As practitioners, we are torn between an objective, target driven, performance assessment culture that reduces achievement to a single assessed dimension and our own intuitive, value driven beliefs and will to do it better. It is therefore not surprising that initiatives such as the 'implementation' of new technologies rarely achieve their aspirations: 'When teachers adopt technological innovations these changes typically maintain rather than alter existing classroom practices' (Cuban, 2001). This clear lack of widespread progress suggests to me that we take a step back and adopt a different view that puts technology in context. The recent interest in learning space is part of this broader look and a genuine attempt to do it better. Technology, as always, is in transition — so the Saltire Centre has fixed wired desktop machines along with laptops that can be borrowed that will make use of the 54g wireless network in the building. However, in both the learning café and the Saltire Centre technology has been deployed as a support to student learning and not to dominate it. The café has 80 computers for 200 seats and the Saltire Centre has 600 for 1800 seats — approximately a 1:3 computer to seat ratio in each case. The intent here is to use the technology to connect learners (Papert, 1996) rather than divide them internet café or information commons style with one student per computer and to embed technology making its use a more 'natural' part of the learning process.

(ix) The Importance of Design

I have already mentioned the range of study space provided. Design was key to achieving this. The ground floor of the Saltire Centre, the services mall, provides 600 seats for social learning containing a café and wide range of seating from informal to formal. This 'mall' is separated from the other 4 floors of the building by a resource wall so that each floor has an easily managed separate environment. The upper floors are accessed by crossing the bridges from the circulation tower into each floor. This is an example of design at the macro level that has worked very successfully to enable the creation and maintenance of separate environments within the building. However, in the Saltire Centre, we have also paid detailed attention to many aspects of design — the design of the building itself, the interior design, and the way in which services are offered in the building. Design has also played an important part in the development of the inflatable 'igloo' spaces, canopies, and utility walls to provide semi private spaces. But it has also been taken further than this for each floor has a different graphic 'metaphor' from the busy city on the ground floor, through the first floor airport departure lounge and up the building to the silent top floor which uses a domestic living room metaphor. The

behavioural consequences of these metaphors are strengthened by the use of colour in the glass walls and carpets — hot colours downstairs and cool colours upstairs, and the use of sounds that give clues to expected behaviour as users pass through doorways, such as the 'ssssshh' that users hear as they enter the top floor of the building.

Design is but a language. If you have nothing to say it won't help you
(Bang & Olufsen)

From the preceding sections it is clear that we had a lot to say in the building — design has been the tool of choice for saying it.

(x) Third Places

The Saltire Centre is a building for people providing inspirational space for interaction, conversation and learning. It also provides the full range of library services and access to all of our services for students. Within the building there's a multitude of micro-environments from the busy hubbub of social interaction in the ground floor café and services mall to the silent top floor. Imaginative graphics are used to convey a different look and feel on each floor supplemented by the careful use of colour and acoustic signing to send subtle messages to users about the expected behaviour in each zone. The Saltire Centre provides an inspirational learning venue for our students, and as Richard Florida states it is a third place: 'Third places are neither home nor work — the "first two" places — but venues like coffee shops, bookstores and cafes in which we find less formal acquaintants. These comprise "the heart of a community's social vitality" where people go for good company and lively conversation' (Florida, 2000). The concept of the third place is common in the commercial sector. Some of the common features of third places are the opportunity for users to walk through or 'mall', spectacular things to see, and purposeful engagement (Mikunda, 2004). The walkways and large ground floor space, stunning public works of art, and stimulating graphics make the Saltire Centre something unusual — an educational third place.

ENDNOTE

The Saltire Centre acknowledges current educational thinking on the social nature of learning, the importance of conversational learning, and individual difference by providing a range of flexible study space and access to technology. And it goes beyond this aiming to be that essential 'third place' in the lives of those who visit it, becoming an essential part of the lifestyle of the emerging creative class, making learning vitally experiential.

FURTHER INFORMATION

At www.realcaledonian.ac.uk there is a description of the Learning Café Real@Caledonian that includes a 6 minute video introduced by Magnus Magnusson, the former Chancellor of Glasgow Caledonian University, and giving the views of a range of students on the facility.

At www.campus.gcal.ac.uk there is a description of the campus development at Glasgow Caledonian University that includes a computer generated walk through of the Saltire Centre.

At www.gcal.ac.uk/learningservices/synergy there are electronic versions of the magazine Synergy produced by Learning Services at Glasgow Caledonian University. Each issue has articles on technology in education and the Saltire Centre

At www.caledonian.ac.uk/thesaltirecentre you can find more information on the Saltire Centre.

Les Watson's website is at www.leswatson.net

REFERENCES

Building Schools for the Future — www.bsf.gov.uk

BRAND, S. (1994) *How Buildings Learn — What happens after they're built* (London, Penguin).

CHRISTENSEN, C. M. (1997) *The Innovator's Dilemma* (Boston, Harvard Business School Press).

CUBAN, L. (2001) *Oversold and Underused: Computers in the Classroom* (Cambridge, Mass., Harvard University Press).

FEYNMAN, R. P. (2000) *The Pleasure of Finding Things Out* (London, Penguin).

FLORIDA, R. (2000) *The Rise of the Creative Class: And How It's Transforming Work, Leisure, Community and Everyday Life* (New York, Basic Books).

GARDNER, H. (1999a) *Intelligence Reframed: Multiple Intelligences for the 21st Century* (New York, Basic Books).

GARDNER, H. (1999b) *The Disciplined Mind: What all students should understand* (New York, Prentice Hall).

GARDNER, H. (2006) *The Development and Education of the Mind* (Oxford, Routledge).

LAND, G. & JARMAN, B. (1992) *Breakpoint and Beyond Mastering the Future — Today* (Harper Business).

MIKUNDA, C. (2004) *Brand Lands, Hot Spots and Cool Spaces: Welcome to the Third Place and the Total Marketing Experience* (Frankfurt/Wien, Kogan Page).

MORVILLE, P. (2005) *Ambient Findability* (Sebastopol, CA., O'Reilly).

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT, CENTRE FOR EDUCATIONAL RESEARCH AND INNOVATION (2006a) *PEB — Compendium of Exemplary Educational Facilities*, 3rd Edition (Paris, OECD Publishing).

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT, CENTRE FOR EDUCATIONAL RESEARCH AND INNOVATION (2006b) *21st Century Learning Environments* (Paris, OECD Publishing).

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT, CENTRE FOR EDUCATIONAL RESEARCH AND INNOVATION (2006c) *Schooling for Tomorrow, Personalising Education* (Paris, OECD Publishing).

PAPERT, S. (1996) *The Connected Family: Bridging the Digital Generation Gap* (Longstreet Press).

PASS, S. (2004) *Parallel Paths to Constructivism: Jean Piaget and Lev Vygotsky* (Information Age Publishing).

KARIM RASHID "*Karimanifesto*", www.karimrashid.com

SEELY BROWN, J. & DUGUID, P. (2000) *The Social Life of Information* (Boston, Harvard Business School Press).

WEST BURNHAM, J. & COATES, M. (2005) *Personalizing Learning: Transforming Education for Every Child* (Stafford, Network Educational Press Ltd).